

HUMAN DIVERSITY*Adaptation, Variation, and Change**Cultural Forces Shape Human Biology***GENERAL ANTHROPOLOGY****THE SUBDISCIPLINES OF ANTHROPOLOGY***Cultural Anthropology**Anthropological Archaeology**Biological Anthropology**Linguistic Anthropology***APPLIED ANTHROPOLOGY****ANTHROPOLOGY AND OTHER ACADEMIC FIELDS***Cultural Anthropology and Sociology**Anthropology and Psychology***THE SCIENTIFIC METHOD***Theories, Associations, and Explanations**Case Study: Explaining the Postpartum Taboo**The Value, and Limitations, of Science*understanding **OURSELVES**

When you grew up, which sport did you appreciate the most—soccer, swimming, football, baseball, tennis, golf, or some other sport (or perhaps none at all)? Is this because of “who you are” or because of the opportunities you had as a child to practice and participate in this particular activity? Think about the phrases and sentences you would use to describe yourself in a personal ad or on a networking site—your likes and dislikes, hobbies, and habits. How many of these descriptors would be the same if you had been born in a different place or time?

When you were young, your parents might have told you that drinking milk and eating vegetables would help you grow up “big and strong.” They probably didn’t recognize as readily the role that *culture* plays in shaping bodies, personalities, and personal health. If nutrition matters in growth, so, too, do cultural guidelines. What is proper behavior for boys and girls? What kinds of work should men and women do? Where should people live? What are proper uses of their leisure time? What role should religion play? How should people relate to their family, friends, and neighbors? Although our genetic attributes provide a foundation for our growth and development, human biology is fairly plastic—that is, it is malleable. Culture is an environmental force that affects our development as

much as do nutrition, heat, cold, and altitude. Culture also guides our emotional and cognitive growth and helps determine the kinds of personalities we have as adults.

Among scholarly disciplines, anthropology stands out as the field that provides the cross-cultural test. How much would we know about human behavior, thought, and feeling if we studied only our own kind? What if our entire understanding of human behavior were based on analysis of questionnaires filled out by college students in Oregon? That is a radical question, but one that should make you think about the basis for statements about what humans are like, individually or as a group. A primary reason anthropology can uncover so much about what it means to be human is that the discipline is based on the cross-cultural perspective. A single culture simply cannot tell us everything we need to know about what it means to be human. We need to compare and contrast. Often culture is “invisible” (assumed to be normal, or just the way things are) until it is placed in comparison to another culture. For example, to appreciate how watching television affects us, as human beings, we need to study not just North America today but some other place—and perhaps some other time (such as Brazil in the 1980s; see Kottak 1990b, 2009). The cross-cultural test is fundamental to the anthropological approach, which orients this textbook.

HUMAN DIVERSITY

Anthropologists study human beings and their products wherever and whenever they find them—in rural Kenya, a Turkish café, a Mesopotamian tomb, or a North American shopping mall. Anthropology explores human diversity across time and space, seeking to understand as much as possible

about the human condition. Of particular interest is the diversity that comes through human adaptability.

Humans are among the world’s most adaptable animals. In the Andes of South America, people wake up in villages 16,000 feet above sea level and then trek 1,500 feet higher to work in tin mines. Tribes in the Australian desert worship

animals and discuss philosophy. People survive malaria in the tropics. Men have walked on the moon. The model of the USS *Enterprise* in Washington's Smithsonian Institution symbolizes the desire to "seek out new life and civilizations, to boldly go where no one has gone before." Wishes to know the unknown, control the uncontrollable, and create order out of chaos find expression among all peoples. Creativity, adaptability, and flexibility are basic human attributes, and human diversity is the subject matter of anthropology.

Students often are surprised by the breadth of **anthropology**, which is the study of humans around the world and through time. Anthropology is a uniquely comparative and **holistic** science. **Holism** refers to the study of the whole of the human condition: past, present, and future; biology, society, language, and culture. Most people think that anthropologists study fossils and nonindustrial, non-Western cultures, and many of them do. But anthropology is much more than the study of nonindustrial peoples: It is a comparative field that examines all societies, ancient and modern, simple and complex, local and global. The other social sciences tend to focus on a single society, usually an industrial nation like the United States or Canada. Anthropology, however, offers a unique cross-cultural perspective by constantly comparing the customs of one society with those of others.

People share society—organized life in groups—with other animals, including baboons, wolves, mole rats, and even ants. Culture, however, is more distinctly human. **Cultures** are traditions and customs, transmitted through learning, that form and guide the beliefs and behavior of the people exposed to them. Children learn such a tradition by growing up in a particular society, through a process called enculturation. Cultural traditions include customs and opinions, developed over the generations, about proper and improper behavior. These traditions answer such questions as these: How should we do things? How do we make sense of the world? How

do we distinguish between what is right, and what is wrong? A culture produces a degree of consistency in behavior and thought among the people who live in a particular society.

The most critical element of cultural traditions is their transmission through learning rather than through biological inheritance. Culture is not itself biological, but it rests on certain features of human biology. For more than a million years, humans have possessed at least some of the biological capacities on which culture depends. These abilities are to learn, to think symbolically, to use language, and to make and use tools.

Anthropology confronts and ponders major questions about past and present human existence. By examining ancient bones and tools, we unravel the mysteries of human origins. When did our ancestors separate from those of the apes? Where and when did *Homo sapiens* originate? How has our species changed? What are we now, and where are we going? How have social and cultural changes influenced biological change? Our genus, *Homo*, has been changing for more than one million years. Humans continue to adapt and change both biologically and culturally.

anthropology
The study of humans around the world and through time.

holistic
Encompassing past, present, and future; biology, society, language, and culture.

Adaptation, Variation, and Change

Adaptation refers to the processes by which organisms cope with environmental forces and stresses. How do organisms change to fit their environments, such as dry climates or high mountain altitudes? Like other animals, humans have biological means of adaptation. But humans also habitually rely on cultural means of adaptation. Recap 1.1 summarizes the cultural and biological means that humans use to adapt to high altitudes.

Mountainous terrains pose particular challenges, those associated with altitude and oxygen deprivation. Consider four ways (one cultural and three biological) in which humans may cope with

culture
Traditions and customs transmitted through learning.

RECAP 1.1

Forms of Cultural and Biological Adaptation (to High Altitude)

FORM OF ADAPTATION	TYPE OF ADAPTATION	EXAMPLE
Technology	Cultural	Pressurized airplane cabin with oxygen masks
Genetic adaptation (occurs over generations)	Biological	Larger "barrel chests" of native highlanders
Long-term physiological adaptation (occurs during growth and development of the individual organism)	Biological	More efficient respiratory system, to extract oxygen from "thin air"
Short-term physiological adaptation (occurs spontaneously when the individual organism enters a new environment)	Biological	Increased heart rate, hyperventilation

biocultural
Combining biological
and cultural approaches
to a given problem.

food production
An economy based on
plant cultivation and/or
animal domestication.

