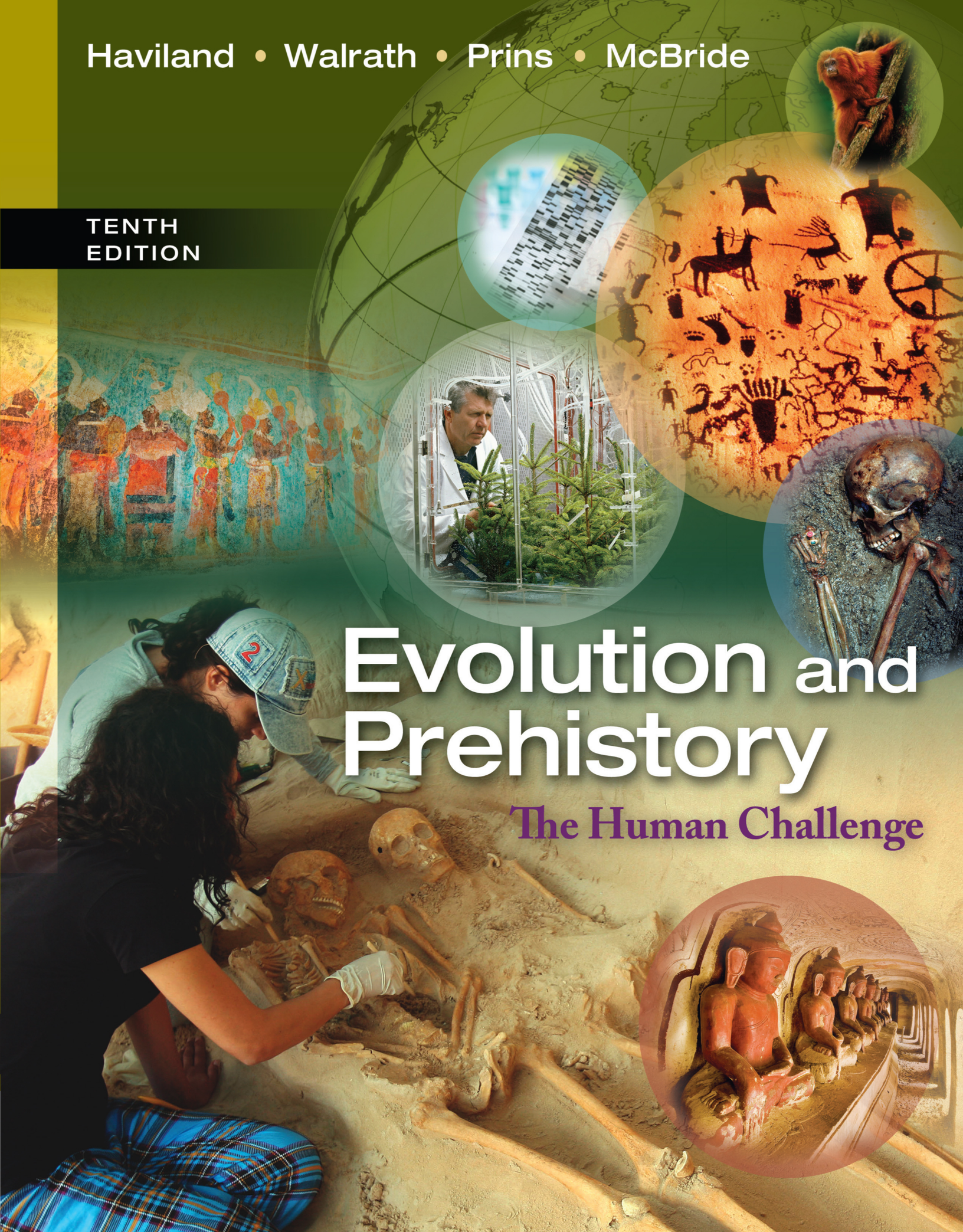


Haviland • Walrath • Prins • McBride

TENTH
EDITION

Evolution and Prehistory

The Human Challenge



Tenth Edition

EVOLUTION AND PREHISTORY

THE HUMAN CHALLENGE

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Evolution and Prehistory: The Human Challenge,
Tenth Edition

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Cover Designer: Larry Didona

Cover Image: Cave with eleven sitting Buddhas,
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Library of Congress Control Number: 2012949868

Student Edition:

ISBN-13: 978-1-285-06141-2

ISBN-10: 1-285-06141-1

Loose-leaf Edition:

ISBN-13: 978-1-285-06145-0

ISBN-10: 1-285-06145-4

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Belmont, CA 94002-3098
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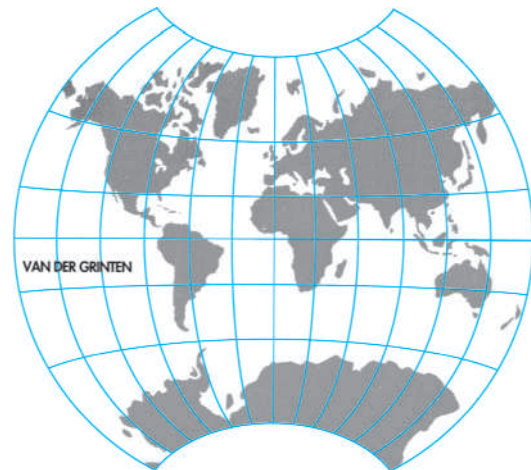
To **Philip Tobias** (1925–2012), South African paleoanthropologist and antiapartheid activist whose integration of scientific and political facts profoundly shaped evolutionary discourse, the social fabric in his beloved homeland, and countless scholars from across the globe and a diverse range of disciplines who were fortunate to call him professor.

Putting the World in Perspective

Although all humans we know about are capable of producing accurate sketches of localities and regions with which they are familiar, **cartography** (the craft of mapmaking as we know it today) had its beginnings in 16th-century Europe, and its subsequent development is related to the expansion of Europeans to all parts of the globe. From the beginning, there have been two problems with maps: the technical one of how to depict on a two-dimensional, flat surface a three-dimensional spherical object, and the cultural one of whose worldview they reflect. In fact, the two issues are inseparable, for the particular projection one uses inevitably makes a statement about how one views one's own people and their place in the world. Indeed, maps often shape our perception of reality as much as they reflect it.

In cartography, a **projection** refers to the system of intersecting lines (of longitude and latitude) by which part or all of the globe is represented on a flat surface. There are more than a hundred different projections in use today, ranging from polar perspectives to interrupted "butterflies" to rectangles to heart shapes. Each projection causes distortion in size, shape, or distance in some way or another. A map that correctly shows the shape of a landmass will of necessity misrepresent the size. A map that is accurate along the equator will be deceptive at the poles.

Perhaps no projection has had more influence on the way we see the world than that of Gerhardus Mercator, who devised his map in 1569 as a navigational aid for mariners. So well suited was Mercator's map for this purpose that it continues to be used for navigational charts today. At the same time, the Mercator projection became a standard for depicting landmasses, something for which it was never intended. Although an accurate navigational tool, the Mercator projection greatly exaggerates the size of landmasses in higher latitudes, giving about two-thirds of the map's surface to the northern hemisphere. Thus the lands occupied by Europeans and European descendants appear far larger than those of other people. For example, North America (19 million square kilometers) appears almost twice the size of Africa (30 million



square kilometers), whereas Europe is shown as equal in size to South America, which actually has nearly twice the landmass of Europe.

A map developed in 1805 by Karl B. Mollweide was one of the earlier *equal-area projections* of the world. Equal-area projections portray landmasses in correct relative size, but, as a result, distort the shape of continents more than other projections. They most often compress and warp lands in the higher latitudes and vertically stretch landmasses close to the equator. Other equal-area projections include the Lambert Cylindrical Equal-Area Projection (1772), the Hammer Equal-Area Projection (1892), and the Eckert Equal-Area Projection (1906).

The Van der Grinten Projection (1904) was a compromise aimed at minimizing both the distortions of size in the Mercator and the distortion of shape in equal-area maps such as the Mollweide. Although an improvement, the lands of the northern hemisphere are still emphasized at the expense of the southern. For example, in the Van der Grinten, the Commonwealth of Independent States (the former Soviet Union) and Canada are shown at more than twice their relative size.

The Robinson Projection, which was adopted by the National Geographic Society in 1988 to replace the Van der Grinten, is one of the best compromises to date between the distortions of size and shape. Although an improvement over the Van der Grinten, the Robinson Projection still depicts lands in the northern latitudes as proportionally larger at the same time that it depicts lands in the lower latitudes (representing most Third World nations) as proportionally smaller. Like European maps before it, the Robinson Projection places Europe at the center of the map with the Atlantic Ocean and the Americas to the left, emphasizing the cultural connection between Europe and North America, while neglecting the geographic closeness of northwestern North America to northeastern Asia.

The following pages show four maps that each convey quite different cultural messages. Included among them is the Peters Projection, an equal-area map that has been adopted as the official map of UNESCO (the United Nations Educational, Scientific, and Cultural Organization), and a map made in Japan, showing us how the world looks from the other side.

The Robinson Projection

The map below is based on the Robinson Projection, which is used today by the National Geographic Society and Rand McNally. Although the Robinson Projection distorts the relative size of landmasses, it does so much

less than most other projections. Still, it places Europe at the center of the map. This particular view of the world has been used to identify the location of many of the cultures discussed in this text.





The Peters Projection

The map below is based on the Peters Projection, which has been adopted as the official map of UNESCO. Although it distorts the shape of continents (countries near the equator are vertically elongated

by a ratio of 2 to 1), the Peters Projection does show all continents according to their correct relative size. Though Europe is still at the center, it is not shown as larger and more extensive than the Third World.





Japanese Map

Not all maps place Europe at the center of the world, as this Japanese map illustrates. Besides reflecting the importance the Japanese attach to themselves in the

world, this map has the virtue of showing the geographic proximity of North America to Asia, a fact easily overlooked when maps place Europe at their center.



