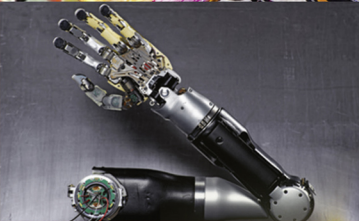




The Essence of

Anthropology



Third Edition

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The Essence of Anthropology, Third Edition

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VISUAL ESSENCE

Part of being human is our fascination with ourselves. Where did we come from? Why do we act in certain ways? What makes us tick? While some answer these questions with biological mechanisms and others with social or spiritual explanations, anthropologists address them through a holistic, integrated approach. Anthropology considers human culture and biology, in all times and places, as inextricably intertwined, each affecting the other in important ways. For example, consider these smiling schoolgirls in Yei, South Sudan, the world's newest country. Celebrating independence on July 9, 2011, South Sudan became Africa's 54th state through peaceful elections in a region ravaged by five decades of war that took the lives of 2 million people. In a country where "a 15-year-old girl has a higher chance of dying in childbirth than she does of finishing primary school . . . and more than ten percent of children do not make it to their first birthday,"¹ these girls have good reason to smile. Through the support of Africa ELI—an organization dedicated to improving economic conditions by advancing educational opportunities for young women in South Sudan—these girls will soon graduate from secondary school. Africa ELI (Education and Leadership Initiative) was founded in 2006 by members of the Sudanese diaspora with help from a U.S. anthropologist and other American friends. Today, local Sudanese leaders have assumed more of the program's direction. Anthropology provides insight into every part of this story—the relation between gender and social change, the cultures of the ethnic groups who call this region home, the effects of colonialism, the complex lives of refugees in new lands, the forces that enabled democratic elections, and the social determinants of health. Just as education serves these young women, a holistic anthropological perspective will equip you to negotiate today's globalized world.

1 The Essence of Anthropology

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 might 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 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 how their beliefs and actions might be shaping their research—anthropologists strive to gain objective knowledge. With this in mind, anthropologists aim to avoid the pitfalls of **ethnocentrism**, a way of viewing other cultures in relation to one's own in the belief that the familiar sets a universal standard of what is proper or correct. Thus anthropologists have expanded our understanding of diversity in human thought, biology, and behavior, as well as to our understanding of the many things humans have in common.



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.

¹Gettleman, J. (2011, July 9). South Sudan, the newest nation, is full of hope and problems. *New York Times*. <http://www.post-gazette.com/pg/11190/1159402-82-0.stm> (retrieved August 22, 2011).

VISUAL COUNTERPOINT

Courtesy of the Center for Mindful Learning



© Maria Stenzel/National Geographic Image Collection

▲▲▲ Although infants in the United States typically sleep apart from their parents, a practice thought to promote independence, cross-cultural research shows that co-sleeping, particularly of mother and baby, is the rule. Unfortunately, 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 baby, usually between 4 and 6 months old, stops breathing and dies while asleep. The highest rates of SIDS are found among infants in the United States.² The photo on the right shows a Nenet family sleeping together in their *chum* (reindeer-skin tent). Nenet people are sub-Arctic reindeer pastoralists living in Siberia.

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 **culture-bound** theories—that is, theories based on assumptions about the world and reality that come from the researcher’s own particular culture.

Consider the case of organ transplantation, a medical practice that has become widespread since the first kidney transplant between identical twin brothers in Boston in 1954. 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. In order to reduce the 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 only exist 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 transplant 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 transplants.³

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 why North Americans find brain death acceptable is that personhood and individuality are culturally located in the brain. North American comfort with brain death has allowed for the “gift of life” through 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, the person’s identity is located throughout the body rather than solely in the brain. Consequently the Japanese resist accepting a warm body as a corpse from which organs can be harvested. Further, organs cannot be transformed into

²Barr, R. G. (1997, October). The crying game. *Natural History*, 47. Also, McKenna, J. J., & McDade, T. (2005, June). Why babies should never sleep alone: A review of the co-sleeping controversy in relation to SIDS, bedsharing, and breast feeding. *Pediatric Respiratory Reviews* 6(2), 134–152.

³Lock, M. (2001). *Twice dead: Organ transplants and the reinvention of death*. Berkeley: University of California Press.

“gifts” because anonymous donation is not compatible with Japanese social patterns of reciprocal exchange.

Organ transplantation carries far greater social meaning than the purely biological movement of an organ from one individual to another. And although this practice may fit with the beliefs of some societies, it may be an opportunity for human rights abuses in another.

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 1.1**). Some anthropologists consider archaeology and linguistics as part of the broader study of human cultures, but archaeology and linguistics also have close ties to biological anthropology. For example, while linguistic anthropology focuses on the cultural aspects of language, it has deep connections to the evolution of human language and 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 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, examples of how anthropology contributes to solving a wide range of the challenges humans face appear in the Anthropology Applied features.

One of the earliest contexts in which anthropological knowledge was applied 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 the next page, “Picturing Pesticides.”

Cultural Anthropology

Cultural anthropology (also called *social* or *sociocultural anthropology*) is the study of patterns of human behavior, thought, and feelings. 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, 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 person 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. The earliest anthropologists

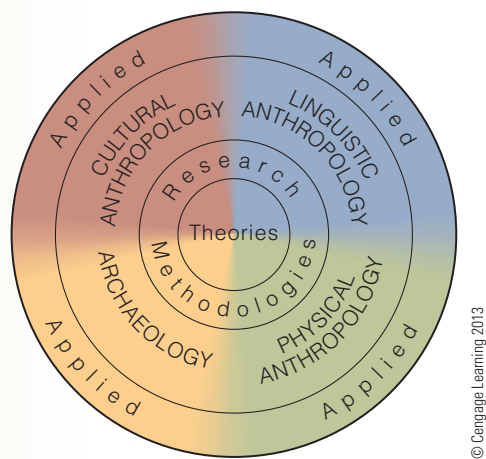


Figure 1.1 The Four Fields of Anthropology Note that the divisions between them are not sharp, indicating that their boundaries overlap.

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.

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

culture-bound Theories about the world and reality based on the assumptions and values of one’s own culture.

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

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

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

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.

BIOCULTURAL CONNECTION

Picturing Pesticides



The toxic effects of pesticides have long been known. After all, these compounds are designed to kill bugs. However, documenting the toxic effects of pesticides on humans has been more difficult, as they are subtle—sometimes taking years to become apparent.

Anthropologist Elizabeth Guillette, working in a Yaqui Indian community in Mexico, combined ethnographic observation, biological monitoring of pesticide levels in the blood, and neurobehavioral testing to document the impairment of child development by pesticides.^a Working with colleagues from the Technological Institute of Sonora in Obregón, Mexico, Guillette compared children and families

from two Yaqui communities: one living in farm valleys who were exposed to large doses of pesticides and one living in ranching villages in the foothills nearby.

Guillette documented the frequency of pesticide use among the farming Yaqui to be forty-five times per crop cycle with two crop cycles per year. In the farming valleys she also noted that families tended to use household bug sprays on a daily basis, thus increasing their exposure to toxic pesticides. In the foothill ranches, she found that the only pesticides that the Yaqui were exposed to consisted of DDT sprayed by the government to control malaria. In these communities, indoor bugs were swatted or tolerated.

Pesticide exposure was linked to child health and development through two sets of measures. First, Guillette examined the levels of pesticides in the blood of valley children at birth and throughout their childhood and found these levels to be far higher than in the children from the foothills. She also documented the presence of pesticides in breast milk of nursing mothers from the valley farms.

The second study examined the children's performance on a variety of normal childhood activities, such as jumping, memory games, playing catch, and draw-

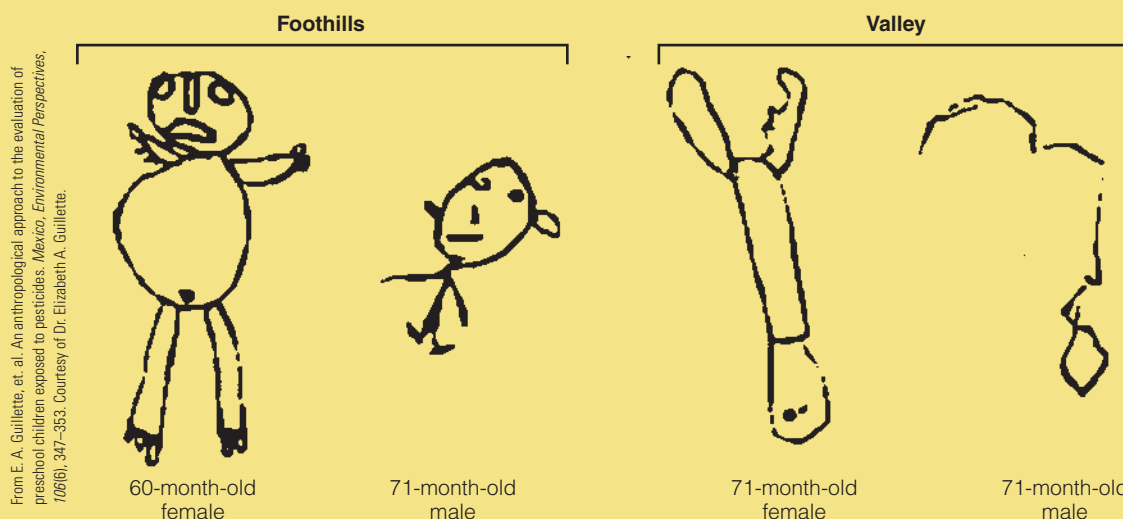
ing pictures. The children exposed to high doses of pesticides had significantly less stamina, poorer eye–hand coordination, less large motor coordination, and poorer drawing ability compared to the Yaqui children from the foothills. Although these children exhibited no overt symptoms of pesticide poisoning, they did demonstrate delays and impairment in their neurobehavioral abilities that might be irreversible.

Though Guillette's study was thoroughly embedded in one ethnographic community, she emphasizes that the exposure to pesticides among the Yaqui farmers is typical of agricultural communities globally and thus has significance for changing human practices regarding the use of pesticides everywhere. ■

Biocultural Question

Given the documented developmental damage these pesticides have inflicted on children, should their sale and use be regulated globally? Are potentially damaging toxins in use in your community?

^aGuillette, E. A., et al. (1998, June). An anthropological approach to the evaluation of preschool children exposed to pesticides in Mexico. *Environmental Health Perspectives* 106, 347.



From E. A. Guillette, et al. An anthropological approach to the evaluation of preschool children exposed to pesticides. *Mexico, Environmental Perspectives*, 106(6), 347–353. Courtesy of Dr. Elizabeth A. Guillette.

▲▲▲ Compare the drawings typically done by Yaqui children heavily exposed to pesticides (valley) to those made by Yaqui children living in nearby areas who were relatively unexposed (foothills).

stepped outside of their own cultural framework in order to learn how other societies organized themselves. Today a cultural anthropologist might 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. A cultural anthropologist will think about social categories in a society, such as gender, age, or class. Indeed these factors will be explored in depth in the second half of this text. But it is also worth noting the importance of these same cultural factors 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**. 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 in another people's culture—eating their 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 society in which warfare is prominent; but by living among a warring people, the ethnographer should be able to understand how warfare fits into their overall cultural framework.

