ANTHROPOLOGY EIGHTH EDITION HAVILAND

WILLIAM A. HAVILAND

University of Vermont



ANTHROPOLOGY EIGHTH EDITION

HARCOURT BRACE COLLEGE PUBLISHERS

FORT WORTH PHILADELPHIA SAN DIEGO NEW YORK ORLANDO AUSTIN SAN ANTONIO

TORONTO MONTREAL LONDON SYDNEY TOKYO

DEDICATION

In Memory of David P. Boynton (1921—1995)

Recipient of the American Anthropological Association's
Distinguished Service Award, 1985. The man whose idea this book was,
and who saw it through the first three editions.

A wise soul

Publisher CHRISTOPHER P. KLEIN

Senior Acquisitions Editor STEPHEN T. JORDAN

Developmental Editor AMY HESTER

Project Editor JEFF BECKHAM

Production Manager DEBRA A. JENKIN

Art Director BURL DEAN SLOAN

Picture Editor SANDRA LORD

Photo Research CHERI THROOP

Cover Image: Photo by Gary Logan. Photo Layout and Concept: Burl Dean Sloan.

ISBN: 0-15-503578-9

Library of Congress Catalog Card Number: 96-76369

Copyright © 1997 by Harcourt Brace & Company Copyright © 1994, 1991, 1989, 1985, 1982, 1978, 1974 by Holt, Rinehart and Winston, Inc.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording or any information storage and retrieval system, without permission in writing from the publisher.

Requests for permission to make copies of any part of the work should be mailed to: Permissions Department, Harcourt Brace & Company, 6277 Sea Harbor Drive, Orlando, Florida 32887-6777.

Address for Editorial Correspondence: Harcourt Brace College Publishers, 301 Commerce Street, Suite 3700, Fort Worth, TX 76102.

Address for Orders: Harcourt Brace & Company, 6277 Sea Harbor Drive, Orlando, FL 32887-6777. 1-800-782-4479, or 1-800-433-0001 (in Florida).

(Copyright Acknowledgments begin on page 798, which constitutes a continuation of this copyright page.)

Harcourt Brace College Publishers may provide complimentary instructional aids and supplements or supplement packages to those adopters qualified under our adoption policy. Please contact your sales representative for more information. If as an adopter or potential user you receive supplements you do not need, please return them to your sales representative or send them to:

Attn: Returns Department Troy Warehouse 465 South Lincoln Drive Troy, MO 63379.

Printed in the United States of America 6 7 8 9 0 1 2 3 4 5 048 10 9 8 7 6 5 4 3 2 1

Using ANTHROPOLOGY A Guide to Learning from Your Textbook

Anthropology, Eighth Edition, is designed to give students a thorough introduction at the college level to the principles and processes of anthropology. It covers the basic divisions of anthropologyphysical and cultural anthropology, including ethnology, linguistics, and prehistoric archaeology-and presents the key concepts and terminology truly relevant to each.

Anthropology, Eighth Edition,

- provides a unifying theme. Although each chapter has been developed as a self-contained unit of study, a common theme runs through all the chapters: Cultures must produce behavior that is generally adaptive.
- ensures readability. Using numerous and colorful examples, Dr. Haviland presents even

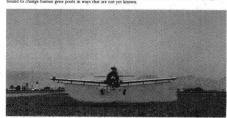
Original Studies: These unique selections are from case studies and other original works of men and women who have done, or are doing, important anthropological work. Each study sheds additional light on some important anthropological concept or subject area found within the chapter.

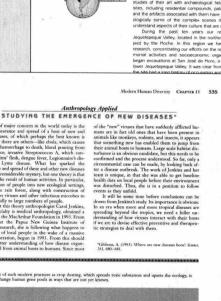
Anthropology Applied: These boxed features demonstrate the many "practical" applications of anthropological knowledge, the important work being done by anthropologists outside of academic settings, and the variety of careers pursued by anthropologists.

- the most difficult concepts in prose that is clear, straightforward, and easy for today's first- and second-year students to understand.
- maintains a moderate length. The textbook is of sufficient length to avoid superficiality, yet it does not present more material than can reasonably be dealt with in the space of a single semester.

The following pages will introduce you to the many features of Anthropology, Eighth Edition, and show you how to use the learning aids provided to enhance your study of anthropology.