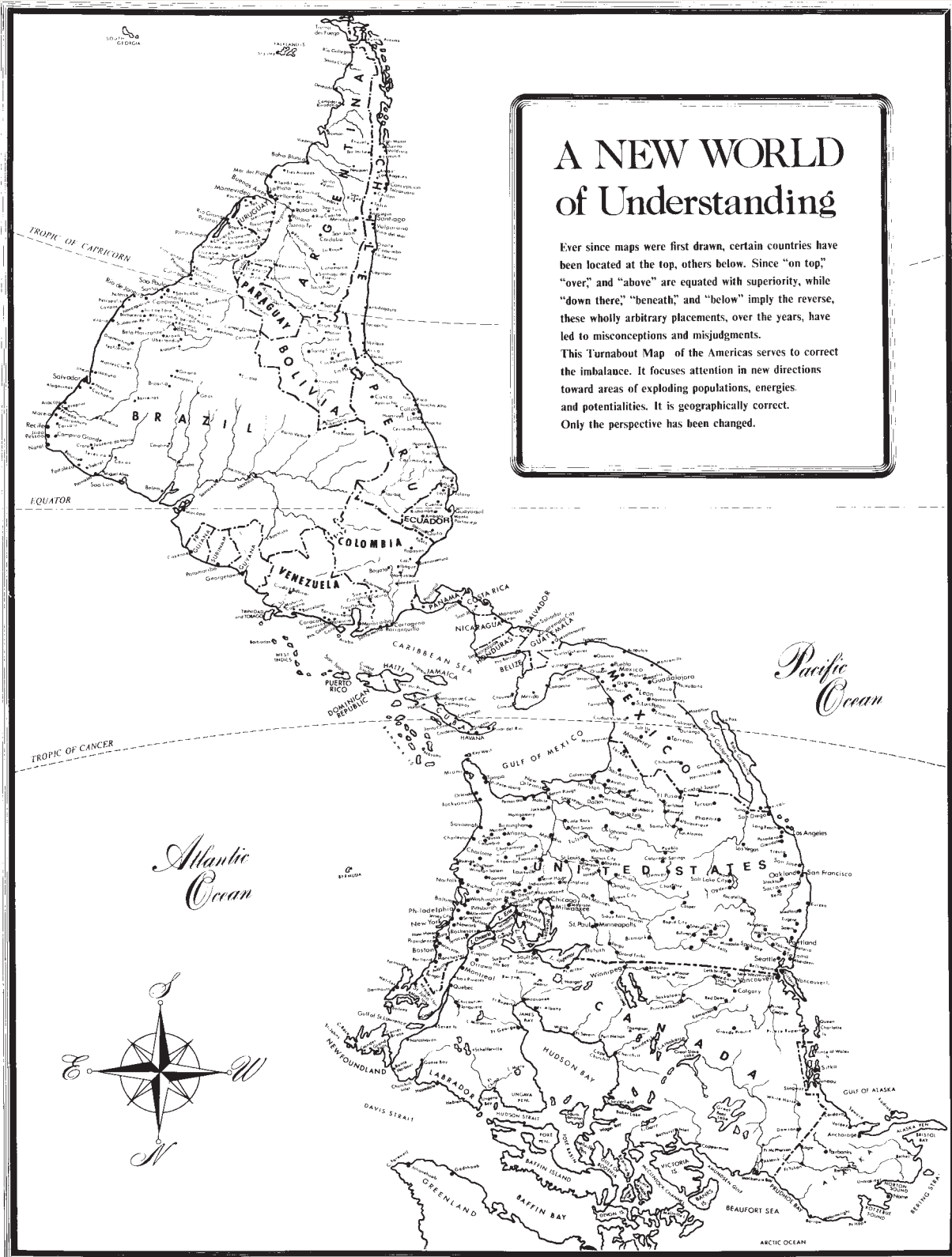


The Turnabout Map

The way maps may reflect (and influence) our thinking is exemplified by the Turnabout Map, which places the South Pole at the top and the North Pole at the bottom. Words and phrases such as “on top,” “over,” and “above” tend to be equated by some people with superiority. Turning

things upside-down may cause us to rethink the way North Americans regard themselves in relation to the people of Central America.

© 1982 by Jesse Levine Turnabout Map™—Dist. by Laguna Sales, Inc., 7040 Via Valverde, San Jose, CA 95135



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Preface

There comes a time when we need to clean out the basement—to sort through the piles clear down to the bottom, to determine what should be kept and what should be tossed, to make room for new things that warrant a place in a limited space. That’s what has happened with this edition of *Evolution and Prehistory: The Human Challenge*—more thoroughly revised than any new edition since Bill Haviland took on coauthors a dozen years ago.

Evolution and Prehistory: The Human Challenge introduces students to biological anthropology and archaeology from an integrated, four-field anthropological perspective. By emphasizing the fundamental connection between biology and culture, the archaeology student learns more about the biological basis of human cultural capabilities and the many ways that culture has impacted human biology, past and present. Similarly, this combination provides more of the cultural context of human evolutionary history, the development of scientific thought, and present-day biological diversity than a student would get in a course restricted to biological anthropology. There has been much debate about the future of four-field anthropology. In our view, its future will be assured through collaboration among anthropologists with diverse backgrounds, as exemplified in this book.

Fueled by our own ongoing research, along with vital feedback from students and anthropology professors who have used and reviewed previous editions, we have scrutinized the archetypal examples of our discipline and weighed them against the latest innovative research methodologies, archaeological discoveries, genetic and other biological findings, linguistic insights, ethnographic descriptions, theoretical revelations, and significant examples of applied anthropology. We believe that these considerations, combined with paying attention to compelling issues in our global theater, have resulted in a lively and relevant textbook that presents both classical and fresh material in ways that stimulate student interest, stir critical reflection, and prompt “ah-ha” moments.

Our Mission

Most students enter an introductory anthropology class intrigued by the general subject but with little more than a vague sense of what it is all about. Thus,

the first and most obvious task of our text is to provide a thorough introduction to the discipline—its foundations as a domain of knowledge and its major insights into the rich diversity of humans as a culture-making species. Recognizing the wide spectrum of students enrolled in entry-level anthropology courses, we cover the fundamentals of the discipline in an engaging, illustrative fashion—creating a textbook that establishes a broad platform on which teachers can expand the exploration of concepts and topics in ways that are particularly meaningful to them and their students.

In doing this, we draw from the research and ideas of a number of traditions of anthropological thought, exposing students to a mix of theoretical perspectives and methodologies. Such inclusiveness reflects our conviction that different approaches offer distinctly important insights about human biology, behavior, and beliefs.

If most students start out with only a vague sense of what anthropology is, they often have even less clearly defined—and potentially problematic—views concerning the position of their own species and cultures within the larger world. A second task for this text, then, is to encourage students to appreciate the richness and complexity of human diversity. Along with this goal is the aim of helping them to understand why there are so many differences and similarities in the human condition, past and present.

Debates regarding globalization and notions of progress; the “naturalness” of the mother, father, child(ren) nuclear family; new genetic technologies; and how gender roles relate to biological variation all benefit greatly from the distinct insights gained through anthropology’s wide-ranging, holistic perspective. This aspect of the discipline is one of the most valuable gifts we can pass on to those who take our classes. If we as teachers (and textbook authors) do our jobs well, students will gain a wider and more open-minded outlook on the world and a critical but constructive perspective on human origins and on their own biology and culture today. To borrow a favorite line from the famous poet T. S. Eliot, we’ll know we’ve reached the end of our journey when we “arrive where we started / And know the place for the first time” (“Little Gidding” from *The Four Quartets*).

We have written this text, in large part, to help students make sense of our increasingly complex world and to navigate through its interrelated biological and cultural networks with knowledge and skill, whatever professional path they take. We see the book

as a guide for people entering the often-bewildering maze of global crossroads in the 21st century.

A Distinctive Approach

Two key factors distinguish *Evolution and Prehistory: The Human Challenge* from other introductory anthropology texts: our integrative presentation of the discipline's four fields and a trio of unifying themes that tie the book together.

Integration of the Four Fields

Unlike traditional texts that present anthropology's four fields—physical or biological anthropology, archaeology, linguistics, and cultural or social anthropology—as if they were separate or independent, our book takes an integrative approach. This reflects the holistic character of the discipline in which members of our species are studied in their totality—as social creatures biologically evolved with the inherent capacity for learning and sharing culture by means of symbolic communication. This approach also reflects our collective experience as practicing anthropologists who recognize that we cannot fully understand humanity in all its fascinating complexity unless we see the systemic interplay among environmental, physiological, material, social, ideological, psychological, and symbolic factors, both past and present.

For analytical purposes, however, we discuss physical anthropology as distinct from archaeology, linguistics, and sociocultural anthropology. Accordingly, there are separate chapters that focus primarily on each field, but the links among them are shown repeatedly. Among many examples of this integrative approach, Chapter 11, “Modern Human Diversity: Race and Racism,” discusses the social context of race and recent cultural practices that have impacted the human genome. Similarly, material concerning linguistics appears not only in the chapter on living primates (Chapter 3), but also in the chapters on primate behavior (Chapter 4), on early *Homo* and the origins of culture (Chapters 7 and 8), and on the emergence of cities and states (Chapter 10). In addition, every chapter includes a Biocultural Connection feature to further illustrate the interplay of biological and cultural processes in shaping the human experience.

Unifying Themes

In our own teaching, we recognize the value of marking out unifying themes that help students see the big picture as they grapple with the vast array of material involved with the study of human beings. In *Evolution*

and *Prehistory: The Human Challenge* we employ three such themes.

1. **Systemic adaptation.** We emphasize that every culture, past and present, like the human species itself, is an integrated and dynamic system of adaptation that responds to a combination of internal and external factors, including influences of the environment.
2. **Biocultural connection.** We highlight the integration of human culture and biology in the steps humans take to meet the challenges of survival. The biocultural connection theme is interwoven throughout the text—as a thread in the main narrative and in boxed features that highlight this connection with a topical example for nearly every chapter.
3. **Globalization.** We track the emergence of globalization and its disparate impact on various peoples and cultures around the world. European colonization was a global force for centuries, leaving a significant and often devastating footprint on the affected peoples in Asia, Africa, and the Americas. Decolonization began about 200 years ago and became a worldwide wave in the mid-1900s. However, since the 1960s, political and economic hegemony has taken a new and fast-paced form: globalization (in many ways a process that expands or builds on imperialism). Attention to both forms of global domination—colonialism and globalization—runs through *Evolution and Prehistory: The Human Challenge*, culminating in the final chapter where we apply the concept of structural power to globalization, discussing it in terms of hard and soft power and linking it to structural violence.

Pedagogy

Evolution and Prehistory: The Human Challenge features a range of learning aids, in addition to the three unifying themes described previously. Each pedagogical piece plays an important role in the learning process—from clarifying and enlivening the material to revealing relevancy and aiding recall.

Accessible Language and a Cross-Cultural Voice

In the writing of this text, we consciously cut through unnecessary jargon to speak directly to students. Manuscript reviewers have recognized this, noting that even the most difficult concepts are presented in

straightforward and understandable prose for today's first- and second-year college students. Where technical terms are necessary, they appear in bold type with a clear definition in the narrative. The definition appears again in the running glossary at the bottom of our pages, and again in a summary glossary at the end of the book.

