

BEING HUMAN: AN INTRODUCTION TO FOUR-FIELD ANTHROPOLOGY



Luke Konkol
Moraine Park Technical College

Moraine Park Technical College

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Anthropology

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An Introduction to Four-Field Anthropology



Remixed and revised 2025 by **Luke Konkol**

INFOPAGE

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CHAPTER OVERVIEW

1: AN OVERVIEW OF ANTHROPOLOGY

DEFINITION: ANTHROPOLOGY

Anthropology is the study of humans in all aspects, times, and places; it is a holistic, comparative, and evolution-based discipline with a focus shaped by the concept of 'culture.'

In many ways, this text aims to essentially be an exploration of each part of this definition.

Alfred L. Kroeber, an anthropologist from the early 20th century (1900s), famously stated that "Anthropology is the most humanistic of the sciences and the most scientific of the humanities." We will begin by expanding on this quote and taking a closer look at what we mean when we say "humanities" and at what "science" is.

You can probably guess that '**humanities**' has something to do with 'humans' (spoilers: human *experiences*), so there's little surprise anthropology fits in there given the definition above.

Science is a bit trickier. You can probably name a few 'sciences' based on your past schooling—biology, physics, chemistry, and geology to name a few. But what do these disciplines have in common? As we learn more about what anthropology *does*, we will begin to be able to determine where it might fit amongst 'humanities' and 'science.'

In the section "What is Anthropology?" we will look at 'science' and provide a general overview of the sorts of things anthropology studies and how. We'll introduce the concept of 'culture,' talk a bit about what that means, and look at why it is so important to anthropology. We'll have a discussion where we try to define culture and one debating whether we think anthropology is a science.

The next section, "An Overview of the Four Fields" will be just that. We'll take a look at the focuses of the **biological**, **social/cultural**, **archaeological**, and **linguistic** subfields. Along with this, we'll learn about the concept of '**holism**' which describes the interconnectedness of each of these subfields as well as culture itself.

If you've had any biology courses, you are likely at least vaguely familiar with the concept of **evolution**. Your familiarity with the theory may be complicated by debates over it in contemporary media and elsewhere. We'll tackle evolution early on as *human* evolution is naturally foundational to our study of humans.

Biological anthropology centers on evolution with a particular emphasis on the evolution of humans and our near relatives (other primates). Of particular interest is the way our species (and others) have evolved to have "culture." This is, of course, a huge topic. And this is where **social or cultural anthropology** come on the scene. It is an oversimplification to say so, but cultural anthropologists focus primarily on the aspects of culture which make current societies and other groups 'tick.' We will explore some key aspects of how they approach culture by looking at topics like myth, ritual, exchange, kinship, and identity. From there, it does not take long to recognize that these cultural features come to produce things and effects in the physical world. The interpretation of such 'material culture' and the contexts that produce(d) it is the goal of **archaeology**. And finally, we humans produce language which lives somewhere between these 'cultural' and 'physical' realms. This falls under the purview of **linguistic anthropology** which works a bit like archaeology where the 'artefacts' are language.

You can probably already see how each of these four fields overlap with one another in important ways—and how they each point to the definition at the top of this page! In the following chapters, we will continue to investigate these overlaps and this central goal the field they all call home: **anthropology**.

[1.1: What is Anthropology?](#)

[1.2: The Four Fields](#)

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1.1: WHAT IS ANTHROPOLOGY?

INTRODUCTION

We had our first look at what anthropology is in the definition on the previous page. Here it is again:

DEFINITION: ANTHROPOLOGY

Anthropology is the study of humans in all aspects, times, and places; it is a holistic, comparative, and evolution-based discipline with a focus shaped by the concept of 'culture.'

The best way to better understand what anthropology *is* is to take a look at what anthropology *does*. That is, *how* does anthropology study humans? *How* is it 'holistic' and 'comparative'? What makes it evolution-based? What makes it focused on culture?

We will begin this chapter by starting with that last point. While we'll revisit "the culture concept" in more detail with cultural anthropology, we will begin with a generalized look at what we often mean when we use the term '**culture**' so we can begin using it productively.

From there, we will begin to ask whether 'culture' is a bit too 'squishy' to be a useful 'theory.' Speaking of theories, we'll then look at **science** and other ways of knowing in some detail and use this to consider whether anthropology *is* a science.