Original Study





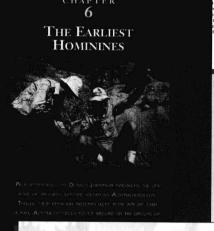
JANE GOODALL





Bioboxes: Throughout the textbook, profile boxes provide biographical information about important people in the field of anthropology.

Illustrations: Dr. Haviland has chosen numerous four-color photos to make important anthropological points by catching the student's eye and mind. The line drawings, maps, charts, and tables were selected especially for their usefulness in illustrating, emphasizing, or clarifying certain anthropological concepts.



CHAPTER PREVIEW

What Is Culture?

What Is Culture?

Culture consists of the alstract values, beliefs, and perceptions of the world that lie behind people's behavior and which are reflected in their behavior. These are shared by members of a society, and when acted upon, they produce behavior considered acceptable within that society. Cultures are learned, largely through the medium of language, rather than inherited biologically, and the parts of a culture function as an integrated whole.

How Is Culture Studied?

Anthropologists, like children, learn about a culture by experiencing it and talking about it with those who live by its rules. Of course, rarn, but are more systematic in the way they learn, but are more systematic in the way they learn discussion with informants who are particularly k culture, the anthropologist abstracts a set of rule behave in a particular.

Why Do Cultures

People maintain cultures to deal with problems survive, a culture must satisfy the basic needs of for its own continuity, and provide an orderly ext In dong so, a culture must strike a balance beva and the needs of society as a whole. And finally, change in order to adapt to new circumstan existing circumstan

Previews and Summaries: Each chapter begins with a set of "preview" questions, providing a framework for studying the contents of the chapter. At the end of each

chapter is a summary containing the kernels of the most important ideas presented in the chapter.

Suggested Readings and Bibliography: At the conclusion of each chapter is a list of suggested readings that will supply the inquisitive student with further information about specific anthropological points in which they may be interested. A complete bibliography can be found at the end of the book.

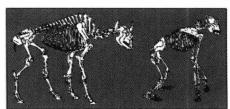
Running Glossary: This textbook has a running glossary that catches the student's eye as he or she reads and reinforces the meaning of each newly introduced term.

Pronunciation Guide: Inside the front and back covers, a pronunciation guide is given to aid students in learning and pronouncing unfamiliar words that appear throughout the textbook.

Putting the World in Perspective: This section, found in the introduction to the book, illustrates for students the many ways in which the globe can be viewed. A discussion of cartography and projections shows their benefits to anthropology.

SUGGESTED READINGS

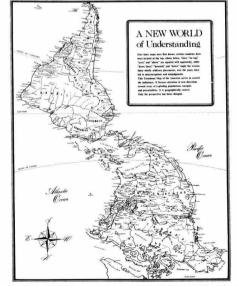
A. M. (1977). People and races. New York:



Pentadactyly: Possessing five digits (fingers and toes

Clavicle: The "collarbone."

PRONUNCIATION GUIDE





PREFACE

PURPOSE

The aim of Anthropology is to give the student a thorough introduction to the principles and processes of anthropology, the basic divisions of anthropology (physical and cultural anthropology, including ethnology, linguistics, and prehistoric archaeology), and the key concepts and terminology germane to each. Because it draws from the research and ideas of a number of schools of anthropological thought, this book will expose students to a mix of such approaches as evolutionism, historical particularism, diffusionism, functionalism, French structuralism, and structural functionalism. Each of these approaches has important things to say about human behavior. Thorough and scholarly in its coverage, the book is simply written and attractively designed to appeal to students. They will find that it pleases as it teaches.

UNIFYING THEME

Although each chapter has been developed as a self-contained unit of study, a common theme runs through all the chapters to convey to students how material in one chapter relates to that in others.

In earlier editions, I referred to this common theme as one of environmental adaptation, although I was never very happy with that phrase. Its principal defect is that it implies a simplistic behavioral response to environmental stimuli. But, of course, people don't just react to an environment as given; rather, they react to it as they perceive it, and different groups of people may perceive the same environment in radically different ways. People also react to things other than the environment: their own biological natures, for one, and their beliefs, attitudes, and the consequences of their own behavior, for others. All of these things present them with problems, and people maintain cultures to deal with problems, or matters that concern them. To be sure, their cultures must produce

behavior that is generally adaptive, or at least not maladaptive, but this is not the same as saying that cultural practices necessarily arise because they are adaptive in a particular environment.