To make the narrative more accessible to students, we deliver it in chewable bites—short paragraphs. Numerous subheads provide visual cues to help students track what has been read and what is coming next.

Accessibility involves not only clear writing enhanced by visual cues, but also an engaging voice or style. The voice of *Evolution and Prehistory: The Human Challenge* is distinct among introductory texts in the discipline because it has been written from a cross-cultural perspective. We avoid the typical Western “we/they” voice in favor of a more inclusive one to make sure the narrative resonates with both Western and non-Western students and professors. Also, we highlight the theories and work of anthropologists from all over the world. Finally, we have drawn the text's cultural examples from industrial and postindustrial societies as well as non-industrial ones.

Compelling Visuals

The Haviland et al. texts garner praise from students and faculty for having a rich array of visuals, including maps, photographs, and figures. This is important because humans—like all primates—are visually oriented, and a well-chosen image may serve to “fix” key information in a student's mind. Unlike some competing texts, all of our visuals are in color, enhancing their appeal and impact. Notably, all maps and figures are created with a colorblind-sensitive palette.

Photographs

Our pages feature a hard-sought collection of compelling, content-rich photographs. Large in size, many of them come with substantial captions composed to help students do a “deep read” of the image. Each chapter features more than a dozen pictures, including our popular Visual Counterpoints—side-by-side photos that effectively compare and contrast biological or cultural features.

Maps

Map features include our “Putting the World in Perspective” map series, locator maps, and distribution maps that provide overviews of key issues such as pollution and energy consumption. Of special note are the Globalscape maps and stories, described in the boxed features section a bit farther on.

Challenge Issues

Each chapter opens with a Challenge Issue and accompanying photograph, which together carry forward the book's theme of humankind's responses through time to the fundamental challenges of survival within the context of the particular chapter.

Student Learning Objectives, Knowledge Skills, and Chapter Checklist

New to this edition is the set of learning objectives presented at the start of every chapter just after the Challenge Issue and photograph. These objectives focus students on the main goals, identifying the knowledge skills they are expected to have mastered after studying each chapter. The main goals are incorporated in a closing Chapter Checklist, which is also new to this edition. The Chapter Checklist summarizes the chapter's content in an easy-to-follow format.

Thought-Provoking Questions

Each chapter closes with five Questions for Reflection, including one that relates back to the Challenge Issue introduced in the chapter's opening. Presented right after the Chapter Checklist, these questions ask students to apply the concepts they have learned by analyzing and evaluating situations. They are designed to stimulate and deepen thought, trigger class discussion, and link the material to the students' own lives.

In addition, the Biocultural Connection essay featured in every chapter ends with a probing question designed to help students grapple with and firmly grasp that connection.

Integrated Gender Coverage

In contrast to many introductory texts, *Evolution and Prehistory: The Human Challenge* integrates coverage of gender throughout the book. Thus, material on gender-related issues is included in *every* chapter. As a result of this approach, gender-related material in *Evolution and Prehistory: The Human Challenge* far exceeds the single chapter that most books devote to the subject.

We have chosen to integrate this material because concepts and issues surrounding gender are almost always too complicated to remove from their context. Spreading this material through all of the chapters has a pedagogical purpose because it emphasizes how considerations of gender enter into virtually everything people do. Gender-related material ranges from discussions of gender roles in evolutionary discourse and studies

of nonhuman primates to intersexuality, homosexual identity, same-sex marriage, and female genital mutilation. Through a steady drumbeat of such coverage, this edition avoids ghettoizing gender to a single chapter that is preceded and followed by resounding silence.

Glossary as You Go

The running glossary is designed to catch the student's eye, reinforcing the meaning of each newly introduced term. It is also useful for chapter review, enabling students to readily isolate the new terms from those introduced in earlier chapters. A complete glossary is also included at the back of the book. In the glossaries, each term is defined in clear, understandable language. As a result, less class time is required for going over terms, leaving instructors free to pursue other matters of interest.

Special Boxed Features

Our text includes five types of special boxed features. Each chapter contains a Biocultural Connection, along with two of the following three features: an Original Study, Anthropology Applied, and Anthropologist of Note. In addition, about half of the chapters include a Globalscape. These features are carefully placed and introduced within the main narrative to alert students to their importance and relevance. A complete listing of features is presented just before the detailed table of contents.

Biocultural Connection

Appearing in every chapter, this signature feature of the Haviland et al. textbooks illustrates how cultural and biological processes interact to shape human biology, beliefs, and behavior. It reflects the integrated biocultural approach central to the field of anthropology today. All of the Biocultural Connections include a critical thinking question. For a quick peek at titles, see the listing of features on page xiv.

Original Study

Written expressly for this text, or adapted from ethnographies and other original works by anthropologists, these studies present concrete examples that bring specific concepts to life and convey the passion of the authors. Each study sheds additional light on an important anthropological concept or subject area for the chapter in which it appears. Notably, each Original Study is carefully integrated within the flow of the chapter narrative, signaling students that its content is not extraneous or supplemental. Appearing in twelve chapters, Original Studies cover a wide range of topics, evident from their titles (see page xiv).

Anthropology Applied

Featured in four chapters, these succinct and fascinating profiles illustrate anthropology's wide-ranging relevance in today's world and give students a glimpse into a variety of the careers anthropologists enjoy (see page xiv for a listing).

Anthropologists of Note

Profiling pioneering and contemporary anthropologists from many corners of the world, this feature puts the work of noted anthropologists in historical perspective and draws attention to the international nature of the discipline in terms of both subject matter and practitioners. This edition highlights eleven distinct anthropologists from all four fields of the discipline (see page xiv for a list of the profiles).

Globalscape

Appearing in about half of the chapters, this unique feature charts the global flow of people, goods, and services, as well as pollutants and pathogens. With a map, a story, and a photo highlighting a topic geared toward student interests, every Globalscape shows how the world is interconnected through human activity. Each one ends with a Global Twister—a question that prods students to think critically about globalization. Check out the titles of Globalscapes on page xiv.

Changes and Highlights in the Fourteenth Edition

We have extensively reworked and updated this edition. Definitions of key terms have been honed. Many new visuals and ethnographic examples have been added and others dropped. Every chapter features a new opening photograph and related Challenge Issue that is revised or new. The much-used Questions for Reflection include at least one new question per chapter, plus revisions of effective questions that have been included in previous editions.

As with earlier editions, we further chiseled the writing to make it all the more clear, lively, engaging, and streamlined. On average, chapter narratives have been trimmed by about 10 percent. Also, we have eliminated the chapter "Macroevolution and the Early Primates" by incorporating relevant macroevolutionary material into our chapter on biology, genetics, and evolution (Chapter 2); the primate material from that chapter is now in the chapter on living primates (Chapter 3) and in a new Chapter 6, "From First Primates to First Biped." Material on molecular clocks, geologic time,

and continental drift is placed in the chapter on methods for studying the past (Chapter 5).

New to this edition is the list of student learning objectives at the start of every chapter, tied to the new Chapter Checklists at the end of every chapter. (Both are described in the pedagogy inventory mentioned earlier.)

In addition to numerous revisions of boxed features, many of these are completely new, including Biocultural Connections “Bonds Beyond Blood: DNA Testing and Refugee Family Unification,” “Chimpanzees in Biomedical Research: Time to End the Practice,” “Dogs Get Right to the Point,” and “Beauty, Bigotry, and the Epicanthal Eyefold of the Beholder”; Original Studies “Disturbing Behaviors of the Orangutan” by Anne Nacey Maggioncalda and Robert M. Sapolsky and “Caveat Emptor: Genealogy for Sale” by Jonathan Marks; and an Anthropology Applied essay “Pre-Columbian Fish Farming in the Amazon” by Clark L. Erickson.

Finally, we have replaced footnotes with in-text parenthetical citations, making sources and dates more visible and freeing up space for larger visuals. The complete citations appear in the references section at the end of the book.

Beyond these across-the-board changes, significant changes have been made within each chapter.

Chapter 1: The Essence of Anthropology

This chapter gives students a broad-stroke introduction to the holistic discipline of anthropology, the distinct focus of each of its fields, and the common philosophical perspectives and methodological approaches they share. It opens with a new Challenge Issue centered on the mining of coltan—the key component of capacitors in small electronic devices—illustrating our globalized world by revealing the link between the miners and students who use the devices. The lead section on the development of anthropology has been dropped to avoid redundancy with the chapter on ethnographic research. The main narrative now begins with a reworked explanation of the anthropological perspective. As revised, this discussion more carefully contrasts anthropology to other disciplines.

The chapter also offers a brief overview of fieldwork and the comparative method, along with ethical issues and examples of applied anthropology in all four fields, providing a foundation for our two methods chapters—one that explores field methods in cultural anthropology and the other that examines the tools for studying the past shared by archaeology and paleoanthropology. Our presentation of the four fields has been reorganized, starting with cultural anthropology, followed by linguistics, archaeology, and physical or biological anthropology.

This chapter’s overview of cultural anthropology has been substantially modified. Changes include a new discussion about how the concept of culture is

integral to each of anthropology’s four fields. To our narrative on the University of Arizona’s modern-day Garbage Project, we added an introductory paragraph about anthropologists studying older garbage dumps, such as shell middens, describing how much these explorations can reveal about everyday life in societies past and present.

The chapter also introduces the concept of ethnocentrism and begins a discussion of globalization that is woven through the text. In addition, this first chapter rejects the characterization of a liberal bias in anthropology, identifying instead the discipline’s critical evaluation of the status quo. The ideological diversity among anthropologists is explored while emphasizing their shared methodology that avoids ethnocentrism.

Finally, Chapter 1 introduces the five types of special boxed features that appear in the text, describing the purpose of each, along with an example: a Biocultural Connection on the anthropology of organ transplantation; a Globalscape about the global trafficking of human organs; an Original Study on traditional African healers dealing with HIV/AIDS; an Anthropology Applied about forensic anthropology’s role in speaking for the dead; and an Anthropologists of Note profiling two of the discipline’s pioneers: Franz Boas and Matilda Coxe Stevenson.

Chapter 2: Biology, Genetics, and Evolution

Covering all the basics of genetics and evolution, this revised chapter’s content has been streamlined so that macroevolution, previously covered in a different chapter, can follow right on the heels of our detailed discussion of the microevolutionary process. From a pedagogical standpoint, this helps students make the connections between molecular processes and macroevolutionary change through time.