**general
anthropology**
Anthropology as a
whole: cultural,
archaeological,
biological, and linguistic
anthropology.

low oxygen pressure at high altitudes. Illustrating cultural (technological) adaptation would be a pressurized airplane cabin equipped with oxygen masks. There are three ways of adapting biologically to high altitudes: genetic adaptation, long-term physiological adaptation, and short-term physiological adaptation. First, native populations of high-altitude areas, such as the Andes of Peru and the Himalayas of Tibet and Nepal, seem to have acquired certain genetic advantages for life at very high altitudes. The Andean tendency to develop a voluminous chest and lungs probably has a genetic basis. Second, regardless of their genes, people who grow up at a high altitude become physiologically more efficient there than genetically similar people who have grown up at sea level would be. This illustrates long-term physiological adaptation during the body's growth and development. Third, humans also have the capacity for short-term or immediate physiological adaptation. Thus, when lowlanders arrive in the highlands, they immediately increase their breathing and heart rates. Hyperventilation increases the oxygen in their lungs and arteries. As the pulse also increases, blood reaches their tissues more rapidly. These varied adaptive responses—cultural and biological—all fulfill the need to supply an adequate amount of oxygen to the body.

As human history has unfolded, the social and cultural means of adaptation have become increasingly important. In this process, humans have devised diverse ways of coping with the range of environments they have occupied in time and space. The rate of cultural adaptation and change has accelerated, particularly during the last 10,000 years. For millions of years, hunting and gathering of nature's bounty—*foraging*—was the sole basis of human subsistence. However, it took only a few thousand years for **food production** (the cultivation of plants and domestication of animals), which originated some 12,000–10,000 years ago, to replace foraging in most areas. Between 6000 and 5000 B.P. (before the present), the first civilizations arose. These were large, powerful, and complex societies, such as ancient Egypt, that conquered and governed large geographic areas.

Much more recently, the spread of industrial production has profoundly affected human life. Throughout human history, major innovations have spread at the expense of earlier ones. Each economic revolution has had social and cultural repercussions. Today's global economy and communications link all contemporary people, directly or indirectly, in the modern world system. Nowadays, even remote villagers experience world forces and events. (See "Focus on Globalization" on p. 7.) The study of how local people adapt to global forces poses new challenges for anthropology: "The cultures of world peoples need to be constantly rediscovered as these people reinvent them in changing historical circumstances" (Marcus and Fischer 1986, p. 24).

Cultural Forces Shape Human Biology

Anthropology's comparative, biocultural perspective recognizes that cultural forces constantly mold human biology. (**Biocultural** refers to using and combining both biological and cultural perspectives and approaches to analyze and understand a particular issue or problem.) As we saw in "Understanding Ourselves," culture is a key environmental force in determining how human bodies grow and develop. Cultural traditions promote certain activities and abilities, discourage others, and set standards of physical well-being and attractiveness. Consider how this works in sports. North American girls are encouraged to pursue, and therefore do well in, competition involving figure skating, gymnastics, track and field, swimming, diving, and many other sports. Brazilian girls, although excelling in the team sports of basketball and volleyball, haven't fared nearly as well in individual sports as have their American and Canadian counterparts. Why are people encouraged to excel as athletes in some nations but not others? Why do people in some countries invest so much time and effort in competitive sports that their bodies change significantly as a result?

Cultural standards of attractiveness and propriety influence participation and achievement in sports. Americans run or swim not just to compete but also to keep trim and fit. Brazil's beauty standards traditionally have accepted more fat, especially in female buttocks and hips. Brazilian men have had significant international success in swimming and running, but Brazil rarely sends female swimmers or runners to the Olympics. One reason why Brazilian women avoid competitive swimming in particular may be that sport's effects on the body. Years of swimming sculpt a distinctive physique: an enlarged upper torso, a massive neck, and powerful shoulders and back. Successful female swimmers tend to be big, strong, and bulky. The countries that have produced them most consistently are the United States, Canada, Australia, Germany, the Scandinavian nations, the Netherlands, and the former Soviet Union, where this body type isn't as stigmatized as it is in Latin countries. For women, Brazilian culture prefers ample hips and buttocks to a muscled upper body. Many young female swimmers in Brazil choose to abandon the sport rather than their culture's "feminine" body ideal.

GENERAL ANTHROPOLOGY

The academic discipline of anthropology, also known as **general anthropology** or "four-field" anthropology, includes four main subdisciplines or subfields. They are sociocultural, archaeological, biological, and linguistic anthropology. (From here on, the shorter term *cultural anthropology*

will be used as a synonym for “sociocultural anthropology.”) Cultural anthropology focuses on societies of the present and recent past. Anthropological archaeology (the more common term for archaeological anthropology) reconstructs lifeways of ancient and more recent societies through analysis of material remains. Biological anthropology studies human biological variation through time and across geographic space. Linguistic anthropology examines language in its social and cultural contexts. Of the four subfields, cultural anthropology has the largest membership. Most departments of anthropology teach courses in all four subfields. (Note that general anthropology did not develop as a comparable field of study in most European countries, where the subdisciplines tend to exist separately.)

There are historical reasons for the inclusion of the four subfields in a single discipline in North America. The origin of anthropology as a scientific field, and of American anthropology in particular, can be traced back to the 19th century. Early American anthropologists were concerned especially with the history and cultures of the native



Early American anthropology was especially concerned with the history and cultures of Native North Americans. Ely S. Parker, or Ha-sa-noan-da, was a Seneca Indian who made important contributions to early anthropology. Parker also served as Commissioner of Indian Affairs for the United States.

SOURCE: National Archives and Records Administration

peoples of North America. Interest in the origins and diversity of Native Americans brought together studies of customs, social life, language, and physical traits. Anthropologists still are pondering such questions as these: Where did Native Americans come from? How many waves of migration brought them to the New World? What are the linguistic, cultural, and biological links among Native Americans and between them and Asians?

There also are logical reasons for including anthropology’s four subfields in the same academic discipline. Answers to key questions in anthropology often require an understanding of both human biology and culture and of both the past and the present. Each subfield considers variation in time and space (that is, in different geographic areas). Cultural and archaeological anthropologists study (among many other topics) changes in social life and customs. Archaeologists have used studies of living societies and behavior patterns to imagine

what life might have been like in the past. Biological anthropologists examine evolutionary changes in physical form, for example, anatomical



American swimmer Allison Schmitt starts the women’s 100-meter freestyle championship final at the Arena Pro Swim Series on March 5, 2016 in Orlando, Florida. How might years of competitive swimming affect the human body?

© Alex Menendez/Getty Images

changes that might have been associated with the origin of tool use or language. Linguistic anthropologists may reconstruct the basics of ancient languages by studying modern ones.

The subdisciplines influence each other as members of the different subfields talk to each other, share books and journals, and associate in departments and at professional meetings. General anthropology explores the basics of human biology, society, and culture and considers their interrelations. Anthropologists share certain key assumptions. Perhaps the most fundamental is the idea that we cannot reach sound conclusions about “human nature” by studying a single nation, society, or cultural tradition. A comparative, cross-cultural approach is essential.