OUTSTANDING FEATURES

Readability

A book may be the most elegantly written, most handsomely designed, most lavishly illustrated text available on the subject; but if it is not interesting, clear, and comprehensible to the student, it is valueless as a teaching tool.

This book presents even the most difficult concepts in prose that is clear, straightforward, and easy for today's first- and second-year students to understand, without feeling that they are being "spoken down to." Technical terms appear in boldfaced type, are carefully defined within the text, and are defined again in the glossary in simple, clear language.

Numerous and colorful examples have been utilized to illustrate, emphasize, and clarify anthropological concepts. A cross-cultural perspective, often including the student's own, is introduced wherever appropriate, allowing the student to see comparisons of cultural practices in several different societies.

Original Studies

A unique feature of this textbook is the Original Study that appears in each chapter. These studies consist of selections from case studies and other original works of men and women who have done, or are doing, important anthropological work. Each study sheds additional light on some important anthropological concept or subject area found within the chapter.

The Original Studies help give students a "feel" for how anthropologists actually go about

studying humans and their behavior. Because women have always been an important part of the anthropological enterprise, and students need to realize this, women are well-represented as authors of Original Studies in the eighth edition—14 of the 27 studies were written by women.

Illustrations

Another means of appeal is through the use of illustrations and other graphic materials. In this textbook, numerous four-color photos have been used to make important anthropological points. Many are unusual in that they are not the "standard" anthropological textbook photographs; each has been chosen because it complements the text in some distinctive way. The line drawings, maps, charts, and tables were selected especially for their usefulness in illustrating, emphasizing, or clarifying certain anthropological concepts.

Previews and Summaries

Each chapter begins with a set of preview questions, providing a framework for studying the contents of the chapter. At the end of each chapter is a summary containing the kernels of the most important ideas presented in the chapter. The summaries provide handy reviews without being so long and detailed as to seduce the student into thinking that he or she can get by without reading the chapter itself.

Suggested Readings and Bibliography

At the conclusion of each chapter is a list of suggested readings that will supply the inquisitive student with further information about specific anthropological points in which they may be interested. In addition, the bibliography at the end of the book contains a listing of more than 500 books, monographs, and articles from scholarly journals and popular magazines on virtually every topic covered in the text.

Glossary

This textbook has a running glossary that catches the student's eye as he or she reads and reinforces the meaning of each newly introduced term. It is also useful for chapter review.

ADVANTAGES OF THE EIGHTH EDITION

The planning of the eighth edition of *Anthropology* was based on extensive review and criticism by users of the seventh edition as well as users of other textbooks. Many features of the seventh edition were maintained in this new edition, including coverage of gender issues in each and every chapter of the book. Presentation of applied anthropology through boxed features in 20 chapters demonstrates the many "practical" applications of anthropological knowledge, the important work being done by anthropologists outside of academic settings, and the variety of careers pursued by anthropologists.

The major changes from the seventh edition consist of the following:

- ◆ The old chapter on the earliest hominines has become two separate chapters: Chapter 6 on Australopithecus, and Chapter 7 on Homo sapiens and cultural origins.
- Similarly, the old chapter on Homo sapiens has been split into two: Chapter 9 on archaic sapiens and the Middle Paleolithic, and Chapter 10 on anatomically modern sapiens and the Upper Paleolithic.

This splitting of chapters makes material in what had been two especially concentrated chapters easier for students to grapple with. Other important changes include:

- Chapters 5 and 6: new discussion of the possible relation of bipedal locomotion to keeping brains cool
- Chapters 7, 8, and 15: new discussion of language origins
- ◆ Chapter 8: new discussion of evidence for *Homo erectus*' use of fire in Africa
- Chapter 9: new discussion of evolution of the human birth pattern and its possible significance for the development of empathy
- Chapter 10: expanded coverage of Upper Paleolithic art, especially in Africa and Europe
- Chapter 11: expanded coverage of early domestication of plants in Africa and the Americas
- **Chapter 12:** new discussion of a Moche tomb