In order to make the content relevant to students’ lives, we emphasize the relationship between culture and science beginning with the new Challenge Issue, featuring a large tattoo of DNA on a freckled upper arm, that illustrates how individuals increasingly turn to DNA to form their identity. A new Biocultural Connection, “Bonds Beyond Blood: DNA Testing and Refugee Family Unification” by Jason Silverstein, likewise shows that the use of genetic testing in isolation does not take into account alternate family structures present in other cultures, particularly those arrangements arising from war and genocide.

A variety of new photos, figures, and content-rich captions reinforce these connections, including a new image of the Great Chain of Being to show the transition from spiritual descriptions of nature toward those with a more scientific basis; a new figure showing Darwin’s journey on the HMS *Beagle*; new figures illustrating cladogenesis and anagenesis; new and revised figures on the social consequences of prenatal

genetic testing including the use of prenatal testing for sex selection, as well as transnational surrogacy as a social solution to the challenges of infertility for the privileged and wealthy; a new figure illustrating the relation between toxic exposure and mutation; and a revised figure on Darwin's finches that illustrates the connection between gradualism and punctuated equilibria.

Chapter 3: Living Primates

As we trace the basic biology of the living primates, this chapter emphasizes the place of humans within this group, instead of erecting barriers between “us” and “them.” A new chapter introduction featuring the early fieldwork of Jane Goodall and a new Challenge Issue on primate conservation set the tone of the chapter.

Biological content is also strengthened through the incorporation of pertinent macroevolutionary concepts such as an expanded comparison of mammalian to reptilian biology that includes a discussion of homeotherms versus isotherms and k-selected versus r-selected species; ancestral and derived characteristics; convergent evolution; preadaptation, adaptive radiation, and ecological niche.

In addition, Michele Goldsmith has updated her exclusive Original Study on ecotourism and primate conservation to illustrate recent changes at her field sites. A new content-rich photo and caption on sexual dimorphism among gorillas expands the discussion of this concept. A new Question for Reflection, comparing mammals and reptiles, prompts students to apply the macroevolutionary concepts of ancestral and derived characteristics.

Chapter 4: Primate Behavior

The new Challenge Issue featuring bonobo sexuality asks students to think about nature versus nurture, a theme that builds throughout the chapter, concluding with our discussion of primate culture.

Frans de Waal's work on reconciliation is now featured in the body of the text to allow for Anne Maggioncalda and Robert Sapolsky's Original Study “Disturbing Behaviors of the Orangutan” on orangutan sexual behavior. Formerly a Biocultural Connection, this reorganization better integrates its content with the text and further develops the theme of how we project our cultural notions onto the study of primates.

A new figure illustrates the various forms of primate social organization, and the text provides more details on marmoset polyandry. We have also augmented our discussion of birth intervals and population size among primates. The chapter closes with an update on NIH policy regarding the use of chimps

in biomedical research and a new Biocultural Connection titled “Chimpanzees in Biomedical Research: Time to End the Practice.”

Chapter 5: Field Methods in Archaeology and Paleoanthropology

This comprehensive chapter covering methods of investigation opens with the vital question of who owns the past. The Challenge Issue focuses on the current political upheaval in Timbuktu and the potential destruction of monuments, artifacts, and manuscripts in this ancient Muslim city.

Broad chapter changes include moving the material from our old macroevolution chapter on molecular clocks, geologic time, and continental drift into this chapter along with the Anthropologist of Note feature on Allan Wilson. Due to its importance, we moved the material on cultural resource management from a boxed feature into the text proper where students cannot miss it.

Chapter refinements comprise: a revision of the table on dating methods to include more information on process and use of techniques; more emphasis on the human skeleton figure and an insert of the sexually dimorphic pelvis; distinction between frozen remains such as the Ice Man Ötzi and fossil remains; a discussion of the possible deliberate burial at Sima de los Huesos; introduction of the term *archaeological profile*; and a clarified explanation of paleoanthropological and archaeological excavation techniques that avoids suggesting that one is more exacting than the other and that illustrates the laboratory techniques shared by paleoanthropologists, bioarchaeologists, and forensic anthropologists. Finally, a new content-rich photo highlights the difference between looting and real archaeological excavation.

Chapter 6: From First Primates to First Bipeds

Capturing the new inclusion of primate evolution into this chapter, we open with a tightrope-walking chimp from Fongoli to challenge students to think about bipedalism as the defining feature of the hominins. A streamlined introduction to primate evolution follows, including our cladogram illustrating the relationships among the primates, which has been revised to include the chimp–bonobo split.

We also moved the evidence for the earliest potential fossil hominins to this chapter, reorganizing the chapter to make room for this new material. Chapter updates based on recent discoveries include the South African species *Australopithecus sediba*; we both describe and integrate these findings into the discussion about which of these early bipeds led to the human line. We have added thought questions to several figure captions to urge students to participate in the process of

paleoanthropological reconstruction. A new photo of reconstructed Laetoli footprints also encourages students to distinguish reenactment based on concrete data from imaginings of the past.

Chapter 7: Origins of the Genus *Homo*

Building on the theme of bringing students into the process of paleoanthropological reconstruction, we open the chapter with paleoartist Elisabeth Daynès bringing a fossil species to life, thus challenging students to think about how to avoid bias. This thread connects to our discussion of Neandertals including a new Visual Counterpoint featuring the varied reenactments that have surrounded their lifeways.

We have dropped “origins of culture” from the chapter title to reflect the current state of primatological research, which has established distinct cultural traditions among our closest relatives. Similarly, this chapter reengages with the notion of purported human uniqueness.

Our section on gender in paleoanthropological reconstructions now includes recent studies on strontium and female dispersal among early hominins. We have tied our discussion on precision grip and cranial capacity back to the previous chapter’s discussion of the newly discovered species *Australopithecus sediba*.

Experimental archaeology, a new bolded key term, weaves into our discussion of Oldowan tools and other archaeological assemblages. A photo of the captive bonobo Kanzi making tools helps students visualize the process of reconstructing the past. We have added new material on the potential location of the lost “Peking Man” remains, as well as new evidence for paint fabrication in South Africa 100,000 years ago. Finally, our discussion of the Flores hominins has been placed in this chapter, separating it from the modern human origins controversy.

Chapter 8: The Global Expansion of *Homo sapiens* and Their Technology

To illustrate that paleoanthropology is a science of discovery, we open the chapter with the new, earlier dates for the cave paintings from Spain’s El Castillo. This challenges students to consider whether art, once thought to be an accomplishment only of the Cro-Magnons, may have in fact been a part of the Neandertal repertoire. Similarly, our discussion of the recent discoveries related to the Denisovan hominins, and their genetic continuity with extant Asians, shows how paleoanthropologists reshape their understanding of the past as new evidence is discovered.

Our experimental archaeology thread continues in this chapter with a new photo illustrating Upper Paleolithic flint-knapping as well as the content-enriched

caption on intricately constructed dwellings made from mammoth bones. We have updated the Biocultural Connection on paleolithic prescriptions for contemporary ailments and made it more relevant to college students by including substances abused today, such as alcohol and tobacco.

The chapter is also enhanced by various other new discoveries including a discussion of the Blombos Cave paint factories, cave flutings by Upper Paleolithic children, as well as new genetic data on peopling of Australia. We have updated our timeline of Upper Paleolithic innovations to include these recent discoveries.

Chapter 9: The Neolithic Revolution: The Domestication of Plants and Animals

This streamlined and updated chapter emphasizes the contemporary relevance of the Neolithic revolution. A new Challenge Issue shows the competition for resources set into motion during the Neolithic, playing out in the context of globalization today as Andean potato farmers battle with industrial asparagus farms that are lowering the aquifers to produce this water-intensive crop for global distribution. The theme of competition for resources threads throughout the chapter.

By incorporating relevant sections of the Biocultural Connection from previous editions on breastfeeding, fertility, and beliefs into the text, we made space for a new Biocultural Connection on the coevolution of humans and dogs featuring the work of evolutionary anthropologist Brian Hare titled “Dogs Get Right to the Point.” We have reorganized the heads in the section on why humans became food producers to streamline the content, and we moved the definitions of horticulture and pastoralism to early in the chapter to improve the chapter’s conceptual flow. A new Question for Reflection on today’s genetically modified crops also drives home the point that today we are still facing challenges introduced during the Neolithic.

Chapter 10: The Emergence of Cities and States

The interrelation of war, power, and monumental structures thematically weaves through this updated chapter. This begins with the new Challenge Issue focusing on the temple at Angkor Wat in Cambodia and the way that the magnificent structure has been the site of violent struggles nearly since its dedication in the 12th century.

An updated introductory section on the interdependence of cities includes Hurricane Katrina, the 2011 Japanese earthquake and tsunami, as well as the role of social media in the Arab Spring of 2011. In a detailed caption, we incorporated key points from the Anthropology

Applied feature from previous editions on the U.S. military's employment of archaeologists to train personnel in war zones to preserve archaeological remains. This allowed us to include a new Anthropology Applied feature on rainforest fishing weirs by Clark Erickson titled "Pre-Columbian Fish Farming in the Amazon."

This chapter's rich new visuals include locator maps indicating Mesopotamian sites and the Inca empire; an intriguing photo of a Maya calendar, explaining how it connects to the current doomsday predictions; and a photo of Cairo's "City of the Dead" to illustrate the problems of social stratification today.

Chapter 11: Modern Human Diversity: Race and Racism

Enlivened writing throughout this chapter improves the pedagogy and makes the challenging concepts of race and racism more interesting and accessible for today's students. The new Challenge Issue features NBA star Jeremy Lin to illustrate the social meaning of biological difference.

The chapter now includes the seminal work of Audrey Smedley on the roots of racism in North America, focusing on the English treatment of the Irish along with reference to Bacon's Rebellion. As well, a photo and caption illustrate the Nazi expedition to Tibet in search of the origins of the pure Aryan race.

An updated section includes a discussion of the 2010 census categories of race, and a new footnote to the Tiger Woods story updates the history of African Americans in golf. We also use the families of two U.S. presidents—Thomas Jefferson and Barack Obama—to illustrate cultural beliefs about gene flow.

A new reference to structural violence and race details differences in prison sentences for crack versus powdered cocaine users, a disparity that preferentially privileges the predominantly white users of the more expensive powdered cocaine. Accordingly, we have added the term *structural violence* to the glossary along with the term *genocide*.