The ethnographer must observe carefully to gain an overview without placing too much emphasis on one part at the expense of another. Only by discovering how all aspects 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. An ethnographer's most essential tools are notebooks, pen/pencil, camera, recording devices, and a laptop computer. Most important of all, he or she needs flexible social skills.

The popular image of ethnographic fieldwork is that it occurs among people who live in far-off, isolated

places. To be sure, much ethnographic work has been done in the remote villages of Africa or South America, the islands of the Pacific Ocean, the Indian tribal reservations of North America, the deserts of Australia, and so on. However, as the discipline of anthropology developed, Western industrialized societies also became a legitimate focus of anthropological study. Some of this shift occurred as scholars from non-Western cultures became anthropologists. 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 all around the globe employ the same research techniques that were used in the study of non-Western peoples to explore such diverse subjects as religious movements, street gangs, land rights, schools, conflict resolution, homeless encampments, 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 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 people in the United States who are not working for

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.



© Living Tongues Institute

▶ Linguistic anthropologist David Anderson has devoted his career to 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 working with Don Francisco Ninacondis and Ariel Ninacondis in Charazani, Bolivia, to help preserve their language, Kallawayá.

wages outside their homes put 55 hours a week into their housework. In contrast, aboriginal women in Australia devote 20 hours a week to their chores.⁴ Nevertheless, consumer appliances have become important indicators of a high standard of living all across the world 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 concerning the function and operation of cultural practices in all times and places.

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, medical anthropologist Nancy Scheper-Hughes has taken her investigative work on the global illegal trafficking of organs and used it to help found Organs Watch, an organization dedicated to solving this human rights issue.

Linguistic Anthropology

Perhaps the most distinctive feature of the human species is language. Although the sounds and gestures made by some other species—especially 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 preserve and transmit countless details of their culture from generation to generation.

The branch of anthropology that studies human languages is called **linguistic anthropology**. Although it shares data and methods with the discipline of linguistics, it differs in that it focuses on anthropological questions, such as, how does language use differ among distinct members of a society? And how does the culture shape the language?

When this field began, it emphasized the documentation of languages in cultures under ethnographic study—particularly those whose future seemed precarious. When the first Europeans began to colonize the world, an estimated 12,000 distinct languages existed. By the late nineteenth and early twentieth century—when anthropological fieldwork, particularly of American Indian groups, began to take off—many languages and peoples were on the brink of extinction. Sadly this trend continues, with predictions that nearly half of the world's remaining 6,000 languages will disappear over the next hundred years.⁵

LANGUAGE AND BELIEFS

In the early twentieth century, mastery of Native American languages—with grammatical structures so different from the Indo-European and Semitic languages to which Euramerican scholars were accustomed—prompted the notion of *linguistic relativity*. This refers to the idea that linguistic diversity reflects not just differences in sounds and grammar but differences in ways of looking at the world. For example, the observation that the language of the Hopi Indians of the American Southwest had no words for the concepts of past, present, and future led the early proponents of linguistic relativity to suggest that the Hopi people had a unique conception of time.⁶ Similarly, the observation that English-speaking North Americans use a number of slang words—such as *dough*, *greenback*, *dust*, *loot*, *bucks*,

⁴Bodley, J. H. (1985). *Anthropology and contemporary human problems* (2nd ed., p. 69). Palo Alto, CA: Mayfield.

⁵Crystal, D. (2002). *Language death*. Cambridge, UK: Cambridge University Press; Knight, C., Studdert-Kennedy, M., & Hurford, J. (Eds.). (2000). *The evolutionary emergence of language: Social function and the origins of linguistic form*. Cambridge: Cambridge University Press.

⁶Whorf, B. (1946). The Hopi language, Toreva dialect. In *Linguistic structures of Native America*. New York: Viking Fund.

change, paper, cake, moolah, benjamins, and bread—to refer to money could be a product of linguistic relativity. The profusion of terms helps to identify a thing of special importance to a culture. Similarly, the importance of money within North American culture is also evident in the equation of money with time, in phrases such as “time is money,” “a waste of time,” and “spend some time.”

Complex ideas and practices integral to a culture’s survival can also be reflected in language. For example, among the Nuer, a nomadic group that travels with grazing animals throughout South Sudan, a baby born with a visible deformity is not considered a human baby. Instead it is called a baby hippopotamus. This name allows for the safe return of the “hippopotamus” to the river where it belongs. Such infants would not be able to survive in Nuer society, and so linguistic practice is compatible with the compassionate choice the Nuer have had to make.

Some theorists have challenged the notion of linguistic relativity, arguing that the human capacity for language is based on biological universals that underlie all human thought. Cognitive scientist Stephen Pinker has even suggested that, at the universal biological level, thought is nonverbal.⁷ Whatever the case, a holistic anthropological approach considers language as dependent both on a biological basis shared by all humans and on specific cultural patterning.

SOCIOLINGUISTICS

In order to examine anthropological questions through linguistic analyses, linguistic anthropologist Dell Hymes developed a framework that focused on specific speech events.⁸ Such events form a **discourse** or an extended communication on a particular subject. Within a speech event or series of events, the researcher can focus on features such as the physical and psychological setting, the participants, the purpose, the sequence, and social rules. For example, linguistic anthropologists may deal with the relationship between language and the social roles/identity within a society. How does financial status, age, or gender affect the way individuals use their culture’s language? The linguistic anthropologist might examine whether the tendency for females in the United States to end statements with an upward inflection, as though the statement were a question, reflects a pattern of male dominance in this society. Because members of any culture may use a variety of different registers and

inflections, the ones they choose to express their thoughts at a specific instance can convey particular meanings.

Linguistic anthropologists also focus on the socialization process through which an individual becomes part of a culture. Children take on this fundamental task as they grow and develop, but it can be seen in adults as well. Adults may need to assimilate because of a geographic move or because they are taking on a professional identity. First-year medical students, for example, amass 6,000 new vocabulary words and a series of linguistic conventions as they begin to take on the role of a physician.

HISTORICAL LINGUISTICS

As with the anthropological perspective on culture, language is similarly regarded as alive, malleable, and changing. Online tools such as Urban Dictionary track the changes in North American slang, and traditional dictionaries include new words and usages each year. These language changes have important implications as linguistic anthropologists track them to increase our understanding of the human past. By working out relationships among languages and examining their spatial distributions, linguistic anthropologists 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, anthropological linguists can also suggest not only where but *how* the speakers of the ancestral language lived. Such work has shown, for example, how the Bantu family of languages spread from its origins in western Africa (in the region of today’s Nigeria and Cameroon) to the majority of the continent. Over the course of several millennia, Bantu-speaking peoples came to inhabit most of sub-Saharan Africa, bringing their language, farming technology, and other aspects of their culture with them.

APPLIED LINGUISTIC ANTHROPOLOGY

Linguistic anthropology is practiced in a number of applied settings. For example, linguistic anthropologists have collaborated with ethnic minorities in the revival of languages suppressed or lost during periods of oppression by another ethnic group. Anthropologists have helped to create written forms of languages that previously existed only orally. These examples of applied linguistic anthropology represent the kind of true collaboration that is characteristic of anthropological research today.

⁷Pinker, S. (1994). *The language instinct: How the mind creates language*. New York: William Morrow.

⁸Hymes, D. (1974). *Foundations in sociolinguistics: An ethnographic approach*. Philadelphia: University of Pennsylvania Press.

linguistic anthropology The study of human languages.

discourse An extended communication on a particular subject.

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 remains, located near pieces of fire-cracked rock, pottery, and tools suitable for food preparation, indicate cooking and food processing. Such remains can reveal much about a people's diet and subsistence practices.

In addition to asking specific questions about a single group of people at a specific place and time, archaeologists also use material remains to investigate broad questions such as settlement or migration patterns across vast areas, such as the peopling of the Americas or the spread of the earliest humans from Africa. Together with skeletal remains, material remains help archaeologists reconstruct the biocultural context of past human lifeways and patterns. Archaeologists organize this material through time and use it to explain cultural variability and culture change.

Because archaeological research is explicitly tied to unearthing material remains in particular environmental contexts, a variety of innovations in the geographical and geological sciences have been readily incorporated into archaeological research. Innovations such as geographic information systems (GIS), remote sensing, and ground-penetrating radar (GPR) complement traditional explorations of the past through archaeological digs. While archaeologists tend to specialize in particular culture zones or time periods that are connected with particular regions of the world, a number of topical subspecializations also exist.

HISTORICAL ARCHAEOLOGY

Archaeologists can reach back for clues to human behavior far beyond the mere 5,000 years to which historians are confined by their reliance on written records. Calling this time period “prehistoric” does not mean that these societies were less interested in their history or that they did not have ways of recording and transmitting information. It simply means that written records do not exist.

That said, archaeologists are not limited to the study of societies without written records; they may study those for which historic documents are available to supplement the material remains. **Historical archaeology**, the archaeological study of places for which written records exist, often provides data that differ considerably from the historical record. In most literate societies, written records are associated with governing elites

rather than with farmers, fishers, laborers, or slaves, and therefore they include the biases of the ruling classes. In fact, according to historical archaeologist James Deetz, in many historical contexts, “material culture may be the most objective source of information we have.”⁹

BIOARCHAEOLOGY

A number of archaeological specializations deal with the ways that cultural practices are preserved in the remains of living things. **Bioarchaeology**, for example, is the archaeological study of human remains, emphasizing the preservation of cultural and social processes in the skeleton. For example, mummified skeletal remains from the Andean highlands in South America preserve not only this burial practice but also provide evidence of some of the earliest brain surgery ever documented. In addition, these bioarchaeological remains exhibit skull deformations, which were used to distinguish nobility from other members of society.

Other archaeologists specialize in *ethnobotany*, studying how people of a given culture made use of indigenous plants. Still others specialize in *zooarchaeology*, tracking the animal remains recovered in archaeological excavations.

CONTEMPORARY ARCHAEOLOGY

Although most archaeologists concentrate on the past, some of them study material objects in contemporary settings. One example is the Garbage Project, founded by William Rathje at the University of Arizona in 1973. This anthropological study of household waste of Tucson residents continues to produce thought-provoking information about contemporary social issues. For example, when surveyed by questionnaires, only 15 percent of households report consuming beer, and no household reported drinking more than eight cans a week. Analysis of garbage from the same area showed that some beer was consumed in over 80 percent of the households, and 50 percent of households discarded more than eight cans per week.

In addition to providing actual data on beer consumption, the Garbage Project has tested the validity of research survey techniques, upon which sociologists, economists, and other social scientists and policymakers rely heavily. The tests show a significant difference between what people *say* they do and what the garbage analysis shows they *actually* do. Ideas about human behavior based on simple survey techniques therefore may be seriously in error.