- ◆ Chapter 13: new discussion of the Bell curve debate
- ◆ Chapter 14: new discussion of how cultural relativism does not prevent one from being critical of particular practices
- ◆ Chapter 16 (and followed up in Chapters 24 and 25): new discussion of the meanings of the terms Bushman, San, and Ju/'hoansi for people of the Kalahari Desert and the rest of southern Africa, and new discussion of altered states of consciousness and the question of normal and abnormal behavior
- Chapter 17: new discussion of slash-and-burn farming
- ♦ Chapter 18: new discussion of money
- ◆ Chapter 23: new discussion of the different popular, legal, and anthropological meanings of "tribe"
- Chapter 24: new description of Bushman trance dance
- ◆ Chapter 25: new reference to the political debate over arts funding in the United States, and new discussion of pictorial art
- Chapter 27: revision of material on the human rights situation in Guatemala

In addition, 12 of the 27 Original Studies are new. Their topics include:

- ◆ Chapter 1: "Tales From the Trukese Taproom" by Mac Marshall
- ◆ Chapter 4: "The Intellectual Abilities of Orang-utans" by H. Lyn White Miles
- ◆ Chapter 5: "Catopithecus and Anthropoid (Catarrhine and Platyrrhine) Origins" by Elizabeth Culotta
- ◆ Chapter 6: "The Naked and the Bipedal" by Tim Folger
- ◆ Chapter 10: "Paleolithic Paint Job" by Roger Lewin
- ◆ Chapter 12: "Finding the Tomb of a Moche Priestess" by Christopher B. Donan and Luis Jaime Castillo
- ◆ Chapter 13: "Race Without Color" by Jared Diamond
- ◆ Chapter 17: "Gardens of the Mekranoti Kayapo" by Dennis Werner
- ◆ Chapter 22: "Genocide in Rwanda" by Alex de Waal

- ◆ Chapter 24: "Healing Among the Ju/'hoansi of the Kalahari" by Marjorie Shostak
- Chapter 25: "Bushman Rock Art and Political Power" by Thomas A. Dowson and J. D. Lewis-Williams
- ◆ Chapter 27: The Psychological Impact of Impunity" by Judith Zur

There are two new "Anthropology Applied" features:

- Chapter 13: "Studying the Emergence of New Diseases"
- Chapter 23: "African Public Defender and Legal Aid Training Exchange"

In addition, there is one new "Biobox" on Jane Goodall in **Chapter 4.**

SUPPLEMENTS TO THE TEXTBOOK

The following supplements were prepared by Cynthia Keppley Mahmood of the University of Maine, Orono.

Study Guide and Workbook

A Study Guide and Workbook is provided to aid student comprehension of the textbook material. Each chapter of the Study Guide begins with a synopsis of the corresponding textbook chapter and a concise list of learning objectives. The Study Guide furnishes review sections for key terms and names, review questions, map identification exercises, and practice questions in a variety of formats: fill-in-the-blank, multiple-choice, true/false, matching, and essay. An answer key is supplied with each practice section.

Instructor's Manual

An *Instructor's Manual* is available for teachers. Each chapter of the Instructor's Manual begins with a synopsis of the corresponding textbook chapter and a list of teaching objectives. A review of each chapter provides a more detailed narrative of what is covered in the textbook, including a summary of the Original Study feature and Anthropology Applied feature that appears in the

chapter. This section is followed by a listing of the key terms from the textbook. Suggestions are given for exercises, assignments, and research topics related to the chapter. In addition, the Instructor's Manual provides suggestions for other resources that might complement the main text, such as films, transparencies, and ancillary readings.

Test Bank

An extensive *Test Bank* includes multiple-choice, matching, essay, true/false, and short answer questions. The Test Bank contains more than 2,000 questions, approximately 75 per chapter.

Computerized Test Bank

Available in IBM, Macintosh, and Windows formats, *EXAMaster*+ software allows you to create tests using fewer keystrokes. Easy-to-follow screen prompts guide you step-by-step through test construction. *EXAMaster*+ gives you three ways to create tests:

- EasyTest lets you create a test from a single screen. It compiles a test using questions you've chosen from the database or randomly selects questions based on the parameters you specify.
- ◆ FullTest gives you a whole range of options for test creation. With FullTest, you may: select questions as you preview them on screen, edit existing questions, or add your own questions; add or edit graphics (in MS-DOS version); link related questions, instructions, and graphics; have questions randomly selected from a wider range of criteria; create your own criteria on two open keys; block specific questions from random selection; print up to 99 different versions of the same test and answer sheet.
- ◆ RequesTest is for the instructor without access to a computer. You may call our Software Support Line and order tests that conform to your criteria. Harcourt Brace will compile the test and either mail or fax it to you within 48 hours.