Links between Mendel's work on heredity from Chapter 2 strengthen this chapter's discussion of the faults inherent in theories of race and intelligence. The chapter's section on true biological adaptations across populations now includes the work of Gary Nabhan and Laurie Monti on "slow release" foods and activity, instead of the thrifty genotype, and also mentions the rising importance of epigenetics. We moved material on fava beans and G-6-PD to the body of the text to make space for a new Biocultural Connection on ethnic plastic surgery titled "Beauty, Bigotry, and the Epicanthic Eyefold of the Beholder." We are pleased to include as well a new Original Study by Jonathan Marks on the perils and pitfalls of commercial genetic testing titled "Caveat Emptor: Genealogy for Sale."

Chapter 12: Human Adaptation to a Changing World

This chapter provides a broad introduction to human biology and human adaptation, while also reinforcing the powerful influence of culture on all aspects of human biology. The Challenge Issue offers a stunning body map, a life-size depiction of the experience of being an HIV-positive woman in South Africa, to help students see themselves as fully biocultural beings.

A suite of new and revised figures illustrates a variety of biological concepts including a new figure on long bone growth, a new figure on sweat glands, a new figure showing the growth trajectory of different body systems, and a revised figure on human population growth. New figures also help students see the myriad connections between human biology and culture including an intriguing photo of the ship-breaking yards of Bangladesh and a figure on the use of military metaphors in immunology.

We have also expanded our discussion of body fat and fertility globally and added relevant key terms such as *menarche* and *menopause* to the running glossary. As well, our discussion of genetic, developmental, and physiological adaptation has been refined and clarified, again adding the relevant key terms such as *hypoxia* to the glossary.

We close the chapter with new examples of how an integrated anthropological perspective to questions of human health. Topics include the recent appointment of medical anthropologist Jim Yong Kim as the president of the World Bank and ongoing biological evolution in Kenyan sex workers who seem to be HIV-resistant despite constant exposure. Biological and cultural processes both contribute to human health.

Supplements

Evolution and Prehistory: The Human Challenge comes with a comprehensive supplements program to help instructors create an effective learning environment both inside and outside the classroom and to aid students in mastering the material.

Supplements for Instructors

Online Instructor's Manual and Test Bank

The Instructor's Manual offers detailed chapter outlines, lecture suggestions, key terms, and student activities such as video exercises and Internet exercises. In addition, there are over seventy-five chapter test questions including multiple choice, true/false, fill-in-the-blank, short answer, and essay.

PowerLecture™ with ExamView®

This one-stop class preparation tool contains ready-to-use Microsoft® PowerPoint® slides, enabling you to assemble, edit, publish, and present custom lectures with ease. PowerLecture helps you bring together text-specific lecture outlines and art from Haviland et al.'s text along with videos and your own materials—culminating in powerful, personalized, media-enhanced presentations. Featuring automatic grading, ExamView is also available within PowerLecture, allowing you to create, deliver, and customize tests and study guides (both print and online) in minutes. See assessments onscreen exactly as they will print or display online. Build tests of up to 250 questions using up to twelve question types, and enter an unlimited number of new questions or edit existing questions. PowerLecture also includes the text's Instructor's Resource Manual and Test Bank as Word documents.

WebTutor™ on Blackboard® and WebCT™

Jumpstart your course with customizable, rich, text-specific content within your course management system. Whether you want to web-enable your class or put an entire course online, WebTutor delivers. WebTutor offers a wide array of resources including access to the eBook, glossaries, flash cards, quizzes, videos, and more.

Anthropology Coursereader

Anthropology Coursereader allows you to create a fully customized online reader in minutes. Access a rich collection of thousands of primary and secondary sources, readings, and audio and video selections from multiple disciplines. Each selection includes a descriptive introduction that puts it into context, and the selection is further supported by both critical thinking and multiple-choice questions designed to reinforce key points. This easy-to-use solution allows you to select exactly the content you need for your courses and is loaded with convenient pedagogical features like highlighting, printing, note taking, and downloadable MP3 audio files for each reading. You have the freedom to assign and customize individualized content at an affordable price.

The Wadsworth Anthropology Video Library: Volumes I, II, and III

The Wadsworth Anthropology Video Library (featuring BBC Motion Gallery video clips) drives home the relevance of course topics through short, provocative clips of current and historical events. Perfect for enriching lectures and engaging students in discussion, many of the segments in these volumes have

been gathered from the BBC Motion Gallery. Ask your Cengage Learning representative for a list of contents.

AIDS in Africa DVD

Southern Africa has been overcome by a pandemic of unparalleled proportions. This documentary series focuses on the democracy of Namibia and the nation's valiant actions to control HIV/AIDS.

Included in this series are four documentary films created by the Periclean Scholars at Elon University: (1) *Young Struggles, Eternal Faith*, which focuses on caregivers in the faith community; (2) *The Shining Lights of Opuwo*, which shows how young people share their messages of hope through song and dance; (3) *A Measure of Our Humanity*, which describes HIV/AIDS as an issue related to gender, poverty, stigma, education, and justice; and (4) *You Wake Me Up*, a story of two HIV-positive women and their acts of courage helping other women learn to survive.

Cengage/Wadsworth is excited to offer these award-winning films to instructors for use in class. When presenting topics such as gender, faith, culture, poverty, and so on, the films will be enlightening for students and will expand their global perspective of HIV/AIDS.

Online Resources for Instructors and Students

CourseMate

Cengage Learning's Anthropology CourseMate brings course concepts to life with interactive learning, study, and exam preparation tools that support the printed textbook. CourseMate includes an integrated eBook, glossaries, flash cards, quizzes, videos, and more—as well as EngagementTracker, an original tool that monitors student engagement in the course. The accompanying instructor website, available through login.cengage.com, offers access to password-protected resources such as an electronic version of the Instructor's Manual, Test Bank files, and PowerPoint® slides. CourseMate can be bundled with the student text. Contact your Cengage sales representative for information on getting access to CourseMate.

Supplements for Students

Telecourse Study Guide

The distance learning course, **Anthropology: The Four Fields**, provides online and print companion study guide options that include study aids, interactive exercises, videos, and more.

Additional Student Resources

Basic Genetics for Anthropology CD-ROM: Principles and Applications (stand-alone version), by Robert Jurmain and Lynn Kilgore

This student CD-ROM expands on such concepts as biological inheritance (genes, DNA sequencing, and so on) and applications of that to modern human populations at the molecular level (human variation and adaptation—to disease, diet, growth, and development). Interactive animations and simulations bring these important concepts to life for students so they can fully understand the essential biological principles required for physical anthropology. Also available are quizzes and interactive flashcards for further study.

Hominid Fossils CD-ROM: An Interactive Atlas, by James Ahern

The interactive atlas CD-ROM includes over seventy-five key fossils important for a clear understanding of human evolution. The QuickTime Virtual Reality (QTVR) “object” movie format for each fossil enables students to have a near-authentic experience of working with these important finds, by allowing them to rotate the fossils 360 degrees.

Unlike some VR media, QTVR objects are made using actual photographs of the real objects and thus better preserve details of color and texture. The fossils used are high-quality research casts as well as actual fossils. Because the atlas is not organized linearly, students are able to access levels and multiple paths, allowing them to see how the fossil fits into the map of human evolution in terms of geography, time, and evolution. The CD-ROM offers students an inviting, authentic learning environment, one that also contains a dynamic quizzing feature that permits students to test their knowledge of fossil and species identification, as well as providing detailed information about the fossil record.

Readings and Case Studies

Classic and Contemporary Readings in Physical Anthropology, edited by M. K. Sandford with Eileen M. Jackson

This highly accessible reader emphasizes science—its principles and methods—as well as the historical development of physical anthropology and the

applications of new technology to the discipline. The editors provide an introduction to the reader as well as a brief overview of the article so students know what to look for. Each article also includes discussion questions and Internet resources.

Classic Readings in Cultural Anthropology, 3rd edition, edited by Gary Ferraro

Now in its third edition, this reader includes historical and recent articles that have had a profound effect on the field of anthropology. Organized according to the major topic areas found in most cultural anthropology courses, this reader includes an introduction to the material as well as a brief overview of each article, discussion questions, and InfoTrac College Edition key search terms.

Globalization and Change in Fifteen Cultures: Born in One World, Living in Another, edited by George Spindler and Janice E. Stockard

In this volume, fifteen case study authors write about cultural change in today’s diverse settings around the world. Each original article provides insight into the dynamics and meanings of change, as well as the effects of globalization at the local level.

Case Studies in Cultural Anthropology, edited by George Spindler and Janice E. Stockard

Select from more than sixty classic and contemporary ethnographies representing geographic and topical diversity. Newer case studies focus on cultural change and cultural continuity, reflecting the globalization of the world.

Case Studies on Contemporary Social Issues, edited by John A. Young

Framed around social issues, these new contemporary case studies are globally comparative and represent the cutting-edge work of anthropologists today.

Case Studies in Archaeology, edited by Jeffrey Quilter

These engaging accounts of new archaeological techniques, issues, and solutions—as well as studies discussing the collection of material remains—range from site-specific excavations to types of archaeology practiced.

Acknowledgments

In this day and age, no textbook comes to fruition without extensive collaboration. Beyond the shared endeavors of our author team, this book owes its completion to a wide range of individuals, from colleagues in the discipline to those involved in development and production processes. Sincere thanks to colleagues who brought their expertise to bear—as sounding boards and in responding to questions concerning their specializations: Marta P. Alfonso-Durruty, Robert Bailey, Frans B. M. de Waal, Jessica Falcone, Michele Goldsmith, John Hawks, Amber Campbell Hibbs, Heather Loyd, Gillian E. Newell, Martin Ottenheimer, Svante Pääbo, Yvette Pigeon, Herbert Prins, and Michael Wesch. We are particularly grateful for the manuscript reviewers listed below, who provided detailed and thoughtful feedback that helped us to hone and re-hone our narrative.

We carefully considered and made use of the wide range of comments provided by these individuals. Our decisions on how to utilize their suggestions were influenced by our own perspectives on anthropology and teaching, combined with the priorities and page limits of this text. Thus, neither our reviewers nor any of the other anthropologists mentioned here should be held responsible for any shortcomings in this book. They should, however, be credited as contributors to many of the book's strengths: Philip Carr, University of South Alabama; Douglas Crews, Ohio State University; William Price, North Country Community College; Frank Salamone, Iona College; David Schwimmer, Columbus State University; and Donna Marshaye White, Webster University.

Thanks, too, go to colleagues who provided material for some of the Original Study, Bicultural Connection, and Anthropology Applied boxes in this text: Katherine Dettwyler, Clark L. Erickson, Anabel Ford, Michele Goldsmith, Donna Hart, John Hawks, Suzanne Leclerc-Madlala, Roger Lewin, Anne Nacey Maggioncalda, Charles C. Mann, Jonathan Marks, Anna Roosevelt, Robert M. Sapolsky, Jason Silverstein, Sherry Simpson, and Meredith F. Small.