APPLIED ARCHAEOLOGY

The Garbage Project also gives us one of the finest examples of applied archaeology. In 1987, researchers began a program of excavating landfills in different

⁹Deetz, J. (1977). *In small things forgotten: The archaeology of early American life* (p. 160). Garden City, NY: Anchor Press/Doubleday.

parts of the United States and Canada. From this work came the first reliable data on what materials go into landfills and what happens to them there. Again, common beliefs turned out to be at odds with the actual situation. For example, biodegradable materials such as newspapers take far longer to decay when buried in deep compost landfills than anyone had suspected. This kind of information is a vital step toward solving waste disposal problems. The data gathered from the Garbage Project's landfill studies on hazardous wastes and rates of decay of various materials play a major role in landfill regulation and management today.¹⁰

CULTURAL RESOURCE MANAGEMENT

While archaeology may conjure up images of ancient pyramids and the like, much archaeological fieldwork is carried out as **cultural resource management**. What distinguishes this work from traditional archaeological research is that it is a legally required part of any activity that might threaten important aspects of a country's prehistoric and historic heritage. For example, in the United States, if the transportation department of a state government plans to replace an inadequate highway bridge, the state must first contract with archaeologists to identify and protect any significant resources that might be affected by this new construction.

A series of legislative acts starting with the Historic Preservation Act of 1966 require cultural resource management for any construction project that is partially funded or licensed by the U.S. government. As a result, the specialization of cultural resource management has flourished. Numerous agencies—such as the Army Corps of Engineers, the National Park Service, the U.S. Forest Service, and the U.S. Natural Resource Conservation Service—employ archaeologists to assist in the preservation, restoration, and salvage of archaeological resources. Other countries, such as Canada and the United Kingdom, have programs very similar to those of the United States, and from Chile to China various governments use archaeological expertise to manage their cultural heritage.

In the United States when cultural resource management work or other archaeological investigation unearths Native American cultural items or human remains, federal laws come into the picture again. The Native American Graves Protection and Repatriation Act (NAGPRA), passed in 1990, provides a process for the return of these remains to lineal descendants, culturally affiliated Indian tribes, and Native Hawaiian organizations. NAGPRA has become central to the work of anthropologists who study Paleo-Indian cultures in the United States. The Kennewick Man controversy (see photo on

the previous page) highlights some of the ethics debates surrounding NAGPRA.

In addition to working in all the capacities mentioned, archaeologists also consult for engineering firms to help them prepare environmental impact statements. Some of these archaeologists operate out of universities and colleges, while others are on the staff of independent consulting firms. When state legislation sponsors any kind of archaeological work, it is referred to as *contract archaeology*.

Physical Anthropology

Physical anthropology, also called *biological anthropology*, focuses on humans as biological organisms. Traditionally, biological anthropologists concentrated on human evolution, primatology, growth and development, human adaptation, and forensics. Today, **molecular anthropology**, or the anthropological study of genes and genetic relationships, contributes significantly to our understanding of human evolution, adaptation, and diversity. Comparisons among groups separated by time, geography, or the frequency of a particular gene can reveal how humans have adapted and where they have migrated. As experts in the anatomy of human bones and tissues, physical anthropologists lend their knowledge about the body to applied areas such as gross anatomy laboratories, public health, and criminal investigations.

PALEOANTHROPOLOGY

Dealing with much greater time spans than other branches of anthropology, **paleoanthropology** focuses on biological changes through time (evolution) to understand how, when, and why we became the kind of organisms we are

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

historical archaeology The archaeological study of places for which written records exist.

bioarchaeology The archaeological study of human remains, emphasizing the preservation of cultural and social processes in the skeleton.

cultural resource management A branch of archaeology concerned with survey and/or excavation of archaeological and historical remains that might be threatened by construction or development; also involved with policy surrounding protection of cultural resources.

physical anthropology The systematic study of humans as biological organisms. Also known as *biological anthropology*.

molecular anthropology The anthropological study of genes and genetic relationships, which contributes significantly to our understanding of human evolution, adaptation, and diversity.

paleoanthropology The anthropological study of biological changes through time (evolution) to understand the origins and predecessors of the present human species.

¹⁰Rathje, W., & Murphy, C. (2001). *Rubbish! The archaeology of garbage*. Tucson: University of Arizona Press.



▲▲▲ The “Ancient One” and the “Kennewick Man” both refer to the 9,300-year-old skeletal remains that were found in 1996 near Kennewick, Washington. Surrounded by controversy since its discovery, Kennewick Man is among the oldest human remains ever unearthed in the western hemisphere and has great potential to advance scientific understanding of ancient lifeways and migration patterns in the Americas. Because Kennewick Man was found within their ancestral homelands, a group of Native American tribes claimed the remains under the Native American Graves Protection and Repatriation Act (NAGPRA). Viewing these human bones as belonging to an ancestor, they wish to return them to the earth in a respectful ceremony. Scientists challenged this in federal court, and in 2004 the scientists were granted permission to continue research and analysis of the remains. Doug Owsley, the forensic anthropologist from the Smithsonian Institution who is leading the research team, has said that scientific investigation is yielding even more information than expected. Because conflicting worldviews are at the center of this controversy, it is unlikely that it will be easily resolved.

today. In biological terms, we humans are primates, one of the many kinds of mammals. Because we share a common ancestry with other primates, most specifically apes, paleoanthropologists look back to the earliest primates (65 or so million years ago, abbreviated mya), or even the earliest mammals (225 mya), to reconstruct the complex path of human evolution. Paleoanthropology, unlike other evolutionary studies, takes a **biocultural** approach focusing on the interaction of biology and culture.

Comparing the fossilized skeletons of our ancestors to other fossils and to the bones of living groups, and combining this knowledge with biochemical and genetic evidence, allows paleoanthropologists to reconstruct the course of human evolutionary history. With each new fossil discovery, paleoanthropologists have another piece to add to the puzzle. As we will see in later chapters, genetic evidence establishes the close relationship between humans and the African ape species—chimpanzees, bonobos, and gorillas. Genetic analyses indicate that the distinctive human line split from the apes sometime between 5 and 8 million years ago.

PRIMATOLOGY

Studying the anatomy and behavior of the other primates helps us understand what we share with our closest living relatives and what makes humans unique. Therefore, **primatology**, or the study of living and fossil

primates, is a vital part of physical anthropology. Primates include the Asian and African apes, as well as monkeys, lemurs, lorises, and tarsiers.

Biologically, humans are members of the ape family—large-bodied, broad-shouldered primates with no tail. Detailed studies of ape behavior in the wild indicate that the sharing of learned behavior is a significant part of their social life. Increasingly, primatologists designate the shared, learned behavior of nonhuman apes as *culture*. For example, tool use and communication systems indicate the elementary basis of language in some ape societies. Primate studies offer scientifically grounded perspectives on the behavior of our ancestors, as well as greater appreciation and respect for the abilities of our closest living relatives. As human activity encroaches on all parts of the world, many primate species are endangered. Primatologists often advocate for the preservation of primate habitats so that these remarkable animals will be able to continue to inhabit the earth with us.

HUMAN GROWTH, ADAPTATION, AND VARIATION

Some physical anthropologists specialize in the study of human growth and development. They examine biological mechanisms of growth as well as the impact of the environment on the growth process. For example, Franz Boas, a pioneer of American anthropology of the



AP Images

Though Jane Goodall originally began her studies of chimpanzees to shed light on the behavior of our distant ancestors, the knowledge she has amassed through over forty years in the field has reinforced how similar we are. In turn, this British primatologist has devoted her career to championing the rights of our closest living relatives.

early 20th century, compared the heights of immigrants who spent their childhood in the “old country” to the increased heights obtained by their children who grew up in the United States. Today, physical anthropologists study the impact of disease, pollution, and poverty on growth. Comparisons between human and nonhuman primate growth patterns can provide clues to the evolutionary history of humans. Detailed anthropological studies of the hormonal, genetic, and physiological bases of healthy growth in living humans also contribute significantly to the health of children today.

Studies of human adaptation focus on the capacity of humans to adapt or adjust to their material environment—biologically and culturally. This branch of physical anthropology takes a comparative approach to humans living today in a variety of environments. Humans are the only primate group to inhabit the entire earth. Though cultural adaptations make it possible for humans to live in some environmental extremes, biological adaptations also contribute to survival in extreme cold, heat, and high altitude.

Some of these biological adaptations are built into the genetic makeup of populations. The long period of human growth and development provides ample opportunity for the environment to shape the human body. *Developmental adaptations* are responsible for some features of human variation such as the enlargement of the right ventricle of the heart to help push blood to the lungs among the Quechua Indians of the altiplano, or Andean highlands, that extend along the western rim of South America. *Physiological adaptations* are short-term changes in response to a particular environmental stimulus. For example, if a woman who normally lives at sea level flies to La Paz, Bolivia—a city at an altitude of 3,660 meters (nearly 12,000 feet)—her body will undergo a series of physiological responses, such as increased production of the red blood cells that carry oxygen. All of these kinds of biological adaptations contribute to present-day human variation.

Genetically based human differences include visible traits such as height, body build, and skin color,



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as well as biochemical factors such as blood type and susceptibility to certain diseases. Still, we remain members of a single species. Physical anthropology applies all the techniques of modern biology to achieve fuller understanding of human variation and its relationship to the different environments in which people have lived. Physical anthropologists' research on human variation has debunked false notions of biologically defined races, a notion based on widespread misinterpretation of human variation.

FORENSIC ANTHROPOLOGY

One of the many practical applications of physical anthropology is **forensic anthropology**—the identification

biocultural An approach that focuses on the interaction of biology and culture.

primatology The study of living and fossil primates.

forensic anthropology The analysis of human skeletal remains for legal purposes.

ANTHROPOLOGY APPLIED

Forensic Anthropology: Voices for the Dead

The work of Clyde C. Snow, Karen Burns, Amy Zelson Mundorff, and Michael Blakey

Forensic anthropology is the analysis of skeletal remains for legal purposes. Law enforcement authorities call upon forensic anthropologists to use skeletal remains to identify murder victims, missing persons, or people who have died in disasters, such as plane crashes. Forensic anthropologists have also contributed substantially to the investigation of human rights abuses in all parts of the world by identifying victims and documenting the cause of their death.

Among the best-known forensic anthropologists is Clyde C. Snow. He has been practicing in this field for forty years, first for the Federal Aviation Administration and more recently as a freelance consultant. In addition to the usual police work, Snow has studied the remains of General George Armstrong Custer and his men from the 1876 battlefield at Little Big Horn, and in 1985 he went to Brazil, where he identified the remains of the notorious Nazi war criminal Josef Mengele.

Snow was also instrumental in establishing the first forensic team devoted to documenting cases of human rights abuses around the world. This began in 1984 when he went to Argentina at the request of a newly elected civilian government to help with the identification of remains of the *desaparecidos*, or

“disappeared ones,” the 9,000 or more people who were eliminated by government death squads during seven years of military rule. A year later, he returned to give expert testimony at the trial of nine junta members and to teach Argentines how to recover, clean, repair, preserve, photograph, x-ray, and analyze bones. Besides providing factual accounts of the fate of victims to their surviving kin and refuting the assertions of revisionists that the massacres never happened, the work of Snow and his Argentinean associates was crucial in convicting several military officers of kidnapping, torture, and murder.

Since Snow's pioneering work, forensic anthropologists have become increasingly involved in the investigation of human rights abuses in all parts of the world—from Chile to Guatemala, Haiti, the Philippines, Rwanda, Iraq, Bosnia, and Kosovo. Meanwhile, they continue to do important work for more typical clients. In the United States these clients include the Federal Bureau of Investigation and city, state, and county medical examiners' offices.