Overhead Transparencies

A set of 65 color transparencies corresponding to *Anthropology*, Eighth Edition, is also available to instructors.

HARCOURT BRACE VIDEOS AND VIDEODISCS

Anthropology in Focus Video

Harcourt Brace and Films for the Humanities and Sciences have created an exciting new video, Anthropology in Focus, to accompany William A. Haviland's anthropology textbooks. Each 10-minute segment on the video directly corresponds to an "Anthropology Applied" box in the textbook. Each segment includes "Ideas and Questions to Focus On," which helps prepare the student for the concepts the video is about to present and shows how the video footage relates to the "Anthropology Applied" boxes in each chapter.

Faces of Culture Telecourse and Study Guide

Valerie L. Lee and Richard T. Searles, Coast Community College District

Reflecting the philosophy that culture exists in unique forms as the expression of values, behavior, and social organization, *Faces of Culture* demonstrates the inherent logic of different societies based on problem-solving and adaptation. Twenty-six half-hour programs feature segments filmed under the supervision of anthropologists. Some show people who are seldom filmed; all are handled with great sensitivity. The accompanying *Study Guide* leads students through the course and provides reading and viewing assignments, study activities, and practice test questions.

The Infinite Voyage Video and Videodisc

The Infinite Voyage video series provides four hours of high-interest coverage in anthropology and archaeology. The series contains an exciting compilation of on-location, interview, laboratory, and candid footage. Available on either four one-hour videos or a two-volume set of CLV videodiscs.

The Millennium: Tribal Wisdom and the Modern World Video

Hosted by world-renowned anthropologist David Maybury-Lewis, *The Millennium: Tribal Wisdom and the Modern World* is a video series of ten 60-minute programs presenting a riveting and beautifully photographed exploration of tribal cultures, their lifestyles, and their practices.

Out of the Past Video

Culture, politics, and other fixtures of modern life have been passed down to us by ancient ancestors. In *Out of the Past*, archaeologists examine physical remnants of ancient empires side-by-side with practices of modern societies to trace and understand the evolution of humankind. Each one-hour program includes an excellent introduction to the disciplines of archaeology and anthropology. The programs reveal the scientific detective work that helps scholars build a living picture of a long-dead culture. From the Annenberg/CPB Video Series Collection.

ACKNOWLEDGMENTS

Many people assisted in the preparation of this book, some directly, some indirectly. In the latter category are all of the anthropologists under whom I was privileged to study at the University of Pennsylvania: Robbins Burling, William R. Coe, Carleton S. Coon, Robert Ehrich, Loren Eisley, J. Louis Giddings, Ward H. Goodenough, A. Irving Hallowell, Alfred V. Kidder II, Wilton M. Krogman, Froelich Rainey, Ruben Reina, and Linton Satterthwaite. They may not always recognize the final product, but they all contributed to it in important ways.

A similar debt is owed to all those anthropologists with whom I have worked or discussed research interests and the field in general. There are too many of them to list here, but surely they have had an important impact on my own thinking, and so on this book.

This revision also benefits from my continued association with valued colleagues at the University

of Vermont: Robert Gordon, William E. Mitchell, Carroll McC. P. Lewin, Sarah Mahler, Stephen L. Pastner, Marjory Power, Peter A. Thomas, and A. Peter Woolfson. All have responded graciously at one time or another to my requests for sources and advice in their various fields of expertise. We all share freely our successes and failures in trying to teach anthropology to introductory students.

In 1984, I was given the opportunity to participate in a free and open discussion between textbook authors and users at the American Anthropological Association's Annual Meeting (a session organized and chaired by Walter Packard and the Council on Anthropology and Education). From this I got a good sense of what instructors at institutions ranging from community colleges to major universities were looking for in anthropology textbooks; subsequent insights have come from a special symposium on the teaching of anthropology at the University of Vermont in 1986 (organized by A. Peter Woolfson), a meeting of textbook authors with members of the Gender and the Anthropology Curriculum Project at the American Anthropological Association's Annual Meeting in 1988, and (most recently) a special session on Central Themes in the Teaching of Anthropology at the American Anthropological Association's Annual Meeting in 1990 (organized by Richard Furlow). To the organizers and sponsors of all these events, my sincere thanks.