THE SUBDISCIPLINES OF ANTHROPOLOGY

Cultural Anthropology

Cultural anthropology, the study of human society and culture, is the subfield that describes, analyzes, interprets, and explains social and cultural similarities and differences. To study and interpret cultural diversity, cultural anthropologists engage in two kinds of activity: ethnography (based on fieldwork) and ethnology (based on cross-cultural comparison). **Ethnography** provides an account of a particular group, community, society, or culture. During ethnographic fieldwork, the ethnographer gathers data that he or she organizes, describes, analyzes, and interprets to build and present that account, which may be in the form of a book, an article, or a film. Traditionally, ethnographers lived in small communities, where they studied local behavior, beliefs, customs, social life, economic activities, politics, and religion. Today, any ethnographer will recognize that external forces and events have an increasing influence on such settings.

An anthropological perspective derived from ethnographic fieldwork often differs radically from that of economics or political science. Those fields focus on national and official organizations and policies and often on elites. However, the groups that anthropologists traditionally have studied usually have been relatively poor and powerless. Ethnographers often observe discriminatory practices directed toward such people, who experience food and water shortages, dietary deficiencies, and other aspects of poverty. Political scientists tend to study programs that national planners develop, while anthropologists discover how these programs work on the local level.

Communities and cultures are less isolated today than ever before. In fact, as the anthropologist Franz Boas noted many years ago (1940/1966), contact between neighboring tribes has always existed and has extended over enormous areas.

“Human populations construct their cultures in interaction with one another, and not in isolation” (Wolf 1982, p. ix). Villagers increasingly participate in regional, national, and world events. Exposure to external forces comes through the mass media, migration, and modern transportation. City, nation, and world increasingly invade local communities with the arrival of tourists, development agents, government and religious officials, and political candidates. Such linkages are prominent components of regional, national, and global systems of politics, economics, and information. These larger systems increasingly affect the people and places anthropology traditionally has studied. The study of such linkages and systems is part of the subject matter of modern anthropology. (See “Focus on Globalization” for a discussion of world events familiar to millions of people.)

Ethnology examines, interprets, and analyzes the results of ethnography—the data gathered in different societies. It uses such data to compare and contrast and to generalize about society and culture. Looking beyond the particular to the more general, ethnologists attempt to identify and explain cultural differences and similarities, to test hypotheses, and to build theory to enhance our understanding of how social and cultural systems work. (See the section “The Scientific Method” later in this chapter.) Ethnology gets its data for comparison not just from ethnography but also from the other subfields, particularly from archaeology, which reconstructs social systems of the past. (Recap 1.2 summarizes the main contrasts between ethnography and ethnology.)

Anthropological Archaeology

Anthropological archaeology (also known as archaeological anthropology or, most simply, “archaeology”) reconstructs, describes, and interprets human behavior and cultural patterns through material remains. At sites where people live or have lived, archaeologists find artifacts, material items that humans have made, used, or modified, such as tools, weapons, campsites, buildings, and garbage. Plant and animal remains and garbage tell stories about consumption and activities. Wild and domesticated grains have different characteristics, which allow archaeologists to distinguish between the gathering and the cultivation of plants. Animal bones reveal the age and sex of slaughtered animals, providing other information useful in determining whether species were wild or domesticated.

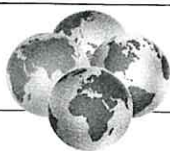
Analyzing such data, archaeologists answer several questions about ancient economies. Did the group get its meat from hunting, or did it domesticate and breed animals, killing only those of a certain age and sex? Did plant food come from wild plants or from sowing, tending, and harvesting crops? Did the residents make, trade for, or buy particular items? Were raw materials available

ethnology
The study of
sociocultural
differences and
similarities.

**cultural
anthropology**
The comparative,
cross-cultural study of
human society and
culture.

ethnography
Fieldwork in a particular
cultural setting.

**anthropological
archaeology**
The study of human
behavior through
material remains.



focus on GLOBALIZATION

World Events

People everywhere—even remote villagers—now participate in world events, especially through the mass media. The study of global–local linkages is a prominent part of modern anthropology. What kinds of events generate global interest? Disasters provide one example. Think of missing airplanes, nuclear plant meltdowns, and the earthquakes and tsunamis that have ravaged Thailand, Indonesia, and Japan. Think, too, of space—the final frontier: As many as 600 million people may have watched the first (Apollo 11) moon landing in 1969—a huge audience in the early days of global television. Also consider the British royal family, especially the photogenic ones. The wedding of Prince William and Catherine Middleton attracted 161 million viewers—twice the population of the United Kingdom. The birth, public presentation, and naming of their son George, an eventual heir to the British throne, in 2013 generated international interest. A generation earlier, millions of people had watched Lady Diana Spencer marry England's Prince Charles. Princess Diana's funeral also attracted a global audience.

And, of course, think of sports: Billions of people watched at least some of the 2016 Summer Olympics held in Rio de Janeiro, Brazil. Consider the FIFA World Cup (soccer), also held every four years. In 2006, an estimated 320 million people tuned in to the tournament's final game. This figure almost tripled to 909 million in 2010, and more than one billion viewers saw Germany defeat Argentina in the 2014 final. The World Cup generates huge global interest because it truly is a "world series," with 32 countries and five continents competing. Similarly, the Cricket World Cup, held every four years (most recently in 2015), is the world's third most watched event: Only the Summer Olympics and the FIFA World Cup exceed it. The 2015 Cricket World Cup was televised in over 200 countries, to over 2.2 billion potential viewers.

It's rather arrogant to call American baseball's ultimate championship "The World Series" when only one non-U.S. team, the Toronto Blue Jays, can play in it. (The title dates back to 1903, a time of less globalization and more American provincialism.) Baseball is popular in the United States (including Puerto Rico), Canada, Japan, Cuba, Mexico, Venezuela, and the Dominican Republic. South Korea, Taiwan, and China have professional leagues. Elsewhere the sport has little mass appeal.

On the other hand, when we focus on the players in American baseball we see a multiethnic world in miniature. With its prominent Latino and Japanese players, American baseball appears to be more ethnically diverse than American football or basketball. Particularly representative of this diversity is the list of finalists for the 2012 American League MVP (Most Valuable Player) award, won by Venezuelan Miguel Cabrera of the Detroit Tigers. In second place was New Jersey–born and non-Hispanic Mike Trout (Los Angeles Angels). Third and fourth were two more Latinos, Adrian Beltré and Robinson Cano. In fifth place came Josh Hamilton, a North Carolinian. The previous year's top five included Jacoby Ellsbury, a registered Native American, and Curtis Granderson, an African American. Can you think of a sport as ethnically diverse as baseball? What's the last world event that drew your attention?

locally? If not, where did they come from? From such information, archaeologists reconstruct patterns of production, trade, and consumption.

Archaeologists have spent much time studying potsherds, fragments of earthenware. Potsherds are more durable than many other artifacts, such as textiles and wood. The quantity of pottery fragments allows estimates of population size and density. The discovery that potters used materials unavailable locally suggests systems of trade. Similarities in manufacture and decoration at different sites may be proof of cultural connections. Groups with similar pots may share a common history. They might have common cultural ancestors. Perhaps they traded with each other or belonged to the same political system.