Forensic anthropologists specializing in skeletal remains commonly work closely with forensic archaeologists. Their interaction is rather like that between a forensic pathologist, who examines a

corpse to establish time and manner of death, and a crime scene investigator, who searches the site for clues. While the forensic anthropologist deals with the human remains—often only bones and teeth—the forensic archaeologist controls the site, recording the position of all the relevant finds and recovering any clues associated with the remains.

In Rwanda, for example, a team assembled in 1995 to investigate a mass atrocity for the United Nations included archaeologists from the U.S. National Park Service's Midwest Archaeological Center. They performed the standard archaeological procedures of mapping the site, determining its boundaries, photographing and recording all surface finds, and excavating, photographing, and recording buried skeletons and associated materials in mass graves.*

In another example, Karen Burns of the University of Georgia was part of a team sent to northern Iraq after the 1991 Gulf War to investigate alleged atrocities. On a military base where there had been many executions, she excavated the remains of a man's body found lying on its side facing Mecca, conforming to Islamic practice. Although there was no intact clothing, two threads of polyester used to sew clothing were found along the sides of both legs. Although the

of human skeletal remains for legal purposes. In addition to helping law enforcement authorities identify murder victims, forensic anthropologists investigate human rights abuses such as systematic genocide, terrorism, and war crimes. These specialists use details of skeletal anatomy to establish the age, sex, population affiliation, and stature of the deceased. Forensic anthropologists can also determine whether the person was right- or left-handed,

exhibited any physical abnormalities, or had experienced trauma.

While forensics relies upon differing frequencies of certain skeletal characteristics to establish population affiliation, it is nevertheless false to say that all people from a given population have a particular type of skeleton. See the Anthropology Applied feature above to read about the work of several forensic anthropologists and forensic archaeologists.



AP Images/Rodrigo Abd

▲▲▲ The excavation of mass graves by the Guatemalan Foundation for Forensic Anthropology (Fernando Moscoso Moller, director) documents the human rights abuses committed during Guatemala's bloody civil war, a conflict that left 200,000 people dead and another 40,000 missing. In 2009, in a mass grave in the Quiche region, Diego Lux Tzunux uses his cell phone to photograph the skeletal remains believed to belong to his brother Manuel who disappeared in 1980. Genetic analysis allows forensic anthropologists to confirm the identity of individuals so that family members can know the fate of their loved ones. The analysis of skeletal remains provides evidence of the torture and massacre sustained by these individuals.

threads survived, the clothing, because it was made of natural fiber, had decayed. "Those two threads at each side of the leg just shouted that his family didn't bury him," says Burns.^b Proper though his position was, no Islamic family would bury their own in a garment sewn with polyester thread; proper ritual would require a simple shroud.

In recent years two major anthropological analyses of skeletal remains have occurred in New York City dealing with both present and past atrocities. Amy Zelson Mundorff, a forensic anthropologist for the city's Office of the Chief Medical Examiner, was injured in the World Trade Center terrorist attack on September 11, 2001. Two days later she returned to work to

supervise and coordinate the management, treatment, and cataloguing of people who lost their lives in the tragedy.

Also in lower Manhattan, in 1991 construction workers discovered an African burial ground dating from the 17th and 18th centuries. Archaeological investigation of the burial ground revealed the horror of slavery in North America; researchers' findings showed that even young children were worked to such an extreme that their spines were fractured. Biological archaeologist Michael Blakey, who led the research team, notes:

Although bioarchaeology and forensics are often confused, when skeletal biologists use the population as the unit of analysis (rather than the individual), and incorporate cultural and historical context (rather than simply ascribing biological characteristics), and report on the lifeways of a past community (rather than on a crime for the police and courts), it is bioarchaeology rather than forensics.^c

As we have just seen, forensic anthropologists analyze human remains for a variety of purposes. Their work makes a vital contribution to the documentation and correction of atrocities committed by humans of the past and present. ■

^aConner, M. (1996). The archaeology of contemporary mass graves. *SAA Bulletin* 14 (4), 6, 31.

^bCornwell, T. (1995, November 10). Skeleton staff. *Times Higher Education*, 20.

^cBlakey, M. (2003, October 29). Personal communication.

Anthropology, Science, and the Humanities

With its broad scope of subjects and methods, anthropology has sometimes been called the most humane of the sciences and the most scientific of the humanities—a designation that most anthropologists accept with pride.

Given their intense involvement with people of all times and places, anthropologists have amassed considerable information about human failure and success, weakness and greatness—the real stuff of the humanities. While anthropologists steer clear of a “cold” impersonal scientific approach that reduces people and the things they do and think to mere numbers, their quantitative studies have contributed substantially to the scientific study of

the human condition. But even the most scientific anthropologists always keep in mind that human societies are made up of individuals with rich assortments of emotions and aspirations that demand respect.

Beyond this, anthropologists remain committed to the proposition that one cannot fully understand another culture by simply observing it; as the term *participant observation* implies, one must *experience* it as well. This same commitment to fieldwork and to the systematic collection of data, whether it is qualitative or quantitative, is also evidence of the scientific side of anthropology. Anthropology is an **empirical** social science based on observations or information about humans taken in through the senses and verified by others, rather than on intuition or faith. But anthropology is distinguished from other sciences by the diverse ways in which scientific research is conducted within this discipline.

Science, a carefully honed way of producing knowledge, aims to reveal and explain the underlying logic, the structural processes that make the world tick. The creative scientific endeavor seeks testable explanations for observed phenomena, ideally in terms of the workings of hidden but unchanging principles or laws. Two basic ingredients are essential for this: imagination and skepticism. Imagination, though having the potential to lead us astray, helps us recognize unexpected ways phenomena might be ordered and to think of old things in new ways. Without it, there can be no science. Skepticism allows us to distinguish fact (an observation independently verified by others) from fancy, to test our speculations, and to prevent our imaginations from running away with us.

In their search for explanations, scientists do not assume that things are always as they appear on the surface. After all, what could be more obvious than the earth staying still while the sun travels around it every day?

Like other scientists, anthropologists often begin their research with a **hypothesis** (a tentative explanation or hunch) about the possible relationships among certain observed facts or events. By gathering various kinds of data that seem to ground such suggested explanations on evidence, anthropologists come up with a **theory**—an explanation supported by a reliable body of data. In their effort to demonstrate connections among *known* facts or events, anthropologists may discover *unexpected* facts, events, or relationships. An important function of theory is that it guides us in our explorations and may result in new knowledge. Equally important, the newly discovered facts may provide evidence that certain explanations, however popular or firmly believed to be true, are unfounded. When the evidence is lacking or fails to support the suggested explanations, promising hypotheses or attractive hunches must be dropped. In other words, anthropology relies on empirical evidence. Moreover,

no scientific theory—no matter how widely accepted by the international community of scholars—is beyond challenge.

It is important to distinguish between scientific theories—which are always open to future challenges born of new evidence or insights—and doctrine. A **doctrine**, or dogma, is an assertion of opinion or belief formally handed down by an authority as true and indisputable. For instance, those who accept a creationist doctrine on the origin of the human species as recounted in sacred texts or myths do so on the basis of religious authority, conceding that such views may be contrary to genetic, geological, biological, or other explanations. Such doctrines cannot be tested or proved one way or another: They are accepted as matters of faith.

Straightforward though the scientific approach may seem, its application is not always easy. For instance, once a hypothesis has been proposed, the person who suggested it is strongly motivated to verify it, and this can cause one to unwittingly overlook negative evidence and unanticipated findings. This is a familiar problem in all science as noted by paleontologist Stephen Jay Gould: “The greatest impediment to scientific innovation is usually a conceptual lock, not a factual lock.”¹¹ Because culture provides humans with their concepts and shapes our very thoughts, it can be challenging to frame hypotheses or develop interpretations that are not culture-bound. The anthropological principle that culture shapes our thoughts created a cascade of keys to previously sealed conceptual locks. By encompassing both humanism and science, the discipline of anthropology can draw on its internal diversity to overcome conceptual locks.

Fieldwork

Anthropologists are keenly aware that their personal and cultural background may shape their research questions or even affect their actual observations. To avoid these pitfalls they rely heavily on a technique that has been successful in other disciplines: They immerse themselves in the data to the fullest extent possible. In the process, anthropologists become so thoroughly familiar with even the smallest details of the culture they study that they can begin to recognize underlying patterns in the data, many of which might have been overlooked. Recognition of such patterns enables anthropologists to frame meaningful hypotheses, which then may be subjected

¹¹Gould, S. J. (1989). *Wonderful life* (p. 226). New York: Norton.

to further testing or validation in the field. Within anthropology, fieldwork completes total immersion in the data.

Although fieldwork was introduced earlier in the chapter in connection with cultural anthropology, it is characteristic of *all* the anthropological subdisciplines. Archaeologists and paleoanthropologists excavate sites in the field. A biological anthropologist interested in the effects of globalization on nutrition and growth will live in the field among a community of people to study this question. A primatologist might live among a group of chimpanzees or baboons just as a linguist will study the language of a community by living with that group. Such immersion challenges anthropologists to be constantly aware of the ways that cultural factors influence the research questions. Anthropological researchers self-monitor through constantly checking their own biases and assumptions as they work; they present these self-reflections along with their observations, a practice known as *reflexivity*.

Unlike many other social scientists, anthropologists usually do not go into the field armed with prefigured questionnaires. Though they will have completed considerable background research and devised some tentative hypotheses, anthropologists recognize that maintaining an open mind can lead to many of the best discoveries. As fieldwork proceeds, anthropologists sort out their observations, sometimes by formulating and testing limited or low-level hypotheses or by intuition. Anthropologists work closely with the community so that the research process becomes a collaborative effort. The results are constantly checked for consistency, for if the parts fail to fit together in a manner that is consistent, then anthropologists know that a mistake may have been made and that further inquiry is necessary. Validity, or the reliability of the research conclusions, is established through the replication of observations and/or experiments by other researchers. It therefore becomes obvious if one's colleagues have gotten it right.

Traditional validation by others is uniquely challenging in anthropology because observational access is often limited. Contact with a particular research site can be constrained by a number of factors. Difficulties of travel, obtaining permits, insufficient funding, or social, political, and environmental conditions can hamper the process, and what may be observed in a certain context at a certain time may not be at others, and so on. Thus, one researcher cannot easily confirm the reliability or completeness of another's account. For this reason, anthropologists bear a special responsibility for accurate reporting. In the final research report, she or he must be clear about several basic things: Why was a particular location selected as a re-

search site? What were the research objectives? What were the local conditions during fieldwork? Which local individuals provided the key information and major insights? How were the data collected and recorded? How did the researcher check his or her own biases? Without such background information, it is difficult for others to judge the validity of the account and the soundness of the researcher's conclusions.

On a personal level, fieldwork requires the researcher to step out of his or her cultural comfort zone into a world that is unfamiliar and sometimes unsettling. Anthropologists in the field are likely to face a host of challenges—physical, social, mental, political, and ethical. They may have to deal with the physical challenge of adjusting to unfamiliar food, climate, and hygiene conditions. Typically, anthropologists in the field struggle with emotional and psychological challenges such as loneliness, feeling like a perpetual outsider, being socially awkward in their new cultural setting, and having to be alert around the clock because anything that is happening or being said may be significant to their research. Political challenges include the possibility of unwittingly letting oneself be used by factions within the community, or being viewed with suspicion by government authorities who may see the anthropologist as a spy. And there are ethical dilemmas: What does one do if faced with a troubling cultural practice such as female circumcision? How does the anthropologist deal with demands for food supplies or medicine? Is it acceptable to use deception to gain vital information?