Thanks are also due the anthropologists who made suggestions for this edition. They include the James Baenen, following: Seattle Central Community College; Donna Birdwell-Pheasant, Lamar University; Barbara Butler, University of Wisconsin, Stevens Point; Dennis Choate, Macomb Community College; Bonnie Glass-Coffin, Utah State University; Sandra Gray, University of Kansas; Corwin Hale, Harrisburg Area Community College; Raymond Hames, University of Nebraska, Lincoln; Francis B. Harrold, University of Texas, Arlington; S. Homes Mississippi Hogue, State University; Hollinsworth, Edmonds Community College; Richard Holmer, Idaho State University; Lloyd Miller, Des Moines Area Community College; John Nass, California University of Pennsylvania; Jon Osmundson, Bellevue Community College; James Provinzano, University of Wisconsin, Oshkosh; Laura Putsche, University of Idaho; Bruce D. Roberts, University of Southern Mississippi; Sissel Schroeder, Pennsylvania State

University; Karl Steinen, West Georgia College; Mark A. Tromans, Broward Community College, Davie; William Wedenoja, Southwest Missouri State University; Loy Glenn Westfall, Hillsborough Community College; and Randolph Widmer, University of Houston.

All of their comments were carefully considered; how I have responded to them has been determined by my own perspective of anthropology, as well as my thirty years of experience with undergraduate students. Therefore, neither they nor any of the other anthropologists mentioned here should be held responsible for any shortcomings in this book.

I also wish to acknowledge my debt to a number of non-anthropologists who helped me with this book. The influence of the late David Boynton, winner of the 1985 Distinguished Service Award of the American Anthropological Association and my editor at Holt, Rinehart and

Winston until his retirement in 1983, I am sure lingers on. Helpful in seeing this edition through to publication have been my editors Stephen T. Jordan and Amy Hester; both have been a pleasure to work with. I also wish to thank the skilled production and marketing teams: Jeff Beckham, Debra Jenkin, Sandra Lord, Julie McBurney, and Burl Sloan.

The greatest debt of all is owed my wife, Anita de Laguna Haviland, who has had to put up with my preoccupation with this revision, reminding me when it is time to feed the livestock or play midwife to the sheep in the barn. As if that were not enough, it was she who fed revised text into the word processor. Finally, she has been a source of endless good ideas on things to include and ways to express things. The book has benefited enormously from her involvement.

William A. Haviland

ABOUT THE AUTHOR

Dr. William A. Haviland is professor of anthropology at the University of Vermont, where he has taught since 1965. He holds bachelor's, master's, and doctoral degrees in anthropology from the University of Pennsylvania and has published widely on archaeological, ethnological, and physical anthropological research carried out in Guatemala, Maine, and Vermont. He also has applied experience, having appeared as an expert witness in court on behalf of the aboriginal fishing rights of the Abenaki Indians in Vermont. Dr. Haviland is a member of many professional societies, including the American Anthropological Association and the American Association for the Advancement of Science.

In 1988, Dr. Haviland participated in the project on *Gender and the Anthropology Curriculum* sponsored by the American Anthropological Association. One of his greatest loves is teaching, which originally prompted him to write *Anthropology*. He says he learns something new every year from his students about what they need to get out of their first college course in anthropology. In addition to writing *Anthropology*, Dr. Haviland has authored two other popular Harcourt Brace textbooks for anthropology students.