Many archaeologists examine paleoecology. *Ecology* is the study of interrelations among living things in an environment. The organisms and environment together constitute an ecosystem, a patterned arrangement of energy flows and exchanges. Human ecology studies ecosystems that include people, focusing on the ways in which human use "of nature influences and is influenced by social organization and cultural values" (Bennett 1969, pp. 10–11). *Paleoecology* looks at the ecosystems of the past.

In addition to reconstructing ecological patterns, archaeologists may infer cultural transformations, for example, by observing changes in the size and type of sites and the distance between them. A city develops in a region where only towns, villages, and hamlets existed a few centuries earlier. The number of settlement levels (city, town, village, hamlet) in a society is a measure of social complexity. Buildings offer clues about political and religious features. Temples and pyramids suggest that an ancient society had an authority structure capable of marshaling the labor needed to build such monuments. The presence or absence of certain structures, like the pyramids of ancient Egypt and Mexico, reveals differences in function between settlements. For example, some towns were places where people came to attend ceremonies. Others were burial sites; still others were farming communities.

Archaeologists also reconstruct behavior patterns and lifestyles of the past by excavating. This involves digging through a succession of levels at a particular site. In a given area, through time, settlements may change in form and purpose, as may the connections between settlements. Excavation can document changes in economic, social, and political activities.

Although archaeologists are best known for studying prehistory, that is, the period before the invention of writing, they also study the cultures of historical and even living peoples. Studying sunken ships off the Florida coast, underwater archaeologists have been able to verify the living conditions on the vessels that brought ancestral African Americans to the New World as enslaved

ETHNOGRAPHY

Requires fieldwork to collect data
Often descriptive
Group/community specific

ETHNOLOGY

Uses data collected by a series of researchers
Usually synthetic
Comparative/cross-cultural

people. In a research project begun in 1973 in Tucson, Arizona, archaeologist William Rathje has learned about contemporary life by studying modern garbage. The value of “garbology,” as Rathje calls it, is that it provides “evidence of what people did, not what they think they did, what they think they should have done, or what the interviewer thinks they should have done” (Harrison, Rathje, and Hughes 1994, p. 108). What people report may contrast strongly with their real behavior as revealed by garbology. For example, the garbologists discovered that the three Tucson neighborhoods that reported the lowest beer consumption actually had the highest number of discarded beer cans per household (Podolefsky and Brown 1992, p. 100)! Findings from garbology also have challenged common misconceptions about the kinds and quantities of trash found in landfills: While most people thought that fast-food containers and disposable diapers were major waste problems, they were actually relatively insignificant compared with paper (Rathje and Murphy 2001; Zimring 2012).

Biological Anthropology

Biological anthropology is the study of human biological diversity through time and as it exists in the world today. There are five specialties within biological anthropology:

1. Human biological evolution as revealed by the fossil record (paleoanthropology).
2. Human genetics.
3. Human growth and development.
4. Human biological plasticity (the living body’s ability to change as it copes with environmental conditions, such as heat, cold, and altitude).
5. Primatology (the study of monkeys, apes, and other nonhuman primates).

A common thread that runs across all five specialties is an interest in biological variation among humans, including their ancestors and their closest animal relatives (monkeys and apes).

These varied interests link biological anthropology to other fields: biology, zoology, geology, anatomy, physiology, medicine, and public health. Knowledge of osteology—the study of bones—is

essential for anthropologists who examine and interpret skulls, teeth, and bones, whether of living humans or of our fossilized ancestors. Paleontologists are scientists who study fossils. Paleoanthropologists study the fossil record of human evolution. Paleoanthropologists often collaborate with archaeologists, who study artifacts, in reconstructing biological and cultural aspects of human evolution. Fossils and tools often are found together. Different types of tools provide information about the habits, customs, and lifestyles of the ancestral humans who used them.

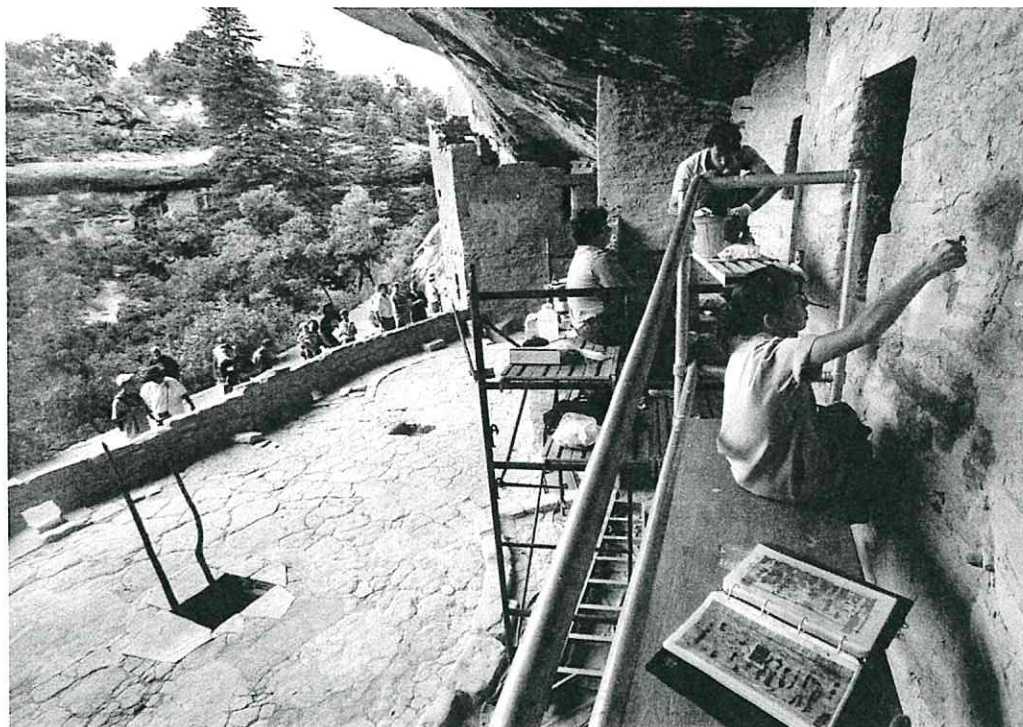
More than a century ago, Charles Darwin noticed that the variety that exists within any population permits some individuals (those with the favored characteristics) to do better than others at surviving and reproducing. Genetics, which developed after Darwin, enlightens us about the causes and transmission of the variety on which evolution depends. However, it isn’t just genes that cause variety. During any individual’s lifetime, the environment works along with heredity to determine biological features. For example, people with a genetic tendency to be tall will be shorter if they have poor nutrition during childhood. Thus, biological anthropology also investigates the influence of environment on the body as it grows and matures. Among the environmental factors that influence the body as it develops are nutrition, altitude, temperature, and disease, as well as cultural factors, such as the standards of attractiveness that were discussed previously.

Biological anthropology (along with zoology) also includes primatology. The primates include our closest relatives—apes and monkeys. Primatologists study their biology, evolution, behavior, and social life, often in their natural environments. Primatology assists paleoanthropology, because primate behavior and social organization may shed light on early human behavior and human nature.