Finally, we'll take a closer look at anthropology's particular way of knowing called **holism**. When we do, we will revisit **the four fields** (biological, social/cultural, archaeological, and linguistic) united by this concept in preparation for taking them on one-by-one in the following chapters.

LEARNING OBJECTIVES

After this section, you will be prepared to:

- Describe the key characteristics of culture.
- Contrast anthropology and related fields (e.g., sociology, psychology, philosophy, history, geography).
- Explain the scope of each of anthropology's four subfields.
- Describe the holistic nature of anthropology.
- Debate whether anthropology is a science.

CULTURE BASICS

American anthropologist Franz Boas provided a definition of culture that we can still use today. There are many versions, but one well-suited to learning the basics of four-field anthropology is that culture is:

DEFINITION: CULTURE

The system of shared values, beliefs, behaviors, and artifacts, transmitted from one generation to the next, that the members of a group use to cope with their world and with each another.

If you stop to think about things you consider to be "cultural," you will likely find that they fit within this definition. If you think of enough of these things, you'll also see there is a sort of pattern to what makes a culture. This pattern can be described by a few features of culture.

- It is 'inside' people's **minds**. Your hopes, beliefs, feelings, and aspirations reflect your culture.
- It involves your **values**. Your beliefs about who belongs and why, who you call your family, and what is morally right and wrong are part of your culture.
- It is **automatic** and it is routine. We carry out our culture without having to think about it. Culture is a sort of 'autopilot.' As a result,
- It is visible in our **behaviors**. Behaviors are one sort of 'data' anthropologists collect!
- It is visible in what we **make**. Things are another sort of 'data.' These are the symbols, products, and effects of our culture.
- It is '**embodied**.' Our culture is never separate from us.

Anthropology uses scientific processes to collect data about all of these features. They do so to learn more about particular cultures and to learn more about 'culture' in general.

THE OUROBOROS

We are a way for the universe to know itself. Some part of our being knows this is where we came from. We long to return. And we can, because the cosmos is also within us. We're made of star-stuff.

—Carl Sagan

If we stop to think about it, there is something funny about humans studying humans. It shares some similarity to the way the astrophysicist Carl Sagan once noted his belief that "we are a way for the universe to know itself." We will see that 'humans studying humans' comes with its own set of problems. As one straightforward example for now, anthropologists better than anyone recognize the human tendency to classify things (including other people). In the meantime, you will find no shortage of classificatory systems within anthropology such as subsistence types, kinship systems, power structures, and so on. *We even managed to split the field itself into four subfields!*



Illustration of an ouroboros dragon attributed to Theodoros Pelecanos from about 1478 CE.

This somewhat paradoxical tendency for something to consume itself is nothing new. Philosophers from all ages and cultures have struggled with '**epistemology**' or theories of knowledge. Philosophy, like anthropology, science, or other cultural traditions (like religion) are each **ways of knowing**. What

separates them is only *what* they claim to know about and *how* they believe they come to know it. Anthropology, is then one of many *ways of knowing about ways of knowing*. The *what* that anthropology seeks to know about is human beings and the *how* it claims to know it resembles the **scientific method** in many ways.

DEFINITION: EPISTEMOLOGY

The philosophical study of knowledge. Theories of knowledge. The attempt to distinguish 'justified beliefs' from 'opinions.'

Because anthropology tries to know things about how humans know things, it can be helpfully described as an 'ouroboros.' The ouroboros is a symbol which depicts a creature (usually a serpent or dragon) consuming its own tail. One example can be seen in Figure 1 above. Similar symbols appear across many cultures. These symbols can represent many things including cycles (such as death and rebirth), infinity, or—as we have here—paradoxes. The ouroboros is a helpful way to think about paradoxes because it helps us from getting 'stuck' or hung up on the fact that we are in one. We could drive ourselves crazy thinking too hard about ourselves as the universe knowing itself, but being able to take a step back and recognize it for what it is is pretty cool. This sort of stepping back and recognizing both the cool thing about anthropology (or any related discipline) and, at the same time, the sort of problematic paradox built into it is called **reflexivity**.

DEFINITION: REFLEXIVITY

The practice, process, or ability to examine one's thoughts, feelings, assumptions, and biases and how they influence one's understanding and actions.

Over the following pages, we will look a bit at science and begin to ask whether we believe anthropology is a science. The reason we are doing this is so we are prepared to be reflexive. As a way of knowing, anthropology comes with a certain set of ideas about what we can know and how we can know it. Take one more look at the definition above. It is important to begin with these ideas because we can then better understand how they influence the understanding and actions of anthropologists.