TABLE OF CONTENTS

PART I

		HUMANKIND			

1 THE NATURE OF ANTHROPOLOGY 4

Development of Anthropology 6

Anthropology and the Other Sciences 7

The Discipline of Anthropology 8

Physical Anthropology 8

Anthropology Applied: Forensic Anthropology 9

Cultural Anthropology 10

Original Study: Two Tales from the Trukese Taproom 15

Anthropology and Science 21

Difficulties of the Scientific Approach 22

Anthropology and the Humanities 26

Questions of Ethics 27

Anthropology and Contemporary Life 27

2 METHODS OF STUDYING THE HUMAN PAST 30

Methods of Data Recovery 32

The Nature of Fossils 33

Original Study: Peat Holds Clues to Early American Life 34

Sites and Fossil Localities 36

Site and Locality Identification 37

Anthropology Applied: Cultural Resource Management 40

Site and Locality Excavation 40

State of Preservation of Archaeological and Fossil Evidence 43

Sorting Out the Evidence 44

Dating the Past 47

Methods of Relative Dating 47

Methods of Chronometric Dating 48

Chance and the Study of the Past 50

3 BIOLOGY AND EVOLUTION 54

Heredity 56

The Transmission of Genes 56

Population Genetics 62

The Stability of the Population 62

Factors for Change 63

Mutation 63

Genetic Drift 64

Gene Flow 65

Natural Selection 66

Charles R. Darwin (1809-1882) 67

Adaptation 68

The Case of Sickle-Cell Anemia 69

Evolution of Populations 71

Speciation 72

Isolating Mechanisms 73

The Nondirectness of Evolution 74

PART II

PRIMATE EVOLUTION AND THE EMERGENCE OF THE HOMININES 79

4 MONKEYS, APES, AND HUMANS: THE MODERN PRIMATES 82

The Classification System 84

The Primate Order 85

Primate Characteristics 88

Primate Sense Organs 88

The Primate Brain 89

The Primate Dentition 90

The Primate Skeleton 91

Reproduction and Care of Young 93

Establishing Evolutionary Relationships 95

Modern Primates 95

Strepsirbines 96

Haplorhines 96

The Social Behavior of Primates 99

Anthropology Applied: Primate Conservation 100

The Group 100

Individual Interaction 102

Jane Goodall (b. 1934) 103

Sexual Behavior 104

Play 104

Communication 104

Home Ranges 106

Learning 106

Original Study: The Intellectual Abilities of Orang-utans 107

Use of Objects as Tools 112

Hunting 112

Primate Behavior and Human Evolution 113

5 FOSSIL PRIMATES 116

Primate Fossils 118

Mammalian Evolution and Primate Origins 118

Rise of the Primates 120

Paleocene Primates 121

Eocene Primates 122

Original Study: Catopithecus and Anthropoid (Catarrhine

and Platyrrhine) Origins 123

Oligocene Monkeys and Apes 125

Miocene Apes 127

Sivapithecines 128

Sivapithecines and Human Origins 129

Sivapithecine Adaptations 130

Early Apes and Human Evolution 134

6 THE EARLIEST HOMININES 136

Australopithecus 138

A. afarensis and africanus 140

A. robustus and A. boisei 144

Louis 5. B. Leakey (1903–1972), Mary Leakey (1913–) 147

Australopithecus anamensis and Ardipithecus ramidus 147

Environment, Diet, and Australopithecine Origins 149

Humans Stand on Their Own Two Feet 150

Original Study: The Naked and the Bipedal 152

PART III

EVOLUTION OF THE GENUS *Homo* AND THE DEVELOPMENT OF EARLY HUMAN CULTURE 159

7 EARLY HOMO AND CULTURAL ORIGINS 162

Early Representatives of the Genus Homo 164

Relations Between Homo habilis and Australopithecus 166

Lower Paleolithic Tools 168

Olduvai Gorge 168

Oldowan Tools 169

Tools, Meat, and Brains 172

Original Study: Cat in the Human Cradle 173

Adrienne Zihlman (b. 1940) 178

The Earliest Signs of Culture: Tools 179

Cooperation and Sharing 179

Language Origins 181

8 HOMO ERECTUS AND THE EMERGENCE OF HUNTING AND GATHERING 184

Homo erectus Fossils 186

Homo erectus from Java 186

Homo erectus from China 186

Homo erectus from Africa 188

Homo erectus from Europe 189

Physical Characteristics of Homo erectus 190

Relationship Between Homo erectus and Homo habilis 191

The Culture of Homo erectus 191

The Acheulean Tool Tradition 191

Original Study: Homo erectus and the Use of Bamboo 193