Linguistic Anthropology

We don’t know (and probably never will know) when our ancestors started speaking, although biological anthropologists have looked to the anatomy of the face and the skull to speculate about the origin of language. As well, primatologists have described the communication systems of monkeys and apes. We do know that well-developed, grammatically complex languages

biological anthropology
The study of human biological variation through time and as it exists today.



Anthropological archaeologists from the University of Pennsylvania work to stabilize the original plaster at an Anasazi (Native American) site in Colorado's Mesa Verde National Park.
© George H.H. Huey/
Alamy Stock Photo

have existed for thousands of years. Linguistic anthropology offers further illustration of anthropology's interest in comparison, variation, and change. **Linguistic anthropology** studies language in its social and cultural context, throughout the world and over time. Some linguistic anthropologists also make inferences about universal features of language, linked perhaps to uniformities in the human brain. Others reconstruct ancient languages by comparing their contemporary descendants and in so doing make discoveries about history. Still others study linguistic differences to discover varied perceptions and patterns of thought in different cultures.

Historical linguistics considers variation over time, such as the changes in sounds, grammar, and vocabulary between Middle English (spoken from approximately 1050 to 1550 C.E.) and modern English. **Sociolinguistics** investigates relationships between social and linguistic variation. No language is a homogeneous system in which everyone speaks just like everyone else. How do different speakers use a given language? How do linguistic features correlate with social factors, including class and gender differences? One reason for variation is geography, as in regional dialects and accents. Linguistic variation also is expressed in the bilingualism of ethnic groups. Linguistic and cultural anthropologists collaborate in studying links between language and many other aspects of culture, such as how people reckon kinship and how they perceive and classify colors.

APPLIED ANTHROPOLOGY

What sort of man or woman do you envision when you hear the word *anthropologist*? Although anthropologists have been portrayed as quirky and eccentric, bearded and bespectacled, anthropology is not a science of the exotic carried on by quaint scholars in ivory towers. Rather, anthropology has a lot to tell the public. Anthropology's foremost professional organization, the American Anthropological Association (AAA), has formally acknowledged a public service role by recognizing that anthropology has two dimensions: (1) academic anthropology and (2) practicing, or **applied, anthropology**. The latter refers to the application of anthropological data, perspectives, theory, and methods to identify, assess, and solve contemporary social problems. As American anthropologist Erve Chambers (1987, p. 309) has stated, applied anthropology is "concerned with the relationships between anthropological knowledge and the uses of that knowledge in the world beyond anthropology." More and more anthropologists from the four subfields now work in "applied" areas such as public health, family planning, business, market research, economic development, and cultural resource management.

Because of anthropology's breadth, applied anthropology has many applications. For example, applied medical anthropologists consider both the sociocultural and the biological contexts and implications of disease and illness. Perceptions of good and bad health, along with actual health

linguistic anthropology
The study of language and linguistic diversity in time, space, and society.

sociolinguistics
The study of language in society.

applied anthropology
The use of anthropology to solve contemporary problems.

cultural resource
management
Deciding what needs
saving when entire
archaeological sites
cannot be saved.

threats and problems, differ among societies. Various ethnic groups recognize different illnesses, symptoms, and causes and have developed different health care systems and treatment strategies.

Applied archaeology, usually called *public archaeology*, includes such activities as cultural resource management, public educational programs, and historic preservation. Legislation requiring evaluation of sites threatened by dams, highways, and other construction activities has created an important role for public archaeology. To decide what needs saving, and to preserve significant information about the past when sites cannot be saved, is the work of **cultural resource management (CRM)**. CRM involves not only preserving sites but also allowing their destruction if they are not significant. The *management* part of the term refers to the evaluation and decision-making process. Cultural resource managers work for federal, state, and county agencies and other clients. Applied cultural anthropologists sometimes work with public archaeologists, assessing the human problems generated by the proposed change and determining how they can be reduced.

ANTHROPOLOGY AND OTHER ACADEMIC FIELDS

As mentioned previously, one of the main differences between anthropology and the other fields that study people is holism, anthropology's unique blend of biological, social, cultural, linguistic, historical, and contemporary perspectives. Paradoxically, while distinguishing anthropology, this breadth also is what links it to many other disciplines. Techniques used to date fossils and artifacts have come to anthropology from physics, chemistry, and geology. Because plant and animal remains often are found with human bones and artifacts, anthropologists collaborate with botanists, zoologists, and paleontologists.

Anthropology is a **science**—a “systematic field of study or body of knowledge that aims, through experiment, observation, and deduction, to produce reliable explanations of phenomena, with reference to the material and physical world” (*Webster's New World Encyclopedia* 1993, p. 937). This book presents anthropology as a *humanistic science* devoted to discovering, describing, understanding, appreciating, and explaining similarities and differences in time and space among humans and our ancestors. Clyde Kluckhohn (1944) described anthropology as “the science of human similarities and differences” (p. 9). His statement of the need for such a field still stands: “Anthropology provides a scientific basis for dealing with the crucial dilemma of the world today: how can peoples of different appearance, mutually unintelligible languages, and dissimilar ways of life get along peaceably together?” (p. 9).

science
A field of study that
seeks reliable
explanations, with
reference to the
material and physical
world.

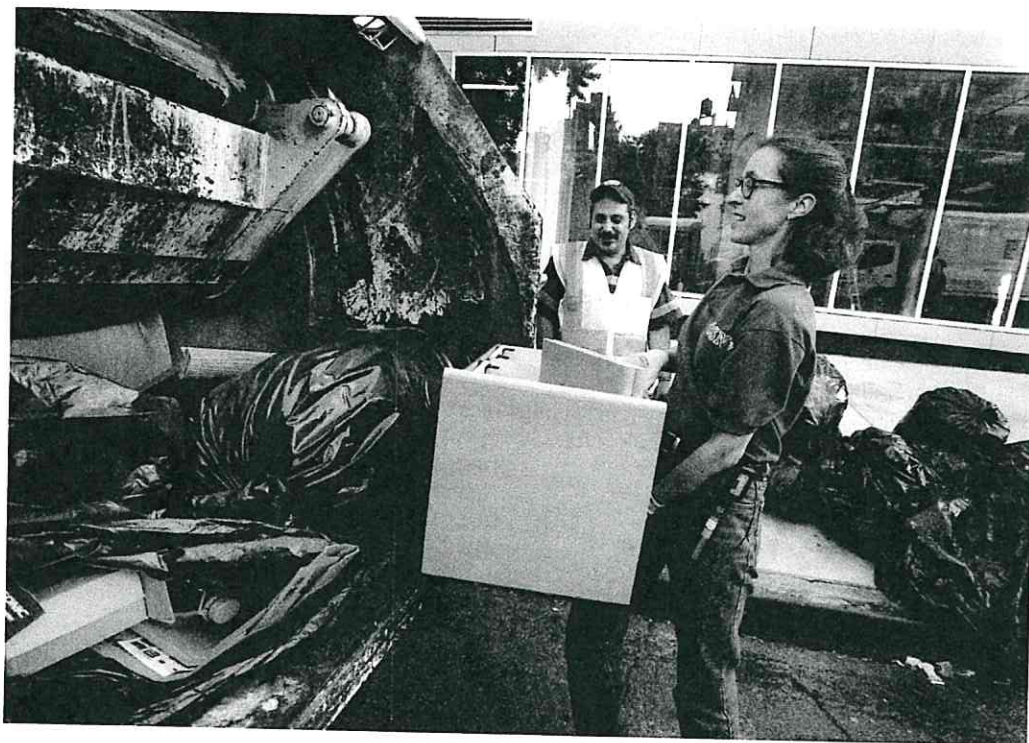
Anthropology has compiled an impressive body of knowledge, which this textbook attempts to encapsulate.