WAYS OF KNOWING

In anthropology, we recognize that there are many ways people have of knowing things. Human knowledge is very diverse. For instance, you might know that fingernails are softer than metal because as a child you accidentally stapled through your fingernail while doing an art project. This would be an example of knowledge you gained through experience. You might also know that inserting a knife into an electrical outlet is dangerous and could harm your health. Hopefully you know this not from personal experience, but through instruction from parents, teachers, and others in your social group. The degree to which humans rely on and benefit from the **experiential knowledge** of others is an important characteristic of what makes us human! Human **knowledge systems** are diverse and reflect the wide range of cultures and societies throughout the world and through time.

DEFINITION: KNOWLEDGE SYSTEM

A unified way of knowing that is shared by a group of people and is used to explain and predict phenomena.

Science and **religion** are *both* knowledge systems and it is useful to understand how they differ. The **type of knowledge** gained from science is oftentimes called **scientific understanding**. Scientific understanding can change quickly and relies on evidence and rigorous, repeated testing. Religious ways of knowing are called **belief**, which is different from scientific understanding because it does not require repeated testing or validation. Religious belief relies on trust and faith. Note, however, that both can rely heavily on their own forms of observation and experience!

Since the beginning of the discipline, anthropologists have been interested in understanding religion because it can be important to understanding human cultures. However, religion has proven notoriously difficult to define from an anthropological perspective, partly because there are so many religious practices and beliefs throughout the world that play different roles in people's lives. For instance, some religions have multiple supernatural deities or gods, such as Hinduism, while others have hardly any supernatural elements, such as Buddhism. Some have beliefs that relate to energies and powers found in certain objects, animals, and people, while others place faith in ancestors and collective cultural heritage. Some religions provide instruction on nearly every day-to-day activity a person does, while others provide merely a rough framework for how one should act and behave. **Emile Durkheim** (1858-1917), an early social scientist, offered a definition of religion as "a unified set of beliefs and practices relative to sacred things, that is to say, things set apart and forbidden—beliefs and practices which unite [into] one single moral community, all those who adhere to them" (Durkheim 2008).

Different individuals, cultures and societies may place more value on one type of knowing than another, although most use a combination that includes science and religion. In fact, in the early twentieth century, **Bronisław Malinowski** (1884-1942), an important early anthropologist, concluded that all societies use religion and science in some way or another. These are common ways that humans have of **knowing our world**.

In contemporary societies such as the United States, science and (some) religions conflict on the topic of human origins. Nearly every culture and society has a unique origin story that explains where they came from and how they came to be who they are today. These stories are often integrated into the culture's religious belief system. Many anthropologists are interested in faith-based origin stories and other beliefs because they show us how a particular group of people explain the world and their place in it. Anthropologists also value scientific understanding as the basis for how humans vary biologically and change over time. In other words, *anthropologists value the multiple knowledge systems of different groups and use them to understand the human condition in a broad and inclusive way*.

It is also important to note that anthropologists often depend on the local knowledge of the people they work with to help them understand elements of the natural or physical world that science has not yet investigated. Many groups, including **indigenous** peoples, know about the world through prolonged

relationships with the environment. Indigenous knowledge systems—those ways of knowing about and explaining the world that are specific to an indigenous community or group—are informed by their own empirical observation of a specific environment and passed down over generations.

While religion and indigenous knowledge systems may play a complementary role in helping anthropologists understand the human condition, they are distinct from science. At the same time, anthropology recognizes that they are not incompatible with science. This sometimes means anthropologists must don different 'hats' as they do anthropology. Sometimes, they wear an 'evolutionary biologist' hat. Sometime they wear an 'ethnographer' hat. Sometimes they wear a 'religious history' hat, 'philosopher' hat, or 'folklorist' hat. This practice should not be new to you even though you have not yet learned how to do anthropology! Throughout our lives, each of us works to reconcile and integrate into our worldview the different ways we have of knowing things. This is part of our lifelong intellectual journey.

✓ EXAMPLE

Despite contentious relationships with 'science' at various points in its long history (viz. Copernicus), the Roman Catholic Church provides one example of compatible religious and scientific knowledge. In a 1996 address to the Pontifical Academy of Sciences, Pope John Paul II noted the significant evidence supporting the theory of evolution as "more than a hypothesis." However, he maintained the Catholic Church's teaching that the human soul is not a product of material evolution. John Paul II maintained that the soul is still created and provided to *humans* directly by God. This reconciles the views of evolutionary science and Catholic teaching by saying that while the human body may have evolved, the spiritual soul's origins lie in divine creation.