At the same time, fieldwork often leads to tangible and meaningful personal, professional, and social rewards, ranging from lasting friendships to vital knowledge and insights concerning the human condition. Something of the meaning of anthropological fieldwork—its usefulness and its impact on researcher and subject in a context of mutual cooperation and respect—is conveyed in the following Original Study featuring arctic archaeologist Anne Jensen and the Inupiat Eskimo community of Barrow, Alaska.

empirical An approach based on observations of the world rather than on intuition or faith.

hypothesis A tentative explanation of the relationships among certain phenomena.

theory In science, an explanation of natural phenomena, supported by a reliable body of data.

doctrine An assertion of opinion or belief formally handed down by an authority as true and indisputable.

ORIGINAL STUDY

Whispers from the Ice

By Sherry Simpson



People grew excited when a summer rainstorm softened the bluff known as Ukkuqsi, sloughing off huge chunks of earth containing remains of historic and prehistoric houses, part of the old village that predates the modern community of Barrow. Left protruding from the slope was a human head. Archaeologist Anne Jensen happened to be in Barrow buying strapping tape when the body appeared. Her firm, SJS Archaeological Services, Inc., was closing a field season at nearby Point Franklin, and Jensen offered the team's help in a kind of archaeological triage to remove the body before it eroded completely from the earth.

The North Slope Borough hired her and Glenn Sheehan, both associated with Pennsylvania's Bryn Mawr College, to conduct the work. The National Science Foundation, which supported the 3-year Point Franklin project, agreed to fund the autopsy and subsequent analysis of the body and artifacts. The Ukkuqsi excavation quickly became a community event. In remarkably sunny and calm weather, volunteers troweled and picked through the thawing soil, finding trade beads, animal bones, and other items. Teenage boys worked alongside grandmothers. The smell of sea mammal oil, sweet at first then corrupt, mingled with ancient organic odors of decomposed vegetation.

One man searched the beach for artifacts that had eroded from the bluff, discovering such treasures as two feather parkas.

Elder Silas Negovanna, originally of Wainwright, visited several times, "more or less out of curiosity to see what they have in mind," he said. George Leavitt, who lives in a house on the bluff, stopped by one day while carrying home groceries and suggested a way to spray water to thaw the soil without washing away valuable artifacts. Four groups added the excavation to their rounds.

"This community has a great interest in archaeology up here just because it's so recent to their experience," says oral historian Karen Brewster, a tall young woman who interviews elders as part of her work with the North Slope Borough's division of Inupiat History, Language, and Culture. "The site's right in town, and everybody was really fascinated by it."

Slowly, as the workers scraped and shoveled, the earth surrendered its historical hoard: carved wooden bowls, ladles, and such clothing as a mitten made from polar bear hide, bird-skin parkas, and mukluks. The items spanned prehistoric times, dated in Barrow to before explorers first arrived in 1826.

The work prompted visiting elders to recall when they or their parents lived in traditional sod houses and relied wholly on the land and sea for sustenance. Some remembered sliding down the hill as children, before the sea gnawed away the slope. Others described the site's use as a lookout for whales or ships. For the archaeologists, having elders stand beside them and identify items and historical context is like hearing the past whispering in their ears. Elders often know from experience, or from stories, the answers to the scientists' questions about how items were used or made. "In this instance, usually the only puzzled people are the archaeologists," jokes archaeologist Sheehan.

A modern town of 4,000, Barrow exists in a cultural continuum, where history is not detached or remote but still pulses through contemporary life. People live,

hunt, and fish where their ancestors did, but they can also buy fresh vegetables at the store and jet to other places. Elementary school classes include computer and Inupiaq language studies. Caribou skins, still ruddy with blood, and black brant carcasses hang near late-model cars outside homes equipped with television antennas. A man uses power tools to work on his whaling boat. And those who appear from the earth are not just bodies, but relatives. "We're not a people frozen in time," says Jana Harcharek, an Inupiat Eskimo who teaches Inupiaq and nurtures her culture among young people. "There will always be that connection between us [and our ancestors]. They're not a separate entity."

The past drew still closer as the archaeologists neared the body. After several days of digging through thawed soil, they used water supplied by the local fire station's tanker truck to melt through permafrost until they reached the remains, about 3 feet below the surface. A shell of clear ice encased the body, which rested in what appeared to be a former meat cellar. With the low-pressure play of water from the tanker, the archaeologists teased the icy casket from the frozen earth, exposing a tiny foot. Only then did they realize they had uncovered a child. "That was kind of sad, because she was about my daughter's size," says archaeologist Jensen.

The girl was curled up beneath a baleen toboggan and part of a covering that Inupiat elder Bertha Leavitt identified as a kayak skin by its stitching. The child, who appeared to be 5 or 6, remained remarkably intact after her dark passage through time. Her face was cloaked by a covering that puzzled some onlookers. It didn't look like human hair, or even fur, but something with a feathery residue. Finally they concluded it was a hood from a feather parka made of bird skins. The rest of her body was delineated muscle that had freeze-dried into a dark brick-red color. Her hands rested on her knees, which were drawn up to her chin. Frost particles coated the bends of her arms and legs.

“We decided we needed to go talk to the elders and see what they wanted, to get some kind of feeling as to whether they wanted to bury her right away, or whether they were willing to allow some studies in a respectful manner—studies that would be of some use to residents of the North Slope,” Jensen says. Working with community elders is not a radical idea to Jensen or Sheehan, whose previous work in the Arctic has earned them high regard from local officials who appreciate their sensitivity. The researchers feel obligated not only to follow community wishes, but to invite villagers to sites and to share all information through public presentations. In fact, Jensen is reluctant to discuss findings with the press before the townspeople themselves hear it.

“It seems like it’s a matter of simple common courtesy,” she says. Such consideration can only help researchers, she points out. “If people don’t get along with you, they’re not going to talk to you, and they’re liable to throw you out on your ear.” In the past, scientists were not terribly sensitive about such matters, generally regarding human remains—and sometimes living natives—as artifacts themselves. Once, the girl’s body would have been hauled off to the catacombs of some university or museum, and relics would have disappeared into exhibit drawers in what Sheehan describes as “hit-and-run archaeology.”

“Grave robbers” is how Inupiat Jana Harcharek refers to early Arctic researchers. “They took human remains and their burial goods. It’s pretty gruesome. But, of course, at the time they thought they were doing science a big favor. Thank goodness attitudes have changed.”

Today, not only scientists but municipal officials confer with the Barrow Elders Council when local people find skeletons from traditional platform burials out on the tundra, or when bodies appear in the house mounds. The elders appreciate such consultations, says Samuel Simmonds, a tall, dignified man known for his carving. A retired Presbyterian minister, he presided at burial ceremonies of the famous “frozen family,” ancient Inupiat discovered in Barrow thirteen years ago. “They were part of us, we know that,” he says simply, as if the connection between old bones and bodies and living relatives

is self-evident. In the case of the newly discovered body, he says, “We were concerned that it was reburied in a respectful manner. They were nice enough to come over and ask us.”

The elders also wanted to restrict media attention and prevent photographs of the body except for a few showing her position at the site. They approved a limited autopsy to help answer questions about the body’s sex, age, and state of health. She was placed in an orange plastic body bag in a stainless steel morgue with the temperature turned down to below freezing.

With the help of staff at the Indian Health Service Hospital, Jensen sent the girl’s still-frozen body to Anchorage’s Providence Hospital. There she assisted with an autopsy performed by Dr. Michael Zimmerman of New York City’s Mount Sinai Hospital. Zimmerman, an expert on prehistoric frozen bodies, had autopsied Barrow’s frozen family in 1982, and was on his way to work on the prehistoric man recently discovered in the Alps.

The findings suggest the girl’s life was very hard. She ultimately died of starvation, but also had emphysema caused by a rare congenital disease—the lack of an enzyme that protects the lungs. She probably was sickly and needed extra care all her brief life. The autopsy also found soot in her lungs from the family’s sea mammal oil lamps, and she had osteoporosis, which was caused by a diet exclusively of meat from marine mammals. The girl’s stomach was empty, but her intestinal tract contained dirt and animal fur. That remains a mystery and raises questions about the condition of the rest of the family. “It’s not likely that she would be hungry and everyone else well fed,” Jensen says.

That the girl appears to have been placed deliberately in the cellar provokes further questions about precontact burial practices, which the researchers hope Barrow elders can help answer. Historic accounts indicate the dead often were wrapped in skins and laid out on the tundra on wooden platforms, rather than buried in the frozen earth. But perhaps the entire family was starving and too weak to remove the dead girl from the house, Jensen speculates. “We probably won’t ever

be able to say, ‘This is the way it was,’” she adds. “For that you need a time machine.”

The scientific team reported to the elders that radiocarbon dating places the girl’s death in about AD 1200. If correct—for dating is technically tricky in the Arctic—the date would set the girl’s life about 100 years before her people formed settled whaling villages, Sheehan says.

Following the autopsy and the body’s return to Barrow in August, one last request by the elders was honored. The little girl, wrapped in her feather parka, was placed in a casket and buried in a small Christian ceremony next to the grave of the other prehistoric bodies. Hundreds of years after her death, an Inupiat daughter was welcomed back into the midst of her community.

The “rescue” of the little girl’s body from the raw forces of time and nature means researchers and the Inupiat people will continue to learn still more about the region’s culture. Sheehan and Jensen returned to Barrow in winter 1994 to explain their findings to townspeople. “We expect to learn just as much from them,” Sheehan said before the trip. A North Slope Cultural Center scheduled for completion in 1996 will store and display artifacts from the dig sites.

Laboratory tests and analysis also will contribute information. The archaeologists hope measurements of heavy metals in the girl’s body will allow comparisons with modern-day pollution contaminating the sea mammals that Inupiat eat today. The soot damage in her lungs might offer health implications for Third World people who rely on oil lamps, dung fires, and charcoal for heat and light. Genetic tests could illuminate early population movements of Inupiat. The project also serves as a model for good relations between archaeologists and Native people. “The larger overall message from this work is that scientists and communities don’t have to be at odds,” Sheehan says. “In fact, there are mutual interests that we all have. Scientists have obligations to communities. And when more scientists realize that, and when more communities hold scientists to those standards, then everybody will be happier.” ■

Adapted from Simpson, S. (1995, April). Whispers from the ice. *Alaska*, 23–28. Reprinted by permission of the author.

Field Methods

While fieldwork and the comparative method cut across all anthropological fields, some particular methods are characteristic only of paleoanthropology and archaeology with their focus on humans and their ancestors in the distant past. Other methods are typical of research focused on the cultures of contemporary societies. Some additional methods particular to primatology and linguistic anthropology will be described in Chapters 3 and 9, respectively.

Archaeological and Paleoanthropological Methods

Archaeologists and paleoanthropologists face a dilemma. The only way to thoroughly investigate our past is to excavate sites where biological and cultural remains are found. Unfortunately, excavation results in the site's destruction. Thus anthropologists precisely record the location and context of everything recovered, no matter how small, as they excavate. Without these records, knowledge that can be derived from physical and cultural remains diminishes dramatically.