Besides its links to the natural sciences (e.g., geology, zoology) and social sciences (e.g., sociology, psychology), anthropology also has strong links to the humanities. The humanities include English, comparative literature, classics, folklore, philosophy, and the arts. These fields study languages, texts, philosophies, arts, music, performances, and other forms of creative expression. Ethnomusicology, which studies forms of musical expression on a worldwide basis, has close links to anthropology. Also linked is folklore, the systematic study of tales, myths, and legends from a variety of cultures. One can make a strong case that anthropology is one of the most humanistic of all academic fields because of its fundamental respect for human diversity. Anthropologists listen to, record, and represent voices from a multitude of nations, cultures, times, and places. Anthropology values local knowledge, diverse worldviews, and alternative philosophies. Cultural anthropology and linguistic anthropology in particular bring a comparative and nonelitist perspective to forms of creative expression, including language, art, narratives, music, and dance, viewed in their social and cultural context.

Cultural Anthropology and Sociology

Sociology is probably the discipline that is closest to anthropology, specifically to sociocultural anthropology. Like anthropology (particularly cultural anthropology), sociologists study society—consisting of human social behavior, social relations, and social organization. Key differences between sociology and anthropology reflect the kinds of societies traditionally studied by each discipline. Sociologists typically have studied contemporary, Western, industrial societies. Anthropologists, by contrast, have focused on nonindustrial and non-Western societies. Sociologists and anthropologists developed different methods to study these different kinds of society. To study contemporary Western societies, which tend to be large-scale, complex nations, sociologists have relied on surveys and other means of gathering quantifiable data. Sociologists must use sampling and statistical techniques to collect and analyze such data, and statistical training has been fundamental in sociology. Working in much smaller societies, such as a village, anthropologists can get to know almost everyone and have less need for sampling and statistics. However, because anthropologists today are working increasingly in modern nations, use of sampling and statistics is becoming more common.

Traditionally, ethnographers studied small and nonliterate (without writing) populations and developed methods appropriate to that context. An ethnographer participates directly in the daily life of another culture and must be an attentive,



Applied anthropology in action. Professor Robin Nagle of New York University is also an anthropologist-in-residence at New York City's Department of Sanitation. Nagle studies curbside garbage as a mirror into the lives of New Yorkers. Here she accompanies sanitation worker Joe Damiano during his morning rounds, in August, 2015.
© Richard Drew/AP Images

detailed observer of what people do and say. The focus is on a real, living population, not just a sample of a population. During ethnographic fieldwork, the anthropologist takes part in the events she or he is observing, describing, and analyzing. Anthropology, we might say, is more personal and less formal than sociology.

In today's interconnected world, however, the interests and methods of anthropology and sociology are converging—coming together—because they are studying some of the same topics and areas. For example, many sociologists now work in non-Western countries, smaller communities, and other settings that used to be mainly within the anthropological orbit. As industrialization and urbanization have spread across the globe, anthropologists now work increasingly in industrial nations and cities, rather than villages. Among the many topics studied by contemporary sociocultural anthropologists are rural-urban and transnational (from one country to another) migration, urban adaptation, inner-city life, ethnic diversity and conflict, crime, and warfare. Anthropologists today may be as likely as sociologists are to study issues of globalization and inequality.

Anthropology and Psychology

Psychologists, like sociologists, typically do their research in only one—their own—society. Anthropologists know, however, that statements about “human” psychology cannot rely solely on observations made in a single society. Cross-

cultural comparison suggests that certain psychological patterns may indeed be universal. Others occur in some but not all societies, while still others are confined to one or very few cultures. *Psychological anthropology* studies cross-cultural similarities and differences in psychological traits and conditions (see LeVine 2010). During the 1920s, 1930s, and 1940s several prominent anthropologists, including Bronislaw Malinowski (1927) and Margaret Mead (1935/1950; 1928/1961) described how particular cultures create distinctive adult personality types by inculcating in their children specific values, beliefs, and behavior patterns. Anthropologists have provided needed cross-cultural perspectives on aspects of developmental and cognitive psychology (Kronenfeld et al. 2011; Shore 1996), psychoanalytic interpretations (Gijswijt-Hofstra et al. 2005; Paul 1989), and psychiatric conditions (Gijswijt-Hofstra et al. 2005; Kleinman 1991).

Anthropologists are familiar, for example, with an array of *culturally specific syndromes*. These are patterns of unusual, aberrant, or abnormal behavior confined to a single culture or a group of related cultures (see Goleman 1995). One example is *koro*, the East Asian term for intense anxiety arising from the fear that one's sexual organs will recede into one's body and cause death. A distinctive Latin American syndrome is *susto*, or soul loss, whose symptoms are extreme sadness, lethargy, and listlessness. The victim typically falls prey to *susto* after experiencing a personal tragedy, such as the death of a loved one. A milder

malady is *mal de ojo* ("evil eye"), most typically found in Mediterranean countries. Symptoms of evil eye, which mainly affects children, include fitful sleep, crying, sickness, and fever (Goleman 1995). Western cultures, too, have distinctive psychiatric syndromes, some of which appear now to be spreading internationally through globalization. This chapter's "Appreciating Anthropology" discusses how one such syndrome, anorexia nervosa, is spreading from the United States and Western Europe to other continents.

Like any other cultural anthropologist working in the 21st century, the student of psychological anthropology must recognize how local, indigenous patterns (psychological-psychiatric, in this case) interact with the forces of globalization, including the concepts and conditions it is spreading.

THE SCIENTIFIC METHOD

Anthropology, remember, is a science, although a very humanistic one. Any science aims for reliable explanations that *predict* future occurrences. Accurate predictions stand up to tests designed to disprove (falsify) them. Scientific explanations rely on data, which can come from experiments, observation, and other systematic procedures. Scientific causes are material, physical, or natural (e.g., viruses) rather than supernatural (e.g., ghosts).

Theories, Associations, and Explanations

In their 1997 article "Science in Anthropology," Melvin Ember and Carol R. Ember describe how scientists strive to improve our understanding of the world by hypothesis testing. A **hypothesis** is a *proposed* explanation for something. Until it is *tested*, it is merely hypothetical. If the test confirms the hypothesis, then that explanation is a good one. An *explanation* shows how and why one variable causes or is closely associated with another variable that we want to explain. An **association** refers to *covariation* of variables. Covariation means they vary together—when one variable changes, the other one also changes. *Theories provide explanations for associations* (Ember and Ember 1997). What exactly is a theory? A **theory** is a framework of logically connected ideas that helps us explain not just one, but many, associations. In other words, the most useful theories cover multiple cases.