We have debts of gratitude to office workers in our departments for their cheerful help in clerical matters: Karen Rundquist, Patty Redmond, and Tina Griffiths, along with research librarian extraordinaire Nancy

Bianchi. Also worthy of note here are the introductory anthropology teaching assistants at Kansas State University and the College of Medicine and Honors College students at the University of Vermont who, through the years, have shed light for us on effective ways to reach new generations of students. And, finally, we recognize the introductory students themselves, who are at the heart of this educational endeavor and who continually provide feedback in formal and informal ways.

Our thanksgiving inventory would be incomplete without mentioning individuals at Wadsworth/Cengage Learning who helped conceive of this text and bring it to fruition. Of special note is our senior development editor Lin Marshall Gaylord, who has been a shaping force for many generations of the Haviland et al. textbooks. She continues to grace our efforts with vision, resilience, constancy, and anthropological knowledge. We cannot imagine this endeavor without her. Our thanks also go out to Wadsworth's skilled and enthusiastic editorial, marketing, design, and production team: Aileen Berg (senior acquisitions sponsoring editor), Liz Rhoden (senior brand manager), Michelle Williams (senior market development manager), John Chell (media editor), Margaux Cameron (assistant editor), Victor Luu (editorial assistant), as well as Cheri Palmer (content project manager) and Caryl Gorska (art director).

In addition to all of the above, we have had the invaluable aid of several most able freelancers, including veteran photo researcher Sarah Evertson and our alert and artful art team at Graphic World. We are beyond grateful to have once again had the opportunity to work with copy editor Jennifer Gordon and production coordinator Joan Keyes of Dovetail Publishing Services. Consummate professionals and generous souls, both of them keep track of countless details and bring calm efficiency and grace to the demands of meeting difficult deadlines. Their efforts and skills play a major role in making our work doable and pleasurable.

And finally, all of us are indebted to family members and close friends who have not only put up with our textbook preoccupation but cheered us on in the endeavor.

About the Authors



Authors Bunny McBride, Dana Walrath, Harald Prins, and William Haviland

All four members of this author team share overlapping research interests and a similar vision of what anthropology is (and should be) about. For example, all are true believers in the four-field approach to anthropology and all have some involvement in applied work.

WILLIAM A. HAVILAND is professor emeritus at the University of Vermont, where he founded the Department of Anthropology and taught for thirty-two years. He holds a PhD in anthropology from the University of Pennsylvania.

He has carried out original research in archaeology in Guatemala and Vermont; ethnography in Maine and Vermont; and physical anthropology in Guatemala. This work has been the basis of numerous publications in various national and international books and journals, as well as in media intended for the general public. His books include *The Original Vermonters*, coauthored with Marjorie Power, and a technical monograph on ancient Maya settlement. He also served as consultant for the award-winning telecourse *Faces of Culture*, and he is coeditor of the series *Tikal Reports*, published by the University of Pennsylvania Museum of Archaeology and Anthropology.

Besides his teaching and writing, Dr. Haviland has lectured to numerous professional as well as non-professional audiences in Canada, Mexico, Lesotho, South Africa, and Spain, as well as in the United States.

A staunch supporter of indigenous rights, he served as expert witness for the Missisquoi Abenaki of Vermont in an important court case over aboriginal fishing rights.

Awards received by Dr. Haviland include being named University Scholar by the Graduate School of the University of Vermont in 1990; a Certificate of Appreciation from the Sovereign Republic of the Abenaki Nation of Missisquoi, St. Francis/Sokoki Band in 1996; and a Lifetime Achievement Award from the Center for Research on Vermont in 2006. Now retired from teaching, he continues his research, writing, and lecturing from the coast of Maine. He serves as a trustee for the Abbe Museum in Bar Harbor, focused on Maine's Native American history, culture, art, and archaeology. His most recent books are *At the Place of the Lobsters and Crabs* (2009) and *Canoe Indians of Down East Maine* (2012).

DANA WALRATH is assistant professor of family medicine at the University of Vermont and an affiliated faculty member for women's and gender studies. After earning her PhD from the University of Pennsylvania, she taught there and at Temple University. Dr. Walrath broke new ground in medical and biological anthropology through her work on biocultural aspects of childbirth. She has also written on a wide range of topics related to gender in paleoanthropology, the social production of sickness and health, sex differences, genetics, and evolutionary medicine. Her work has appeared in edited volumes and in journals such as *Current Anthropology*, *American Anthropologist*, *American Journal of Physical Anthropology*, and *Anthropology Now*. She developed a novel curriculum in medical education at the University of Vermont's College of Medicine that brings humanism, anthropological theory and practice, narrative medicine, and professionalism skills to first-year medical students.

Dr. Walrath also has an MFA in creative writing from Vermont College of Fine Arts and has shown her artwork in galleries throughout the country. Her recent work on Alzheimer's disease combines anthropology with memoir and visual art. Spanning a variety of disciplines, her work has been supported by diverse sources such as the National Science Foundation for the Arts, the Centers for Disease Control, the Health Resources and Services Administration, the Vermont Studio Center, the Vermont Arts Council, and the National Endowment for the Arts. She is currently a Fulbright Scholar at the American University of

Armenia and the Institute of Ethnography and Archaeology of the National Academy of Sciences of Armenia, where she is completing a project titled “The Narrative Anthropology of Aging in Armenia.”

HARALD E. L. PRINS is a University Distinguished Professor of cultural anthropology at Kansas State University. Academically trained at half a dozen Dutch and U.S. universities, he previously taught at Radboud University (Netherlands), Bowdoin College and Colby College in Maine, and was a visiting professor at the University of Lund, Sweden. Also named a Distinguished University Teaching Scholar, he received numerous honors for his outstanding academic teaching, including the Presidential Award in 1999, Carnegie Professor of the Year for Kansas in 2006, and the AAA/Oxford University Press Award for Excellence in Undergraduate Teaching of Anthropology in 2010.

His fieldwork focuses on indigenous peoples in the western hemisphere, and he has long served as an advocacy anthropologist on land claims and other Native rights. In that capacity, Dr. Prins has been a key expert witness in both the U.S. Senate and Canadian courts. His numerous academic publications appear in seven languages, and his book include *The Mi'kmaq: Resistance, Accommodation, and Cultural Survival*.

Also trained in filmmaking, he was president of the Society for Visual Anthropology, and coproduced award-winning documentaries. He has been the visual anthropology editor of *American Anthropologist*, coprincipal investigator for the U.S. National Park Service, international observer in Paraguay's presidential elections, and a research associate at the National Museum of Natural History, Smithsonian Institution.

BUNNY MCBRIDE is an award-winning author specializing in cultural anthropology, indigenous peoples, international tourism, and nature conservation issues. Published in dozens of national and international print media, she has reported from Africa, Europe, China, and the Indian Ocean. Holding an MA from Columbia University, she is highly rated as a teacher, and she has served as visiting anthropology faculty at Principia College and the Salt Institute for Documentary Field Studies. Since 1996 she has been an adjunct lecturer of anthropology at Kansas State University.

Among her many publications are books such as *Women of the Dawn*; *Molly Spotted Elk: A Penobscot in Paris*; *Indians in Eden* (with Harald Prins); and *The Audubon Field Guide to African Wildlife*, which she co-authored. McBride has also authored numerous book chapters. Honors include a special commendation from the state legislature of Maine for significant contributions to Native women's history. A community activist and researcher for the Aroostook Band of Micmacs (1981–1991), she assisted this Maine Indian community in its successful efforts to reclaim lands, gain tribal status, and revitalize cultural traditions.

In recent years, she has served as coprincipal investigator for a National Park Service ethnography project and curated several museum exhibits, including “Journeys West: The David & Peggy Rockefeller American Indian Art Collection” for the Abbe Museum in Bar Harbor, Maine. Her latest exhibit, “Indians & Rusticators,” received a 2012 Leadership in History Award from the American Association for State and Local History. Currently, she serves as vice president of the Women's World Summit Foundation, based in Geneva, Switzerland, and is completing a collection of essays.

EVOLUTION AND PREHISTORY



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Challenge Issue

It is a challenge to make sense of the world and our place in the universe. Who am I and how am I connected to the person in this picture? Why do I look different from so many other people in the world and why are there so many different languages? Who harvested the cotton for my shirt or felled the tree used to build my house? Why are some people immune from a virus that kills others? How is it that many believe in an afterlife but others do not? When did our ancestors first begin to think? What distinguishes us from other animals? Anthropologists take a holistic, integrated approach to such questions, framing them in a broad context and examining interconnections. Our discipline considers human culture and biology, in all times and places, as inextricably intertwined, each affecting the other. This photograph shows the hands of a miner holding coltan, a tarlike mineral mined in eastern Congo. Refined, coltan turns into a heat-resistant powder capable of storing energy. As the key component of capacitors in small electronic devices, it is highly valued on the global market. Coltan mines, enriching the warring Congolese factions that control them, are hellholes for the thousands of people, including children, who work the mines. Bought, transported, and processed by foreign merchants and corporations, small bits of this mineral eventually end up in mobile phones and laptop computers worldwide. Although the link between you and globalization is complex, no more than “six degrees of separation” exist between your hands and those of the miner in the heart of Africa. Anthropology’s holistic and integrative perspective will equip you to explore and negotiate today’s interconnected and globalized world.

The Essence of Anthropology

1

The Anthropological Perspective

Anthropology is the study of humankind in all times and places. Of course, many other disciplines focus on humans in one way or another. For example, anatomy and physiology concentrate on our species as biological organisms. The social sciences examine human relationships, leaving artistic and philosophical aspects of human cultures to the humanities. Anthropology focuses on the interconnections and interdependence of all aspects of the human experience in all places, in the present and deep into the past, well before written history. This unique, broad **holistic perspective** equips anthropologists to address that elusive thing we call *human nature*.

Anthropologists welcome the contributions of researchers from other disciplines, and in return offer their own findings to these other disciplines. An anthropologist may not know as much about the structure of the human eye as an anatomist or as much about the perception of color as a psychologist. As a synthesizer, however, the anthropologist seeks to understand how anatomy and psychology relate to color-naming practices in different societies. Because they look for the broad basis of human ideas and practices without limiting themselves to any single social or biological aspect, anthropologists can acquire an especially expansive and inclusive overview of human biology and culture.