Archaeologists work with **artifacts**, any object fashioned or altered by humans—a flint scraper, a basket, an axe, or things such as house ruins or walls. An artifact expresses a facet of human culture. Because it is something that someone made, archaeologists like to say that an artifact is a product or representation of human behavior and beliefs, or, in more technical terms, artifacts are **material culture**. Artifacts are not considered in isolation; rather, they are integrated with biological and ecological remains to provide a context that permits reconstruction of past lifeways in broad environmental contexts. Archaeologists and paleoanthropologists place a series of sites connected through space and time in order to focus on sweeping aspects of human experience ranging from settlement and migration patterns to the broad course of human evolutionary history.

Some of the oldest biological remains have survived through the process of fossilization. Broadly defined, a **fossil** is any trace or impression of an organism that has been preserved in the earth's crust from past geologic time. Fossilization typically involves the hard parts of an organism. Bones, teeth, shells, horns, and the woody tissues of plants are the most successfully fossilized materials. Although the soft parts of an organism are rarely fossilized, the casts or impressions of footprints, brains, and even whole bodies have sometimes been found. Entirely preserved fossil skeletons dating from before the cultural practice of burial about 100,000 years ago are exceedingly rare.

Because dead animals quickly attract meat-eating scavengers and bacteria that cause decomposition, they rarely survive long enough to become fossilized. For an organism to become a fossil, some protective substance must cover it soon after death. The materials surrounding the physical remains gradually harden, forming a protective shell around the skeleton of the organism. The internal cavities of bones or teeth and other parts of the skeleton fill in with mineral deposits from the sediment immediately surrounding the specimen. Then the external walls of the bone decay and are replaced by calcium carbonate or silica.

SITES

Where are artifacts and fossils found? Places containing archaeological remains of previous human activity are known as *sites*. There are many kinds of sites, and sometimes it is difficult to define their boundaries, for remains may be strewn over large areas. Sites are even found underwater. Some examples of sites identified by archaeologists and paleoanthropologists are hunting campsites, from which hunters went out to hunt game; kill sites, in which game was killed and butchered; village sites, in which domestic activities took place; and cemeteries, in which the dead, and sometimes their belongings, were buried.

Locating and mapping archaeological sites are vital aspects of archaeological and paleoanthropological investigation. Many sites, particularly very old ones, frequently are buried underground, covered by layers of sediment deposited since the site was in use. Most sites are revealed by the presence of artifacts. But as we go back in time, the association of skeletal and cultural remains becomes less likely. Physical remains dating to times before 2.5 million years ago are found without any associated cultural remains.

While chance may play a crucial role in a site's discovery, survey techniques in which the archaeologist explores and maps large geographic areas allow researchers to plot the sites available for excavation. A survey can be made from the ground, but more common today is the use of remote sensing techniques. Archaeologists have used aerial photographs to find sites since the 1920s. They are still widely used today along with more recent technological innovations such as satellite mapping and ground-penetrating radar (GPR).

Climate and geography can influence the discovery of archaeological and paleoanthropological sites. In open areas, sites are visible from the ground by mounds or **soil marks** or stains showing up on the surface of recently plowed fields. In forested regions changes in vegetation provide evidence of a site. For example, the topsoil of ancient storage and refuse pits is often richer in organic matter than that of the surrounding areas, and so it grows distinctive vegetation. At Tikal,



© Waterframe/Alamy

▲▲▲ Here a diver recovers antique jugs used for transporting wine, olives, olive oil, grain, and other commodities from the underwater site of a shipwreck in the Mediterranean Sea near the village of Kas, Turkey. The shipwreck dates back to the time of the Trojan War (over 3,000 years ago). Underwater archaeologists—led in this expedition by George Bass from the Institute of Nautical Archaeology of Texas A&M University collaborating with the Bodrum Museum of Underwater Archaeology in Istanbul, Turkey—can reconstruct facets of the past, ranging from ancient trade routes to shipbuilding techniques, through the analysis of such remains.

an ancient Maya site in Guatemala, breadnut trees usually grow near the remains of ancient houses, so that archaeologists can use these trees to help guide their search.

Sometimes natural processes, such as soil erosion or droughts, expose sites or fossils. For example, in eastern North America and other areas where shellfish consumption was common, **middens**, prehistoric refuse mounds filled with shells, have been exposed by erosion along coastlines or river banks. As will be seen below, erosion and other geologic processes have played a key role in fossil discovery.

EXCAVATION AND ANALYSIS

Once an investigator identifies a site likely to contribute to the research agenda, he or she plans out an excavation designed to meet the research goals. To begin the excavation, the team clears the land and plots the area as a **grid system**, dividing the surface of the site into squares of equal size, and numbering each square and marking it with stakes. This way, every object found can be located precisely in the square from which it came. Remember, context is everything!

Each grid system has a starting point, such as a large rock, the edge of a stone wall, or an iron rod sunk into the ground located precisely in three dimensions. This point is the reference or **datum point**. At large sites covering several square miles, the plotting may be done in terms of individual structures, numbered according to the squares that make up a giant grid. With great care, archaeological teams dig each square of the grid separately, using trowels to scrape the soil and screens to sift all the loose soils, to recover even the smallest artifacts such as flint chips or beads.

Successful excavation of fossils requires particular skills in the techniques of geology, or ready access to geologic expertise, because paleoanthropological interpretation of the fossil record relies on the placement of the specimen in the rock sequence. Only with surgical skill and great caution can a fossil be removed from its burial place without damage. The paleoanthropologist's toolkit includes an unusual combination of instruments and materials—pickaxes, enamel coating, burlap for bandages, and sculpting plaster.

Excavation involves removing both the fossil and the earth immediately surrounding it, or the matrix, as a single block. In the laboratory many more painstaking hours of work will separate the fossil from the surrounding matrix. Before leaving the discovery area, the investigator makes a thorough sketch map of the terrain and pinpoints the find on geologic maps to aid future investigators.

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artifact Any object fashioned or altered by humans.

material culture The durable aspects of culture such as tools, structures, and art.

fossil The preserved remains of past life forms.

soil marks The stains that show up on the surface of recently plowed fields that reveal an archaeological site.

midden A refuse or garbage disposal area in an archaeological site.

grid system A system for recording data from an archaeological excavation into three dimensions.

datum point The starting point or reference for a grid system.

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Lealisa Westerhoff/AFP/Getty Images

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◀ In September 2006 researchers announced the discovery of a spectacular new fossil—the skeleton of a young child dated to 3.3 million years ago. The fossil was first discovered in the Dikka Area of northern Ethiopia in 2000. Since then, researchers worked on careful recovery and analysis of the fossilized remains so that when the announcement was made in 2006, a great deal was already known about the specimen. Their analyses have determined that this child, a little girl about 3 years old who likely died in a flash flood, was a member of the same species as the famous Lucy specimen (see Chapter 4). Due to the importance of this find, scientists have referred to this child as “Lucy’s baby” though the child lived about 150,000 years before Lucy.

For both paleoanthropology and archaeology, at least three hours of laboratory work correspond to a single hour of excavation time. A wide variety of molecular and chemical testing techniques provide evidence about the context and nature of the recovered remains. Establishing the date of remains is particularly vital for the reconstruction of our past.

Remains can be dated by noting their position in the earth, by measuring the amount of chemicals contained in fossil bones and artifacts, or through association with other plant, animal, or cultural remains. These methods, known as **relative dating** techniques, do not establish precise dates for remains. Instead, they establish the relationship among a series of remains by using geologic principles to place remains in chronological order. **Absolute dating** or **chronometric dating** (from the Latin for “measuring time”) methods provide actual dates calculated in years “before the present” (BP). Relying upon advances in the disciplines of chemistry and physics, these methods use properties such as rates of decay of radioactive elements. The radioactive elements may be present in the remains themselves or in the surrounding soil. By comparing dates and remains across a variety of sites, anthropologists can scientifically establish actual dates for the major events of geologic and

evolutionary history such as human origins, migrations, and technological developments.

Many relative and absolute dating techniques are available, but each has certain weaknesses. Ideally, archaeologists and paleoanthropologists try to utilize as many methods as are appropriate, given the materials available and the funds at their disposal. By doing so, they significantly reduce the risk of error. Several of the most frequently employed dating techniques are presented in Table 1.1.

Ethnographic Methods

For the archaeologist and paleoanthropologist, location of material and physical remains determines where fieldwork must take place. For the ethnographic researcher, the entire world is a potential field site. The research problem or question can drive the choice of field site.

Cultural anthropologists prepare for fieldwork by studying theoretical, historical, ethnographic, and any other literature relevant to the research problem to be investigated, as well as studying all that has previously been documented about the particular culture they wish to study. Having delved into the existing literature, they may then formulate a theoretical framework and research question to guide them in their fieldwork. If possible, ethnographers make a preliminary trip to the field site before moving there for more extended research.

Because anthropologists must be able to communicate with the people they have chosen to study, they will also have to learn the people’s language. Many of the 6,000 languages currently spoken in the world have already been recorded and written down, especially during the past hundred years or so. Therefore, anthropologists may learn many different languages prior to their fieldwork.

relative dating In archaeology and paleoanthropology, designating an event, object, or fossil as being older or younger than another by noting the position in the earth, by measuring the amount of chemicals contained in fossil bones and artifacts, or through association with other plant, animal, or cultural remains.

absolute dating (chronometric dating) In archaeology and paleoanthropology, dating archaeological or fossil materials in units of absolute time using scientific properties such as rates of decay of radioactive elements.

Table 1.1 Absolute and Relative Dating Methods Used by Archaeologists and Paleoanthropologists

Dating Method	Time Period	Process and Use	Drawbacks
Stratigraphy	Relative only	Based on the law of superposition, which states that lower layers or strata are older than higher strata; establishing the age of biological and cultural remains based on the layer in which they are found	Site specific; natural forces, such as earthquakes, and human activity, such as burials, disturb stratigraphic relationships
Fluorine analysis	Relative only	Comparing the amount of fluorine from surrounding soil absorbed by specimens after deposition; older remains will have absorbed more fluorine	Site specific
Faunal and floral series	Relative only	Sequencing remains into relative chronological order based on an evolutionary order established in another region with reliable absolute dates; called <i>palynology</i> when done with pollen grains	Dependent upon known relationships established elsewhere
Seriation	Relative only	Sequencing cultural remains into relative chronological order based on stylistic features	Dependent on known relationships established elsewhere
Dendrochronology	About 3,000 years before present (BP) maximum	Comparing tree growth rings preserved in a site with a tree of known age	Requires ancient trees of known age
Radiocarbon	Accurate <50,000 BP	Comparing the ratio of radioactive carbon 14 (^{14}C), with a half-life of 5,730 years, to stable carbon (^{12}C) in organic material; after organisms die, only the ^{14}C decays (half of it every 5,730 years), so the ratio between ^{14}C and ^{12}C determines an actual date since death	Increasingly inaccurate when assessing remains from more than 50,000 years ago
Potassium argon (K-Ar)	>200,000 BP	Using volcanic ash, comparing the amount of radioactive potassium (^{40}K), with a half-life of 1.25 billion years, to stable argon (^{40}Ar)	Requires volcanic ash; requires cross-checking due to contamination from atmospheric argon
Amino acid racemization	40,000–180,000 BP	Comparing the ratio of right- and left-sided proteins in a three-dimensional structure; decay after death causes these proteins to change	Variation in leaching of amino acids from soil causes error
Thermoluminescence	Possibly up to 200,000 BP	Measuring the amount of light given off due to radioactivity when the specimen is heated to high temperatures	Technique developed for recent materials such as Greek pottery; not clear how accurate the dates are for older remains
Electron spin resonance	Possibly to about 200,000 BP	Measuring the resonance of trapped electrons in a magnetic field	Works with tooth enamel, not yet developed for bone; problems with accuracy
Fission track	Wide range of times	Measuring the tracks left in crystals by uranium as it decays; good cross-check for K-Ar technique	Useful for dating crystals only
Paleomagnetic reversals	Wide range of times	Measuring the orientation of magnetic particles in stones and linking them to whether the earth's magnetic field pulled toward the north or south during their formation	Large periods of normal or reversed magnetic orientation require dating by some other method; some smaller events are known to interrupt the sequence
Uranium series	40,000–400,000	Measuring the amount of uranium decaying in cave sites	Large error range

IN THE FIELD

When participating in an unfamiliar culture, anthropologists are often helped by one or more generous individuals in the village or neighborhood or a family

may take them in. Through participation in the daily routine of a household, they will soon become familiar with the community's basic shared cultural features.