Use of Fire 197

Other Aspects of Homo erectus' Culture 199

9 ARCHAIC HOMO SAPIENS AND THE MIDDLE PALEOLITHIC 204

The Appearance of Homo sapiens 206

The Levalloisian Technique 207

Archaic Homo sapiens 207

African, Chinese, and Javanese Populations 209

The Culture of Archaic Homo sapiens 210

Middle Paleolithic 210

Original Study: Subsistence Practices of Mousterian Peoples 212

The Symbolic Life of Neandertals 215

Neandertals and Spoken Language 215

Archaic Homo sapiens and Modern Human Origins 216

Franz Weidenreich (1873-1948) 217

The "Eve" or "Out of Africa" Hypothesis 219

10	HOMO SAPI	ENS AND T	HE IPPER	PALEOLITHIC	224
TV.	TROWING SZUTI	12/ VO A NIJ I	FID. UFFER	PALEARITH	- 7.

Upper Paleolithic Peoples: The First Modern Humans 226

Upper Paleolithic Tools 227

Anthropology Applied: Stone Tools for Modern Surgeons 228

Upper Paleolithic Art 233

Original Study: Paleolithic Paint Job 235

Other Aspects of Upper Paleolithic Culture 239

The Spread of Upper Paleolithic Peoples 239

Where Did Upper Paleolithic Peoples Come From? 241

The Mesolithic Era 243

Mesolithic Tools and Weapons 243

Cultural Diversity in the Mesolithic 245

Major Paleolithic and Mesolithic Trends 246

PART IV

HUMAN BIOLOGICAL AND CULTURAL EVOLUTION SINCE THE OLD STONE AGE 251

11 CULTIVATION AND DOMESTICATION 254

The Mesolithic Roots of Farming and Pastoralism 257

The Neolithic Revolution 257

Domestication: What Is It? 257

Evidence of Early Plant Domestication 257

Evidence of Early Animal Domestication 258

Beginnings of Domestication 259

Why Humans Became Food Producers 260

V. Gordon Childe (1892-1957) 261

Other Centers of Domestication 266

The Spread of Food Production 269

Culture of Neolithic Settlements 270

Earliest Full-Fledged Farming Settlements 271

Jericho: An Early Farming Community 271

Neolithic Technology 272

Social Structure 274

Neolithic Culture in the New World 274

The Neolithic and Human Biology 275

Original Study: History of Mortality and Physiological Stress 276

The Neolithic and the Idea of Progress 278

12 THE RISE OF CITIES AND CIVILIZATION 282

What Civilization Means 284

Tikal: A Case Study 285

Surveying the Site 286

Evidence from the Excavation 286

Cities and Cultural Change 289

Agricultural Innovation 289

Diversification of Labor 290

Anthropology Applied: Economic Development and Tropical Forests 291

Central Government 292

Social Stratification 296

Original Study: Finding the Tomb of a Moche Priestess 297

The Making of Civilization 302

Theories of Civilization's Emergence 302

Civilization and Stress 305

13 MODERN HUMAN DIVERSITY 310

Variation and Evolution 312

Physical Variability 312

The Meaning of Race 314

Race as a Biological Concept 315

Original Study: Race Without Color 315

The Concept of Human Races 321

Some Physical Variables 323

Skin Color: A Case Study in Adaptation 324

The Social Significance of Race: Racism 327

Race and Behavior 327

Race and Intelligence 328

Intelligence: What Is It? 330

Continuing Human Biological Evolution 332

Anthropology Applied: Studying the Emergence of New Diseases 335

PART V

CULTURE AND SURVIVAL: COMMUNICATING, RAISING CHILDREN, AND STAYING ALIVE 341

14 THE NATURE OF CULTURE 344

The Concept of Culture 346

Characteristics of Culture 346

Culture Is Shared 346

Anthropology Applied: New Houses for Apache Indians 351

Culture Is Learned 351

Leslie A. White (1900-1975) 353

Culture Is Based on Symbols 353

Culture Is Integrated 353

A.R. Radcliffe Brown (1881-1955) 354

Studying Culture in the Field 355

Bronislaw Malinowski (1884-1942) 356

Original Study: The Importance of Trobriand Women 357

Culture and Adaptation 360

Functions of Culture 361

Culture and Change 361

Culture, Society, and the Individual 362

Evaluation of Culture 363

15 LANGUAGE AND COMMUNICATION 368

The Nature of Language 371

The Sound and Shape of Language 372

The Gesture-Call System 375

Kinesics 376

Paralanguage 378

Linguistic Change 380