We generalize when we say that a change in a particular variable usually follows or is usually associated with a change in another variable. A *law* is a *generalization* that applies to and explains all instances of an association. An example of a law is the statement "water freezes at 32 degrees

Fahrenheit." This law states a uniform association between two variables: the state of the water (whether liquid or ice) and the air temperature. We confirm the truth of the statement by repeated observations of freezing and by the fact that water does not solidify at higher temperatures. The existence of laws makes the world a more predictable place, helping us to understand the past and predict the future. Yesterday ice formed at 32 degrees F, and tomorrow it will still form at 32 degrees F.

The social sciences have few, if any, absolute laws of the water-freezing sort. "Laws" in social science tend to be imperfect generalizations, and explanations in social science tend to be probable rather than certain. They usually have exceptions; that is, sometimes the explanation does not hold. Does that mean such explanations are useless? Not at all. Imagine a law that said that water freezes at 32 degrees 83 percent of the time. Although we cannot make an exact prediction based on such a generalization, it still tells us something useful, even if there are exceptions. Most of the time, we would predict correctly that water was going to freeze. To take a real example from social science, we can generalize that "conflict tends to increase as a group's population size increases." Even if this statement applies only 83 percent of the time, it still is useful. In the social sciences, including anthropology, the variables of interest only *tend* to be associated in a predictable way; there are always exceptions. Recap 1.3 summarizes the key terms used in this section: association, hypothesis, explanation, theory, generalization, and law.

Case Study: Explaining the Postpartum Taboo

One classic cross-cultural study revealed a strong (but not 100 percent) association, or correlation, between a sexual restriction and a type of diet. A long postpartum sex taboo (a ban on sexual intercourse between husband and wife for a year or more after the birth of a child) tended to occur in societies where the diet was low in protein (Whiting 1964).

This association was confirmed by cross-cultural data (ethnographic information from a randomly chosen sample of several societies). How might one explain why the *dependent variable* (the thing to be explained, in this case the postpartum sex taboo) is related to the *predictor variable* (a low-protein diet). A likely explanation is that, when there is too little protein in their diets, babies can develop and die from a protein-deficiency disease called kwashiorkor. If the mother delays her next pregnancy, her current baby gets to breast-feed longer, thereby getting protein from the mother and enhancing its survival chances. Having another baby too soon—forcing early weaning—would jeopardize the

hypothesis
A suggested but as yet unverified explanation.

association
An observed relationship between two or more variables.

theory
A set of ideas formulated to explain something.

Key question: How do you explain associations?

ASSOCIATION	A systematic relationship between variables, so that when one variable changes (varies), the other does, too (covaries). Example: When temperatures fall, water solidifies.
HYPOTHESIS	A proposed explanation for an association; must be tested—may be confirmed or not. Example: Conflict will increase along with population size.
EXPLANATION	Reasons how and why a particular association exists. Example: Giraffes with longer necks have higher rates of survival and more surviving offspring than do shorter-necked giraffes, because they can feed themselves better when food is scarce.
THEORY	Explanatory framework of logically interconnected ideas used to explain multiple phenomena. Example: Darwinian evolutionary theory used to explain giraffes' long necks and other adaptive features in multiple species.
GENERALIZATION	A statement that change in one variable tends to follow or be associated with change in another variable. Example: When societies have low-protein diets, they tend to have longer postpartum taboos than when the diet is richer in protein.
LAW	Generalization that is universally valid. Example: When temperature reaches 32 degrees F, water turns from liquid to solid (ice).

survival of the previous one. The postpartum taboo thus enhances infant survival. When the taboo becomes institutionalized as a cultural expectation, people are more likely to comply, and less likely to succumb to momentary temptation.

Theories suggest patterns and relationships, and they generate additional hypotheses. Based, for example, on the theory that the postpartum taboo exists because it reduces infant mortality when the diet is low in protein, one could hypothesize that changes in the conditions that favor the taboo might cause it to disappear. By adopting birth control, for instance, families could space births without avoiding intercourse. The taboo might also disappear if babies started receiving protein supplements, which would reduce the threat of kwashiorkor.

Recap 1.4 summarizes the main steps in using the scientific method. In hypothesis testing, the relevant variables should be clearly defined (e.g., "height in centimeters" or "weight in kilograms" rather than "body size") and measured reliably. The strength and significance of the results should be evaluated using legitimate statistical methods (Bernard 2011). Scholars should be careful to avoid a common mistake in generalizing—citing only cases that confirm their hypothesis, while ignoring negative ones. The best procedure is random selection of cases from a wide sample of societies, not all of which are likely to fit the hypothesis.



The name *kwashiorkor*, for a condition caused by severe protein deficiency, comes from a West African word meaning "one-two." Some cultures abruptly wean one infant when a second one is born. In today's world, refugees from civil wars, including the Angolan girl shown here, are among the most common victims of malnutrition.

© Ton Koene



appreciating ANTHROPOLOGY

Anorexia Goes Global

Both cultural and biological anthropologists contribute to *medical anthropology*, a growing field of study that examines how and why various health conditions affect particular populations, and how illness is socially constructed, diagnosed, managed, and treated in different societies. Particular cultures and ethnic groups recognize different illnesses, symptoms, and causes.

Well known to anthropology are *culturally specific syndromes*—health conditions, often with a mental-psychological component, that are confined to a single culture or a group of related cultures. Examples discussed in the text include *koro* (East Asia), *susto* (Latin America), and “evil eye” (Mediterranean countries). The influential *Diagnostic and Statistical Manual of Mental Disorders* published by the American Psychiatric Association (2013) now recognizes “culture-bound syndromes,” another term for these culturally specific syndromes.

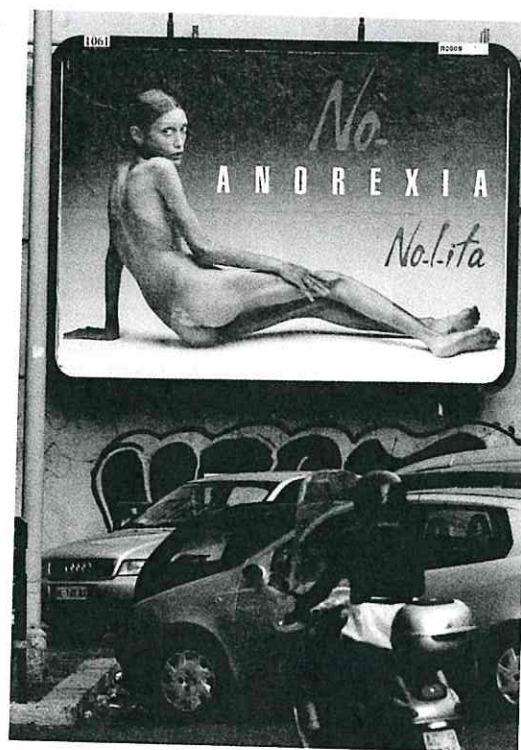
In our modern world system, as people migrate, they carry their cultural baggage, including their syndromes, with them across national boundaries. Today, diagnosticians in Western Europe and the United States may encounter cases of *susto*, evil eye, or even *koro* among recent immigrants. Furthermore, certain syndromes once confined to Western cultures are now spreading with globalization. One example is *anorexia nervosa* (food refusal or extreme dieting resulting in self-starvation), a syndrome once specific to Western industrialized societies that has been spreading internationally.