Keeping a holistic perspective allows anthropologists to prevent their own cultural ideas and values from distorting their research. As the old saying goes, people often see what they believe, rather than what appears before their eyes. By maintaining a critical awareness of their own assumptions about human nature—checking and rechecking the ways their beliefs and actions might be shaping their research—anthropologists strive to gain objective knowledge about human beings. With this

anthropology The study of humankind in all times and places.

holistic perspective A fundamental principle of anthropology: The various parts of human culture and biology must be viewed in the broadest possible context in order to understand their interconnections and interdependence.

IN THIS CHAPTER YOU WILL LEARN TO

- Describe the discipline of anthropology and make connections among its four fields.
- Compare anthropology to the sciences and the humanities.
- Identify the characteristics of anthropological field methods and the ethics of anthropological research.
- Explain the usefulness of anthropology in light of globalization.

in mind, anthropologists aim to avoid the pitfalls of **ethnocentrism**, a belief that the ways of one's own culture are the only proper ones.

To some, an inclusive, holistic perspective that emphasizes the diversity within and among human cultures can be mistaken as shorthand for liberal politics among anthropologists. This is not the case. Anthropologists come from many different backgrounds, and individuals practicing the discipline vary in their personal, political, and religious beliefs (Figure 1.1). At the same time, they apply a rigorous methodology for researching cultural practices from the perspective of the culture being studied—a methodology that requires them to check for the influences of their own biases. This is as true for an anthropologist analyzing the culture of the global banking industry as it is for one investigating trance dancing among contemporary hunter-gatherers. We might say that anthropology is a discipline concerned with unbiased evaluation of diverse human systems, including one's own. At times this requires challenging the status quo that is maintained and defended by the power elites of the system under study.

While other social sciences have predominantly concentrated on contemporary peoples living in North American and European (Western) societies, anthropologists have traditionally focused on non-Western peoples and cultures. Anthropologists work with the understanding that to fully access the complexities of human ideas, behavior, and biology, *all* humans, wherever and whenever, must be studied. A cross-cultural and long-term evolutionary perspective distinguishes anthropology from other social sciences. This approach guards against theories about the world and reality that are **culture-bound**—based on the assumptions and values that come from the researcher's own culture.

As a case in point, consider the fact that infants in the United States typically sleep apart from their parents. To people accustomed to multibedroom houses, cribs, and car seats, this may seem normal, but cross-cultural research shows that *co-sleeping*, of mother and baby in particular, is the norm (Figure 1.2). Further, the practice of sleeping apart favored in the United States dates back only about 200 years.

Recent studies have shown that separation of mother and infant has important biological and cultural consequences. For one thing, it increases the length of the infant's crying bouts. Some mothers incorrectly interpret crying as an indication that the baby is not receiving sufficient breast milk and consequently switch to using bottled formula, which has been shown to be less healthy. In extreme cases, a baby's cries may provoke physical



Figure 1.1 Anthropologist Jayasinhji Jhala Anthropologists come from many corners of the world and carry out research in a huge variety of cultures all around the globe. Dr. Jayasinhji Jhala, pictured here, hails from the old city of Dhrangadhra in Gujarat, northwestern India. A member of the Jhala clan of Rajputs, an aristocratic caste of warriors, he grew up in the royal palace of his father, the maharaja. After earning a bachelor of arts degree in India, he came to the United States and earned a master's in visual studies from MIT, followed by a doctorate in anthropology from Harvard. Currently a professor and director of the programs of Visual Anthropology and the Visual Anthropology Media Laboratory at Temple University, he returns regularly to India with students to film cultural traditions in his own caste-stratified society.

abuse. But the benefits of co-sleeping go beyond significant reductions in crying: Infants who are breastfed receive more stimulation important for brain development, and they are apparently less susceptible to sudden infant death syndrome (SIDS or “crib death”), which occurs at a higher rate in the United States than in any other country. There are benefits to the mother as well: Frequent nursing prevents early ovulation after childbirth, promotes weight

ethnocentrism The belief that the ways of one's own culture are the only proper ones.

culture-bound A perspective that produces theories about the world and reality that are based on the assumptions and values from the researcher's own culture.

VISUAL COUNTERPOINT



Figure 1.2 Sleeping Habits across Cultures Although infants in the United States typically sleep apart from their parents, cross-cultural research shows that co-sleeping, particularly of mother and baby, is the rule. Without the breathing cues provided by someone sleeping nearby, an infant is more susceptible to sudden infant death syndrome (SIDS), a phenomenon in which a 4- to 6-month-old baby stops breathing and dies while asleep. The highest rates of SIDS are found among infants in the United States. The photo on the right shows a Nenet family sleeping together in their *chum* (reindeer-skin tent). Nenet people are Arctic reindeer pastoralists living in Siberia.

loss to shed pregnancy pounds, and allows nursing mothers at least as much sleep as mothers who sleep apart from their infants (McKenna & McDade, 2005).

Why do so many mothers continue to sleep separately from their infants? In the United States, the cultural values of independence and consumerism come into play. To begin building individual identities, babies are provided with rooms (or at least space) of their own. This room also gives parents a place to stow the toys, furniture, and other paraphernalia associated with good and caring childrearing in the United States.

Although the findings of anthropologists have often challenged the conclusions of sociologists, psychologists, and economists, anthropology is absolutely indispensable to those in other disciplines because it is the only consistent check against culture-bound assertions. In a sense, anthropology is to these disciplines what the laboratory is to physics and chemistry: an essential testing ground for their theories.

Anthropology and Its Fields

Individual anthropologists tend to specialize in one of four fields or subdisciplines: cultural anthropology, linguistic anthropology, archaeology, and physical (biological) anthropology (Figure 1.3). Some anthropologists consider

archaeology and linguistics to be part of the broader study of human cultures, but archaeology and linguistics also have close ties to physical anthropology. For example, while linguistic anthropology focuses on the social and cultural aspects of language, it has deep connections to the evolution of human language and to the biological basis of speech and language studied within physical anthropology.

Researchers in each of anthropology's fields gather and analyze data to explore similarities and differences among humans, across time and space. Moreover, individuals within

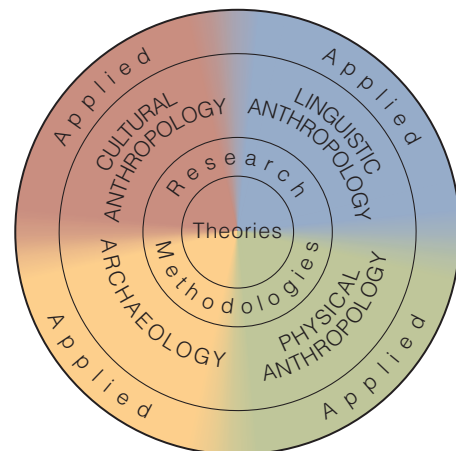


Figure 1.3 The Four Fields of Anthropology Note that the divisions among the fields are not sharp, indicating that their boundaries overlap. Note also that all four include the practice of applied anthropology.

BIOCULTURAL CONNECTION

The Anthropology of Organ Transplantation

In 1954, the first organ transplant occurred in Boston when surgeons removed a kidney from one identical twin to place it inside his sick brother. Today, transplants between unrelated individuals are common, so much so that organs are trafficked in the black market, often across continents from the poor to the wealthy. Though some transplants rely upon living donors, routine organ transplantation depends largely upon the availability of organs obtained from individuals who have died. To reduce illegal traffic, several European countries have enacted policies that assume that any individual who is “brain dead” is automatically an organ donor unless the person has “opted out” ahead of time.

A practice like organ transplantation can exist only if it fits with cultural beliefs about death and the human body. The North American and European view—that the body is a machine that can be repaired much like a car—makes a practice like organ transplantation acceptable. But this is not the view shared by all societies. Anthropologist

Margaret Lock has explored differences between Japanese and North American acceptance of the biological state of brain death and how it affects the practice of organ transplantation.

The diagnosis of brain death relies upon the absence of measurable electrical currents in the brain and the inability to breathe without technological assistance. The brain-dead individual, though attached to machines, still seems alive with a beating heart and normal skin coloring. Part of the reason most North Americans find organ transplantation tolerable with the determination of brain death is that personhood and individuality are culturally ascribed to the mind, and thus located in the brain. North Americans’ acceptance of brain death has allowed for the “gift of life” through sometimes anonymous organ donation and subsequent transplantation.

By contrast, in Japan, the concept of brain death is hotly contested, and organ transplants are rarely performed. The Japanese idea of personhood does not incorporate a mind–body split; instead, a person’s identity is tied to

the entire body rather than solely to the brain. Consequently, the Japanese reject that a warm body is a corpse from which organs can be harvested. Further, organs cannot be transformed into “gifts” because anonymous donation is incompatible with Japanese social patterns of reciprocal exchange.

Organ transplantation involves far greater social meaning than the purely biological movement of an organ from one individual to another. Cultural and biological processes are tightly woven into every aspect of this new social practice.

BIOCULTURAL QUESTION

What criteria do you use for death, and is it compatible with the idea of organ donation? Do you think that donated organs are fairly distributed in your society or throughout the globe?

For more on this subject, see Lock, M. (2001). Twice dead: Organ transplants and the reinvention of death. Berkeley: University of California Press.

each of the four fields practice **applied anthropology**, which entails the use of anthropological knowledge and methods to solve practical problems. Most applied anthropologists actively collaborate with the communities in which they work—setting goals, solving problems, and conducting research together. In this book, the Anthropology Applied features spotlight how anthropology contributes to solving a wide range of challenges.

applied anthropology The use of anthropological knowledge and methods to solve practical problems, often for a specific client.

medical anthropology A specialization in anthropology that brings theoretical and applied approaches from cultural and biological anthropology to the study of human health and disease.

cultural anthropology The study of patterns in human behavior, thought, and emotions, focusing on humans as culture-producing and culture-reproducing creatures. Also known as *social* or *sociocultural anthropology*.

An early example of the application of anthropological knowledge to a practical problem was the international public health movement that began in the 1920s. This marked the beginning of **medical anthropology**—a specialization that brings theoretical and applied approaches from cultural and biological anthropology to the study of human health and disease. The work of medical anthropologists sheds light on the connections between human health and political and economic forces, both locally and globally. Examples of this specialization appear in some of the Biocultural Connections featured in this text, including the one presented on this page, “The Anthropology of Organ Transplantation.”