Anthropologists may also formally enlist the assistance of **key consultants**—members of the society being studied who provide information that helps researchers understand the meaning of what they observe. (Early anthropologists referred to such individuals as *informants*.) Just as parents guide a child toward proper behavior, so do these insiders help researchers unravel the mysteries of what at first is a strange and puzzling world. To compensate local individuals for their help in making the anthropologists feel welcome in the community and gain access to the treasure troves of inside information, fieldworkers may thank them for their time and expertise with goods, services, or cash.

Asking questions is fundamental to ethnographic fieldwork and takes place in **informal interviews**—unstructured, open-ended conversations in everyday life—and **formal interviews**—structured question-answer sessions carefully notated as they occur and based on prepared questions. Informal interviews may be carried out anytime and anywhere: on horseback, in a canoe, by a cooking fire, during ritual events, while walking through the community, and so on. Such casual exchanges are essential, for it is often in these conversations that people share most freely. Moreover, questions put forth in formal interviews typically grow out of cultural knowledge and insights gained during informal ones.

Getting people to open up requires dropping all assumptions and cultivating the ability to ask questions and to *really* listen. Questions generally fall into one of two categories: broad, *open-ended questions*, such as, “Can you tell me about your childhood?” and *closed questions* seeking specific pieces of information, such as, “Where and when were you born?”

Researchers employ numerous **eliciting devices**—activities and objects used to draw out individuals and encourage them to recall and share information. For example, an ethnographic researcher may take and share photographs of cultural objects or activities and ask locals to explain what they see in the pictures.

Because many anthropologists still do fieldwork among traditional peoples in all corners of the earth, they may find themselves in distant places about which there is little detailed geographic knowledge. Therefore ethnographers frequently construct maps of the area that document the cultural meaning given to particular geographic features. Satellite geographic information systems (GIS) serve the ethnographer as they do the archaeologist and the paleoanthropologist.

THE ETHNOGRAPHY

After collecting ethnographic information, the next challenge is to piece together all that has been gathered into a coherent whole that accurately describes the culture. Traditionally, ethnographies are detailed written descriptions that document the culture under study

in terms of the research question at hand. Ethnographers may focus on topics such as the circumstances and place of fieldwork itself; historical background; the community or group today; its natural environment, settlement patterns, subsistence practices, networks of kinship relations, and other forms of social organization; marriage and sexuality; economic exchanges; political institutions; myths, sacred beliefs, and ceremonies; and current developments. These may be illustrated with photographs and accompanied by maps, kinship diagrams, and figures showing social and political organization, settlement layout, floor plans of dwellings, seasonal cycles, and so on.

Sometimes ethnographic research is documented not only in writing but also with sound recordings, on film or digital media. Visual records may be used not only for documentation and illustration, but also for analysis or as a means of gathering additional information in interviews. Moreover, motion picture or video footage shot for the sake of documentation and research may also be edited into a documentary film or a digital ethnography, which provides an accurate visual representation of the ethnographic subject.¹²

Anthropology's Comparative Method

The end product of any anthropological research, if properly carried out, is a coherent statement about a people that provides an explanatory framework for understanding the beliefs, behavior, or biology of those who have been studied. And this, in turn, is what permits the anthropologist to frame broader hypotheses about human beliefs, behavior, and biology.

A single instance of any phenomenon is generally insufficient for supporting a plausible hypothesis. Without some basis for comparison, the hypothesis grounded in a single case may be no more than a particular historical coincidence. On the other hand, a single case may be enough to cast doubt on, if not refute, a theory that had previously been held to be valid. For example, the discovery in 1948 that Aborigines living in the tropics of northern Australia put in an average workday of less than 6 hours, while living well above a level of bare sufficiency, was enough to call into question the widely accepted notion that food-foraging peoples are so preoccupied with finding scarce food that they lack time for any of life's more pleasurable activities. The observations

¹²See Collier, J., & Collier, M. (1986). *Visual anthropology: Photography as a research method*. Albuquerque: University of New Mexico Press; el Guindi, F. (2004). *Visual anthropology: Essential method and theory*. Walnut Creek, CA: Altamira Press.

made in this anthropological study have since been confirmed many times over in various parts of the world.

Hypothetical explanations of cultural and biological phenomena may be tested through comparison of archaeological, biological, linguistic, historical, and/or ethnographic data for several societies found in a particular region. Carefully controlled comparisons provide a broader basis for drawing general conclusions about humans than does the study of a single culture or population.

A key resource for cross-cultural comparison is the **Human Relations Area Files (HRAF)**, a vast collection of cross-indexed ethnographic and archaeological data catalogued by cultural characteristics and geographic location. Initiated at Yale University in the mid-1900s, this ever-growing data bank classifies more than 700 cultural and biocultural characteristics and includes nearly 400 societies, past and present, from all around the world. Archived in about 300 libraries (on microfiche and/or online) and approaching a million pages of information, the HRAF facilitates comparative research on almost any cultural feature imaginable—warfare, subsistence practices, settlement patterns, birth practices, marriage, rituals, and so on.

Ideally, theories in anthropology are generated from worldwide comparisons or comparisons across species or through time. The cross-cultural researcher examines a global sample of societies in order to discover whether or not hypotheses proposed to explain cultural phenomena or biological variation are universally applicable. The cross-cultural researcher depends upon data gathered by other scholars as well as his or her own. These data can be in various forms: written accounts, artifacts and skeletal collections housed in museums, published descriptions of these collections. Recently, genetic comparisons have become popular as databases have permitted scientists to look at the molecular structure of specific genes or proteins among distinct populations of humans or across species of animals.

Questions of Ethics

The kinds of research carried out by anthropologists, and the settings in which they work, raise a number of important moral questions about the potential uses and abuses of our knowledge. In the early years of the discipline, many anthropologists documented traditional cultures they assumed would disappear due to disease, warfare, or acculturation imposed by colonialism, growing state power, or international market expansion. Some worked as government anthropologists, gathering data used to formulate policies concerning indigenous peoples or even to help predict the behavior of enemies during wartime.

¹³Blok, A. (1974). *The mafia of a Sicilian village 1860–1960*. New York: Harper & Row.

After the colonial era ended half a century ago, anthropologists began to establish a code of ethics to ensure their research does not harm the groups they study.

This code grapples with serious questions: Who will utilize our findings and for what purposes? Who decides what research questions are asked? Who, if anyone, will profit from the research? For example, in the case of research on an ethnic or religious minority whose values may be at odds with dominant mainstream society, will government or corporate interests use anthropological data to suppress that group? And what of traditional communities around the world? Who is to decide what changes should, or should not, be introduced for community “betterment”? And who defines what constitutes betterment—the community, a national government, or an international agency like the World Health Organization? What are the limits of cultural relativism when a traditional practice is considered a human rights abuse globally?

Today, universities require that anthropologists, like other researchers, obtain the **informed consent** of those whom they study. Of course, this requirement is easier to fulfill in some societies or cultures than in others, as most anthropologists recognize. When it is a challenge to obtain informed consent, or even impossible to precisely explain the meaning and purpose of this concept and its actual consequences, anthropologists may protect the identities of individuals, families, or even entire communities by altering their names and locations. For example, when a Dutch anthropologist studied the Sicilian mafia, he did not obtain the informed consent of this violent secret group but opted not to disclose their real identities.¹³ Anthropologists deal with matters that are private and sensitive, including things that individuals would prefer not to have generally known about them. How does one write about such important but delicate issues and at the same time protect the privacy of the individuals who have shared their stories?

key consultants Members of the society being studied who provide information that helps the researchers understand the meaning of what they observe. Early anthropologists referred to such individuals as *informants*.

informal interview An unstructured, open-ended conversation in everyday life.

formal interview A structured question–answer session, carefully notated as it occurs and based on prepared questions.

eliciting devices Activities and objects used to draw out individuals and encourage them to recall and share information.

Human Relations Area Files (HRAF) A vast collection of cross-indexed ethnographic, biocultural, and archaeological data catalogued by cultural characteristics and geographic location; archived in about 300 libraries (on microfiche or online).

informed consent A formal recorded agreement between the subject and the researcher to participate in the research; federally mandated for all researchers in the United States and Europe.

The dilemma anthropologists face is also recognized in the preamble of the code of ethics of the American Anthropological Association (AAA). The code, first formalized in 1971, was modified to its current form in 1998. This document outlines the various ethical responsibilities and moral obligations of anthropologists, including this central maxim: “Anthropological researchers must do everything in their power to ensure that their research does not harm the safety, dignity, or privacy of the people with whom they work, conduct research, or perform other professional activities.”

The AAA ethics statement is an educational document that lays out the rules and ideals applicable to anthropologists in all the subdisciplines. While the AAA has no legal authority, it does issue policy statements on ethical research questions as they come up. For example, recently the AAA recommended that field notes from medical settings should be protected and not subject to subpoena in malpractice lawsuits. This honors the ethical imperative to protect the privacy of individuals who have shared their stories with anthropologists.

Emerging technologies have ethical implications that impact anthropological inquiry. For example, the ability to sequence and patent particular genes has led to debates about who has the right to hold a patent—the persons from whom the particular genes were obtained or the researcher who studies the genes? Similarly, as seen in the Kennewick Man controversy mentioned on pages 11 and 12, the ethics of ownership when it comes to ancient remains are particularly thorny.

Given the radical changes taking place in the world today, a scientific understanding of the past has never been more important. Do ancient remains belong to the scientist, to the people living in the region under scientific investigation, or to whoever happens to have possession of them? Market forces convert these remains into very expensive collectibles and lead to systematic mining of archaeological and fossil sites. Collaborations between local people and scientists not only preserves the ancient remains from market forces, but also honors the connections of indigenous people to the places and remains under study.