This is a rather elegant approach. It is also a good example here because it demonstrates that the religion involved and the science involved are two separate ways of knowing and they ultimately are looking to know different things. Science is a way of knowing about the *physical* world, while the pope's concern was with the *spiritual* world.

✓ EXAMPLE

Anishinaabe and other indigenous Traditional Ecological Knowledge (TEK) is a *spiritual* way of knowing which sees the environment not as a collection of resources but as a web of *relational beings*. Plants, animals, water, and land are all treated as having agency and a spirit. "Knowing" the environment has a great deal more to do with learning how to best respect these beings based on their cycles and relationships to one another.

In some ways, this is the more difficult example to understand in terms of 'reconciling' ways of knowing simply because scientific approaches have begun to catch up to TEK. TEK's emphases on relationships and duties to the land parallels environmental science's descriptions of ecosystem interdependence and the need for conservation and biodiversity and TEK's knowledge from generations of observation and use parallels science's data collection and experimentation.

SCIENCE FOR ANTHROPOLOGISTS

The scientific method is a way of learning about the world around us. Many people think of science as taking place in a sterile laboratory, and sometimes it does, but it can also occur many other places, such as at a research station in Ethiopia, a field site in Tanzania, and a market square in El Salvador. To understand how information is established, it is important to recognize what science is (and is not) as well as understand how **the scientific method** works.

WHAT IS SCIENCE?

Science combines our natural (human) **curiosity** with our ability to **experiment** so we can understand the world around us. In turn, science can be used to address needs in our communities. Thanks to science, meteorologists can predict the weather and, it takes only a relatively small number of farmers to grow enough food to feed our large population, our medicine continues to improve, and over 90% of Americans have a cell phone.

Anyone can participate in science—not just academics. In fact, children are often some of the best scientists. An early, well-known psychologist, **Jean Piaget** (1896–1980), argued that a child is a "little scientist," internally motivated to experiment and explore their world. This can be seen when an infant repeatedly drops a toy to see if the parent will pick it up, or when a four-year-old sincerely asks "why" again and again. **Maria Montessori** (1870–1952), an Italian doctor and educator (and somewhat of an anthropologist) was interested in how children learn. Through her research, she recognized that children have natural scientific tendencies. Children have a desire to explore their environment, ask questions, use their imaginations, and learn by doing. In 1907, Montessori opened a school to foster children's natural desire to learn this way. This developed a child-centered teaching method that has spread around the world and is being used in over 22,000 schools today. In anthropology and other scientific fields, the process of learning is more formalized, but scientists still benefit from the curiosity that motivates children and still experience the thrill of discovery.

Science represents both a **body of knowledge** and the **process for learning that knowledge** (the scientific method). Scientific claims can, at times, be difficult to distinguish from other **information**. Science also incorporates a broad range of methods to collect data, adding to the difficulty of knowing what science really is. This section of the chapter will address four key characteristics that help define and recognize science:

1. science studies the physical and natural world and how it works,
2. scientific explanations must be testable and refutable,
3. science relies on empirical evidence,
4. science involves the scientific community.

Note that the goal of science is what we call 'knowledge.' We do not have time here to debate that term. What we do have time to notice, however, is that there is a **belief** counterpart to each of these characteristics of scientific knowledge:

1. studies of spiritual or supernatural worlds and how they work,
2. explanations are accepted on faith or some other discretely rational system,
3. relies on speculation, feeling, sentiment, or 'pure reasoning.'
4. is done alone or relies on a different community.

This second list is worth pointing out because it is important to recognize that there is nothing inherently 'wrong' with some other approach to trying to understand things. Where we get into trouble is when we treat systems of belief as science when they are not. Science is also a firmly-established way of knowing in the modern/Western world. It therefore privileges its own approaches. An example might help this make more sense. We often hear about "debates" between creationists (those who believe the universe and living organisms originate from specific acts of divine creation, as in the biblical account, rather than by natural processes such as evolution) and evolutionary scientists. In reality, there can be no such debate. While the two 'sides' might agree with number 1 regarding science above, creationists are on the second list for numbers 2–4. In order to engage in debate, the two would have to start on the same foundation in place. (This is, in fact, partly what is meant by science #4 above!)