Cultural Anthropology

Cultural anthropology (also called *social* or *sociocultural anthropology*) is the study of patterns in human behavior, thought, and emotions. It focuses on humans as

culture-producing and culture-reproducing creatures. To understand the work of the cultural anthropologist, we must clarify the meaning of **culture**—a society’s shared and socially transmitted ideas, values, emotions, and perceptions, which are used to make sense of experience and which generate behavior and are reflected in that behavior. These are the (often unconscious) standards by which societies—structured groups of people—operate. These standards are socially learned, rather than acquired through biological inheritance. The manifestations of culture may vary considerably from place to place, but no individual is “more cultured” in the anthropological sense than any other.

Integral to all the anthropological fields, the concept of culture might be considered anthropology’s distinguishing feature. After all, a biological anthropologist is distinct from a biologist *primarily* because he or she takes culture into account. Cultural anthropologists may study the legal, medical, economic, political, or religious system of a given society, knowing that all aspects of the culture interrelate as part of a unified whole. They may focus on divisions in a society—such as by gender, age, or class—factors we will explore in depth later in this text. But it is also worth noting the significance of these same categories to the archaeologist who studies a society through its material remains, to the linguistic anthropologist who examines ancient and modern languages, and to the biological anthropologist who investigates the physical human body.

Cultural anthropology has two main components: ethnography and ethnology. An **ethnography** is a detailed description of a particular culture primarily based on **fieldwork**, which is the term all anthropologists use for on-location research. Because the hallmark of ethnographic fieldwork is a combination of social participation and personal observation within the community being studied and interviews and discussions with individual members of a group, the ethnographic method is commonly referred to as **participant observation** (Figure 1.4). Ethnographies provide the information used to make systematic comparisons among cultures all across the world. Known as **ethnology**, such cross-cultural research allows anthropologists to develop theories that help explain why certain important differences or similarities occur among groups.

Ethnography

Through participant observation—eating a people’s food, sleeping under their roof, learning how to speak and behave acceptably, and personally experiencing their habits and customs—the ethnographer seeks to gain the best possible understanding of a particular way of life. Being a participant observer does not mean that the anthropologist must join in battles to study a culture in which warfare is prominent; but by living among a warring people, the ethnographer should be able to understand how warfare fits into the overall cultural framework.

The ethnographer must observe carefully to gain an overview without placing too much emphasis on one



© Matt Dyas/Courtesy of Florian Stammer

Figure 1.4 Fieldwork in the Arctic British anthropologist Florian Stammer engages in participant observation among Sami reindeer nomads in Siberia. Specializing in Arctic anthropology, particularly in the Russian far north, Stammer coordinates the anthropology research team at the University of Lapland’s Arctic Centre. His interests include Arctic economy, human–animal relations, and the anthropology of place and belonging.

cultural feature at the expense of another. Only by discovering how *all* parts of a culture—its social, political, economic, and religious practices and institutions—relate to one another can the ethnographer begin to understand the cultural system. This is the holistic perspective so basic to the discipline.

The popular image of ethnographic fieldwork is that it occurs among hunters, herders, fishers, or farmers who live in far-off, isolated places. To be sure, much ethnographic work has been done in the remote villages of Asia, Africa, or Latin America, islands of the Pacific Ocean, deserts of Australia, and so on. However, as the discipline developed after the mid-1900s with the demise of colonialism, industrialized societies

culture A society’s shared and socially transmitted ideas, values, and perceptions, which are used to make sense of experience and which generate behavior and are reflected in that behavior.

ethnography A detailed description of a particular culture primarily based on fieldwork.

fieldwork The term anthropologists use for on-location research.

participant observation In ethnography, the technique of learning a people’s culture through social participation and personal observation within the community being studied, as well as interviews and discussion with individual members of the group over an extended period of time.

ethnology The study and analysis of different cultures from a comparative or historical point of view, utilizing ethnographic accounts and developing anthropological theories that help explain why certain important differences or similarities occur among groups.

and neighborhoods in modern cities have also become a significant focus of anthropological study.

Ethnographic fieldwork has transformed from expert Western anthropologists studying people in “other” places to a collaborative approach among anthropologists from all parts of the world and the varied communities in which they work. Today, anthropologists from around the globe employ the same research techniques that were used in the study of non-Western peoples to explore diverse subjects such as religious movements, street gangs, refugee settlements, land rights, conflict resolution, corporate bureaucracies, and health-care systems in Western cultures.

Ethnology

Largely descriptive in nature, *ethnography* provides the raw data needed for *ethnology*—the branch of cultural anthropology that involves cross-cultural comparisons and theories that explain differences or similarities among groups. Intriguing insights into one’s own beliefs and practices may come from cross-cultural comparisons. Consider, for example, the amount of time spent on domestic chores by industrialized peoples and traditional food foragers—people who rely on wild plant and animal resources for subsistence.

Anthropological research has shown that food foragers work far less time at domestic tasks and other subsistence pursuits compared to people in industrialized societies. Despite access to “labor-saving” appliances such as dishwashers, washing machines, clothes dryers, vacuum cleaners, food processors, and microwave ovens, urban women in the United States who are not working for wages outside their homes put 55 hours a week into their housework. In contrast, aboriginal women in Australia devoted 20 hours a week to their chores (Bodley, 2008, p. 67). Nevertheless, consumer appliances have become important indicators of a high standard of living in the United States due to the widespread belief that household appliances reduce housework and increase leisure time.

By making systematic comparisons, ethnologists seek to arrive at scientific explanations of cultural features and social practices in all times and places. (The Biocultural Connection you read on page 6 is one of countless examples of anthropological insights gained through comparative research.)

Applied Cultural Anthropology

Today, cultural anthropologists contribute to applied anthropology in a variety of contexts ranging from business to education to health care to governmental interventions to humanitarian aid. For example, anthropologist Nancy Scheper-Hughes has taken her investigative work on the

global problem of illegal trafficking of organs and used it to help found Organs Watch, an organization dedicated to solving this human rights issue (see the Globalscape later in this chapter).

Linguistic Anthropology

Perhaps the most distinctive feature of the human species is language. Although the sounds and gestures made by some other animals—especially by apes—may serve functions comparable to those of human language, no other animal has developed a system of symbolic communication as complex as that of humans. Language allows people to create, preserve, and transmit countless details of their culture from generation to generation.

Linguistic anthropology is the branch of anthropology that studies human languages; it investigates their structure, history, and relation to social and cultural contexts. Although it shares data, theories, and methods with the more general discipline of linguistics, it differs in that it includes distinctly anthropological questions, such as, how does language influence or reflect culture? And how does language use differ among distinct members of a society?

In its early years, linguistic anthropology emphasized the documentation of languages of cultures under ethnographic study—particularly those whose future seemed precarious due to colonization, forced assimilation, population decimation, capitalist expansion, or other destructive forces. When the first Europeans began to colonize the world five centuries ago, an estimated 12,000 distinct languages existed. By the early 1900s—when anthropological research began to take off—many languages and peoples had already disappeared or were on the brink of extinction. Sadly this trend continues, with predictions that nearly half of the world’s remaining 6,000 languages will become extinct over the next hundred years (Crystal, 2002; Knight, Studdert-Kennedy, & Hurford, 2000).

Linguistic anthropology has three main branches: descriptive linguistics, historical linguistics, and language in relation to social and cultural settings. All three yield valuable information about how people communicate and how they understand the world around them.

Descriptive Linguistics

This branch of linguistic anthropology involves the painstaking work of dissecting a language by recording, delineating, and analyzing all of its features. It leads to a deeper understanding of a language—its structure (including grammar and syntax), its unique linguistic repertoire (figures of speech, word plays, and so on), and its relationship to other languages.

Historical Linguistics

While descriptive linguistics focuses on all features of a particular language at any one moment in time, historical

linguistic anthropology The study of human languages—looking at their structure, history, and relation to social and cultural contexts.



Photo by Chris Raimier/Enduring Voices Project

Figure 1.5 Preserving Endangered Languages Linguistic anthropologist David Anderson (right) has devoted his career to documenting and saving indigenous languages. He founded and heads the Living Tongues Institute for Endangered Languages and works throughout the globe to preserve languages that are dying out at a shocking rate of about one every two weeks. Here he is recording for the first time the language of Koro, spoken by some 1,000 people in India's remote northeastern state, Arunachal Pradesh. Situated near India's contested border with China, this region is considered a black hole in the study of languages.

linguistics deals with the fact that languages change. In addition to deciphering “dead” languages that are no longer spoken, specialists in this field examine interrelationships among different languages and investigate earlier and later forms of the same language. Their findings make significant contributions to our understanding of the human past. By working out relationships among languages and examining their spatial distributions, they may estimate how long the speakers of those languages have lived where they do. By identifying those words in related languages that have survived from an ancient ancestral tongue, they can also suggest not only where, but how, the speakers of the inherited language lived. Such work shows linguistic ties between geographically distant groups such as the Navajo in Arizona's desert and the Gwich'in above the Arctic Circle in Alaska, or between the Magyars in Hungary and the people of Finland.

Language in Its Social and Cultural Settings

Some linguistic anthropologists study the social and cultural contexts of a language. For example, they may research how factors such as age, gender, ethnicity, class, religion, occupation, or financial status affect speech. Because members of any culture may use a variety of different registers and inflections, the ones they choose (often unconsciously) to use at a specific instance convey particular meanings.

Scientists in this branch of linguistics also look into the dynamic relationship between language and culture—investigating to what degree they mutually influence and inform each other. In this vein, they may investigate how a language reflects culturally significant aspects of a people's environment or values.

Linguistic anthropologists may also focus on the socialization process through which an individual becomes part of a culture, moves up in social status, or takes on a new

professional identity. First-year medical students, for example, amass 6,000 new terms and a series of linguistic conventions as they begin to take on the role of a physician. Individuals training for any specialized career, from lawyer to chef, face similar challenges in quickly expanding their vocabularies.

Applied Linguistic Anthropology

Linguistic anthropologists put their research to use in a number of settings. Some, for example, have collaborated with recently contacted cultural groups, small nations (or tribes), and ethnic minorities in the preservation or revival of languages suppressed or lost during periods of oppression by dominant societies. Their work has included helping to create written forms of languages that previously existed only orally. This sort of applied linguistic anthropology represents a trend in mutually useful collaboration that is characteristic of much anthropological research today (Figure 1.5).

Archaeology

Archaeology is the branch of anthropology that studies human cultures through the recovery and analysis of material remains and environmental data. Such material products include tools, pottery, hearths, and enclosures that remain as traces of cultural practices in the past, as well as human, plant, and marine remains, some of which date back 2.5 million years. The arrangement of these traces, as much as the traces themselves, reflects specific human ideas and behavior. For example, shallow, restricted concentrations of charcoal that include oxidized earth, bone fragments, and charred plant

archaeology The study of cultures through the recovery and analysis of material remains and environmental data.