To sort out the answers to all of the above questions, anthropologists recognize that they have special obligations to three sets of people: those whom they study, those who fund the research, and those in the profession who rely on the findings to increase our collective knowledge. Because fieldwork requires a relationship of trust between fieldworkers and the community in which they work, the anthropologist’s first responsibility clearly is to the people who have shared their stories and to their greater community. Everything possible must be done to protect their physical, social, and psychological welfare and to honor their dignity and privacy. This task is frequently complex. For example, telling the story of a people gives information both to relief agencies who might help them and to others who might take advantage of them.

Even though anthropologists consider a people’s right to maintain their own culture as fundamental, any connections with outsiders can endanger the cultural identity of the community being studied. To surmount this obstacle, anthropologists frequently collaborate with and contribute to the communities in which they work. This allows the people being studied to have some say about how their stories are told.

Anthropology and Globalization

A holistic perspective and a long-term commitment to understanding the human species in all its variety equip anthropologists to grapple with an issue that has overriding importance for all of us today: **globalization**. This term refers to worldwide interconnectedness, evidenced in global movements of natural resources, trade goods, human labor, finance capital, information, and infectious diseases. Although worldwide travel, trade relations, and information flow have existed for several centuries, the pace and magnitude of these long-distance exchanges have picked up enormously in recent decades; the Internet, in particular, has greatly expanded information exchange capacities.

The powerful forces driving globalization are technological innovations, cost differences among countries, faster knowledge transfers, and increased trade and financial integration among countries. Touching almost everybody’s life on the planet, globalization is about economics as much as politics, and it changes human relations and ideas as well as our natural environments. Even geographically remote communities are quickly becoming more interdependent through globalization.

Doing research in all corners of the world, anthropologists are confronted with the impact of globalization on human communities wherever they are located. As participant observers, they describe and try to explain how individuals and organizations respond to the massive changes confronting them. Anthropologists may also find out how local responses sometimes change the global forces sweeping through communities.

Dramatically increasing every year, globalization can be a two-edged sword. It may generate economic growth and prosperity, but it also undermines long-established institutions and contributes to the erosion of traditional cultures. Generally, globalization has brought significant gains to those with more education in wealthier countries, while doing little to boost those in developing countries. Upheavals born of globalization are key causes for rising levels of ethnic and religious conflict throughout the world.

Since all of us now live in a global village, we can no longer afford the luxury of ignoring our neighbors, no matter how distant they may seem. In this age of globalization, anthropology equips global citizens to approach one another openly and without ethnocentrism. Anthropology



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The symbolic burning of opium, part of an antidrug demonstration, outside of the compound of the governor of Farah Province in Afghanistan, belies the ongoing war fueled by opium money. For years, the global opium economy has funded a weapons buildup for warlords and fortunes for those who traffic drugs to Europe and North America. Despite the official Afghan policy and efforts by foreign governments to end the poppy trade, opium-generated capital continues to fund militias and the armed ethnic conflicts that persist in Afghanistan.

may not only provide humanity with useful insights concerning diversity, but it may also assist us in avoiding or overcoming significant problems born of that diversity.

For example, in the United States today discrimination based on notions of race continues to affect economic, political, and social relations. Anthropologists have shown that the concept of race is far from the biological reality it is presumed to be. The classification of human groups into higher and lower racial types emerged in the 18th century as an ideological vehicle for justifying European dominance over Africans and American Indians. In fact, differences of skin color are simply surface adaptations to different climatic zones and have nothing to do with physical or mental capabilities. Indeed, geneticists find far more biological variation *within* any given human population than *among* them. In short, human “races” are divisive categories based on prejudice, false ideas of differences, and erroneous notions of the superiority of one’s own group. Given the importance of this issue, race will be discussed further in Chapter 7.

A second example involves the issue of same-sex marriage. In 1989, Denmark became the first country to enact a comprehensive set of legal protections for same-sex couples, known as the Registered Partnership Act. At this writing, ten countries—including Argentina, Belgium, Canada, Iceland, Netherlands, Norway, Portugal, South Africa, Spain, and Sweden—and some individual states within the United States have passed similar laws, variously named,

¹⁴Merin, Y. (2002). *Equality for same-sex couples: The legal recognition of gay partnerships in Europe and the United States*. Chicago: University of Chicago Press; Axel-Lute, P. (2002, September). Same-sex marriage: A selective bibliography of the legal literature. <http://law-library.rutgers.edu/SSM.html> (retrieved August 23, 2011). Up-to-date overviews and breaking news on the global status of same-sex marriage are posted on the Internet by the Partners Task Force for Gay & Lesbian Couples at www.buddybuddy.com.

¹⁵Kirkpatrick, R. C. (2000). The evolution of human homosexual behavior. *Current Anthropology* 41, 384.

and numerous countries around the world are considering or have passed legislation providing people in homosexual unions the benefits and protections afforded by marriage.¹⁴ In these societies same-sex marriages are considered socially acceptable and allowed by law, even though opposite-sex marriages are far more common.

As individuals, countries, and states struggle to define the boundaries of legal protections they will grant to same-sex couples, the anthropological perspective on marriage is useful. Anthropologists have documented same-sex marriages in human societies in various parts of the world, where they are regarded as acceptable under appropriate circumstances. Homosexual behavior occurs in the animal world just as it does among humans.¹⁵ The key difference between people and other animals is that human societies possess beliefs regarding homosexual behavior, just as they do for heterosexual behavior. An understanding of global variation in marriage patterns and sexual behavior does not dictate that one pattern is more right than another. It simply illustrates that all human societies define boundaries for social relationships.

A final example relates to the common confusion of *state* with *nation*. Anthropology makes an important distinction between these two: States are politically organized, internationally recognized territories, whereas nations are socially organized bodies of people who share ethnicity—a common origin, language, and cultural heritage. For example, the Kurds constitute a nation, but their homeland is divided among several states: Iran, Iraq, Turkey, and Syria. The international boundaries among these states were drawn up after World War I, with little

globalization Worldwide interconnectedness, evidenced in global movements of natural resources, trade goods, human labor, finance capital, information, and infectious diseases.

regard for the region's ethnic groups or nations. Similar processes have taken place throughout the world, especially in Asia and Africa, which have often made the political conditions in these countries inherently unstable. As we will see in later chapters, states and nations rarely coincide—nations being split among different states, and states typically being dominated by members of one nation who commonly use their control to gain access to the land, resources, and labor of other nationalities

within the state. Most of the armed conflicts in the world today derive from these arrangements, rather than from acts of tribalism or terrorism as is commonly asserted.

As these examples show, ignorance about other peoples and their ways is a cause of serious problems throughout the world. Anthropology offers a way of looking at and understanding the world's peoples—insights that are nothing less than basic skills for survival in this age of globalization. ❁



Chapter Checklist

What is anthropology?

- ✓ Anthropology is the objective and systematic study of humankind in all times and places.
- ✓ Anthropology contains four major fields: cultural anthropology, linguistic anthropology, archaeology, and physical or biological anthropology.
- ✓ In each of anthropology's fields some individuals practice applied anthropology, which uses anthropological knowledge to solve practical problems.

What do anthropologists do in each of its four fields?

- ✓ Cultural anthropologists study humans in terms of their cultures, the often-unconscious standards by which social groups operate.
- ✓ Linguistic anthropologists study human languages and may deal with the description of a language, with the history of languages, or with how languages are used in particular social settings.
- ✓ Archaeologists study human cultures through the recovery and analysis of material remains and environmental data.
- ✓ Physical anthropologists focus on humans as biological organisms; they particularly emphasize tracing the evolutionary development of the human animal and studying biological variation within the species today.

How do anthropologists conduct research?

- ✓ Fieldwork, characteristic of all the anthropological subdisciplines, includes complete immersion in research settings ranging from archaeological and paleo-

anthropological survey and excavation, to living with a group of primates in their natural habitat, to biological data gathered while living with a group. Ethnographic participant observation with a particular culture or subculture is the classic field method of cultural anthropology.

- ✓ After the fieldwork of archaeologists and physical anthropologists, researchers conduct laboratory analyses of excavated remains or biological samples collected in the field.

- ✓ The comparative method is key to all branches of anthropology. Anthropologists make broad comparisons among peoples and cultures—past and present. They also compare related species and fossil groups. Ethnology, the comparative branch of cultural anthropologists, uses a range of ethnographic accounts to construct theories about cultures from a comparative or historical point of view. Ethnologists often focus on a particular aspect of culture, such as religious or economic practices.

How do anthropologists face the ethical challenges that emerge through conducting anthropological research?

- ✓ Anthropologists must stay aware of the potential uses and abuses of anthropological knowledge and the ways that it is obtained.
- ✓ The anthropological code of ethics, first formalized in 1971 and continually revised, outlines the moral and ethical responsibilities of anthropologists to the people whom they study, to those who fund the research, and to the profession as a whole.

What can anthropology contribute to the understanding of globalization?

- ✓ A long tradition of studying the connections among diverse peoples over time gives anthropology a theoretical framework to study globalization in a world increasingly linked through recent technological advancements.
- ✓ Anthropology equips global citizens to challenge ethnocentrism and to understand human diversity.

How is anthropology different from other disciplines?

- ✓ Unique among the sciences and humanities, anthropology has long emphasized the study of non-Western societies and a holistic approach, which aims to formulate theoretically valid explanations and interpretations of human diversity based on detailed studies of all aspects of human biology, behavior, and beliefs in all known societies, past and present.
- ✓ In anthropology, the humanities, social sciences, and natural sciences come together into a genuinely humanistic science. Anthropology's link with the humanities can be seen in its concern with people's beliefs, values, languages, arts, and literature—oral as well as written—but above all in its attempt to convey the experience of living in different cultures.
- ✓ As part of both the sciences and the humanities, anthropology has essential insights to offer the modern world, particularly in this era of globalization when understanding our neighbors in the global village has become a matter of survival for all.



Questions for Reflection

1. Anthropology uses a holistic approach to explain all aspects of human beliefs, behavior, and biology. How might anthropology challenge your personal perspective on the following questions: Where did we come from? Why do we act in certain ways? What makes us tick?

2. From the holistic anthropological perspective, humans have one leg in culture and the other in nature. Are there

examples from your life that illustrate the interconnectedness of human biology and culture?

3. Globalization can be described as a two-edged sword. How does it foster growth and destruction simultaneously?

4. The textbook definitions of state and nation are based on scientific distinctions between both organizational types. However, this distinction is commonly

lost in everyday language. Consider, for instance, the names United States of America and the United Nations. Can you think of any other examples of confusing terminology distinctions? What are the consequences of this confusion?

5. This chapter contains several examples of applied anthropology. Can you think of a practical problem in the world today that would benefit from anthropological knowledge and methods?



Key Terms

anthropology
holistic perspective
ethnocentrism
culture-bound
applied anthropology
medical anthropology
cultural anthropology
culture
ethnography
fieldwork
participant observation
ethnology
linguistic anthropology
discourse
archaeology
historical archaeology

bioarchaeology
cultural resource management
physical anthropology
molecular anthropology
paleoanthropology
biocultural
primatology
forensic anthropology
empirical
hypothesis
theory
doctrine
artifact
material culture
fossil

soil marks
midden
grid system
datum point
relative dating
absolute dating or
chronometric dating
key consultants
informal interview
formal interview
eliciting devices
Human Relations Area
Files (HRAF)
informed consent
globalization



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