In the early 1990s (as reported by Watters 2010), Dr. Sing Lee, a Hong Kong-based psychiatrist and researcher, documented what was, at that time, a culturally specific, and very rare, form of *anorexia nervosa* in Hong Kong. Unlike American anorexics, Lee’s patients did not worry

about getting fat. Instead, they reduced their food intake in an attempt to fend off unwanted bodily symptoms—most frequently, bloated stomachs. Just as Dr. Lee started publishing his findings, however, the understanding of anorexia in Hong Kong suddenly shifted, after a teenage anorexic girl collapsed and died on a busy downtown street. Her death was featured prominently in local newspapers, with such headlines as “Anorexia Made Her All Skin and Bones.”

Because anorexia was a rarity in Hong Kong at that time, local reporters did not know what to make of its symptoms. In reporting on the girl’s death, many of them simply copied from American diagnostic manuals, thus spreading the idea that anorexia in Hong Kong was the same disorder that existed in the United States and Europe. As Hong Kongers became more familiar with the American diagnosis of anorexia, Lee’s patients started mimicking the American symptoms, and the incidence of anorexia also increased. Lee’s anorexic patient load rose rapidly, from two or three per year to that many per month. Eventually Lee concluded that up to 10 percent of young women in Hong Kong had fallen victim to eating disorders. Unlike his earlier patients, these women—eventually 90 percent of them—now cited a fear of getting fat as the key reason for not eating (Watters 2010).

Disorders and symptoms, both physical and mental, can easily cross national borders in today’s globalized and socially networked world.



In Rome, a poster featuring an emaciated woman (in an advertisement for an Italian fashion house) bears the headline “No anorexia.” How does anorexia illustrate a culturally specific syndrome?
© Riccardo De Luca/MAXPPP/Newscom

The *Diagnostic and Statistical Manual of Mental Disorders* serves as an increasingly transnational reference and standard. The Western form of anorexia surely would not have spread so quickly in Hong Kong without modern media. After all, it took more than half a century for Western mental health professionals to name, codify, and establish their definition of anorexia. By contrast, after a single widely reported death on a busy downtown street, it took just hours for the people of Hong Kong to learn about anorexia and its “Western” symptoms (Watters 2010), and just months for some of them to begin suffering from the ailment.

Have a research question.	Why do some societies have long postpartum taboos?
Construct a hypothesis.	Delaying marital sex reduces infant mortality when diets are low in protein.
Posit a mechanism.	Babies get more protein when they nurse longer; nursing is not a reliable method of contraception.
Get data to test your hypothesis.	Use a (random) sample of cross-cultural data (data from several societies; such data sets exist for cross-cultural research).
Devise a way of measuring.	Code societies 1 when they have a postpartum taboo of one year or longer, 0 when they do not; code 1 when diet is low in protein, 0 when it is not.
Analyze your data.	Notice patterns in the data: Long postpartum taboos generally are found in societies with low-protein diets, whereas societies with better diets tend to lack those taboos. Use appropriate statistical methods to evaluate the strength of these associations.
Draw a conclusion.	In most cases, the hypothesis is confirmed.
Derive implications.	Such taboos tend to disappear when diets get better or new reproductive technologies become available.
Contribute to larger theory.	Cultural practices can have adaptive value by enhancing the survival of offspring.

The Value, and Limitations, of Science

Science is one way—an excellent way—of understanding the world, but it certainly is not the only way. Indeed, the work of many prominent anthropologists has more in common with the humanities

than with a strictly scientific approach. Many cultural anthropologists prefer to analyze and interpret aspects of culture, rather than trying to explain them scientifically. Accordingly, anthropological approaches that are interpretive, qualitative, and humanistic are considered in this book, along with those that are quantitative and scientific.

for REVIEW

1. Anthropology is the holistic and comparative study of humanity. It is the systematic exploration of human biological and cultural diversity. Examining the origins of, and changes in, human biology and culture, anthropology provides explanations for similarities and differences. The four subfields of general anthropology are sociocultural, archaeological, biological, and linguistic. All consider variation in time and space. Each also examines adaptation—the process by which organisms cope with environmental stresses.
2. Cultural forces mold human biology, including our body types and images. Societies have particular standards of physical attractiveness. They also have specific ideas about what activities—for example, various sports—are appropriate for males and females.
3. Cultural anthropology explores the cultural diversity of the present and the recent past. Anthropological archaeology reconstructs cultural patterns, often of prehistoric populations. Biological anthropology documents variety, involving fossils, genetics, growth and development, bodily responses, and nonhuman primates. Linguistic anthropology considers diversity among languages. It also studies how speech changes in social situations and over time. Anthropology has two dimensions: academic and applied. Applied anthropology is the use of anthropological data, perspectives, theory, and methods to identify, assess, and solve contemporary social problems.
4. Concerns with biology, society, culture, and language link anthropology to many other fields—sciences and humanities. Anthropologists study

summary

art, music, and literature across cultures. But their concern is more with the creative expressions of common people than with arts designed for elites. Anthropologists examine creators and products in their social context. Sociologists traditionally study Western industrial societies, whereas anthropologists have focused on rural, nonindustrial peoples. Psychological anthropology views human psychology in the context of social and cultural variation.

5. Ethnologists attempt to identify and explain cultural differences and similarities and to build

theories about how social and cultural systems work. Scientists strive to improve understanding by testing hypotheses—suggested explanations. Explanations rely on associations and theories. An association is an observed relationship between variables. A theory is an explanatory framework capable of explaining many associations. The scientific method characterizes any anthropological endeavor that formulates research questions and gathers or uses systematic data to test hypotheses.

key terms

anthropological archaeology 6
anthropology 3
applied anthropology 9
association 12
biocultural 4
biological anthropology 8
cultural anthropology 6
cultural resource management 10
culture 3
ethnography 6

ethnology 6
food production 4
general anthropology 4
holistic 3
hypothesis 12
linguistic anthropology 9
science 10
sociolinguistics 9
theory 12

critical thinking

1. How might a *biocultural* approach help us understand the complex ways in which human populations adapt to their environments?
2. What themes and interests unify the subdisciplines of anthropology? In your answer, refer to historical reasons for the unity of anthropology. Are these historical reasons similar in all places where anthropology developed as a discipline?
3. If, as Franz Boas illustrated early on in American anthropology, cultures are not isolated, how can ethnography provide an account of a particular community, society, or culture? Note: There is no easy answer to this question! Anthropologists continue to deal with it as they define their research questions and projects.
4. The American Anthropological Association has formally acknowledged a public service role by recognizing that anthropology has two dimensions: (1) academic anthropology and (2) practicing, or applied, anthropology. What is applied anthropology? Based on your reading of this chapter, identify examples from current events where an anthropologist could help identify, assess, and solve contemporary social problems.
5. In this chapter, we learn that anthropology is a science, although a very humanistic one. What do you think this means? What role does hypothesis testing play in structuring anthropological research? What are the differences between theories, laws, and hypotheses?