If it does not meet **all** characteristics of science, it is not science.

Our physical and natural universe ranges from very small (e.g., electrons) to the very large (e.g., Earth itself and galaxies beyond it). Scientists often design their research to address how and why **natural forces** influence our physical and natural world.

There are very few questions that are considered off-limits in science. That being said, the scope of scientific investigation is generally focused on **natural phenomena** and **natural processes** and excludes the 'supernatural.' (By definition, the word 'supernatural' literally *means* 'beyond natural.') People often regard the supernatural, whether it be a ghost, luck, or gods, as working outside the laws of the universe, which makes it impossible to study with a scientific approach. Science neither supports nor contradicts the existence of supernatural powers—it *simply does not include the supernatural in its explanations*.

? EXERCISE

Consider the following. Two anthropologists are discussing why they think humans share food. The first argues that we are evolutionary predisposed to share with those within our group and withhold from those who are not within our group. She has noticed every species of primate she has observed do the same thing. The second anthropologist argues it is about 'social forces' (which manifest like feelings of guilt or fear of gossiping) compel us to share. She has felt these forces herself! And the people she has interviewed describe feeling like the spirits of their ancestors are holding them accountable. This feeling pressure doesn't work with outsiders, because they don't feel the same social forces (nobody cares about an outsider's gossip). The first points out that this might be true, but evolution helps explain why this happens on a neurological and hormonal level. They carry on in this way for some time and decide they are probably both right to some extent but need more data.

- How are the observations of these two anthropologists alike and different from the observations you know about from sciences like chemistry or physics?
- What types of additional questions do you think this conversation would generate?
- What types of data could they collect or what types of tests/experiments could they perform to address these questions?
- How do these two fit into the four criteria for science?

Scientific explanations must be **testable and refutable**. The goal of scientists is to identify a research question and then identify the best answer(s) to that question. For example, an excavation of a prehistoric cemetery may reveal that many of the people buried there had unhealed fractures when they died, and the lead anthropologist may ask, "Why did this population experience more broken bones than their neighbors?" There might be multiple explanations to address this question, such as a lack of calcium in their diets, participation in dangerous work, or violent conflict with neighbors; these explanations are considered **hypotheses**.

✎ DEFINITION: HYPOTHESIS

An explanation of observed facts, relying on a scientist's knowledge-based experiences and background research, stating how and why observed phenomena are the way they are.

Good hypotheses generate **expectations that are testable**. For example, if the best explanation regarding our prehistoric population was that they were experiencing violent conflict with their neighbors, we should expect to find clues, like weapons or protective walls around their homes, in the anthropological record to support this. Alternatively, if this population did not experience violent conflict with their neighbors, we may eventually be able to gather enough evidence to rule out (refute) this explanation. An important part of science is **rigorous testing**.

Science *does not prove any hypothesis*. However, a strong hypothesis is one that has strong supporting evidence and has not yet been disproved.

Science relies on **empirical** evidence. The word "empirical" refers to experience that is verified by **observation** (rather than evidence that derives primarily from logic, reason, or theory). The most reliable studies are based on accurately and precisely recorded observations. Scientists value studies that explain exactly which methods were used, so their data collection and analysis processes are **reproducible**. This allows for other scientists to expand the study or provide new insights into the observations.

Science involves the **scientific community**. Good science is not carried out in isolation in a secret basement laboratory. It is done as part of a community. Scientists pay attention to what others have done before them, present new ideas to each other, and publish in scientific journals. Most scientific research is collaborative, bringing together researchers with different types of specialized knowledge to work on a shared project. Today, thanks to technology, scientific projects can bring together researchers from different backgrounds, experiences, locations, and perspectives. Working within a scientific community supports one of the most valuable aspects of science: that science is **self-correcting**. Science that is openly communicated with others allows for a system with **checks and balances**: competing explanations can be proposed and questionable studies can be reevaluated. Ultimately, the goal is that the best explanations will stand the test of time.

THE SCIENTIFIC METHOD

Most textbooks present the scientific method as a simple linear, or perhaps circular, process. We easily recognize that the process begins with making observations about the natural world. Another important step is the selection or development of a scientific hypothesis. From the hypothesis a set of predictions can be made, which are then tested by experimentation or by making additional observations.

This relatively simple version of the scientific method highlights the key aspects that should be present in any scientific research experiment or scientific paper. However, this simplistic view of the scientific method does not accurately represent the **dynamic and creative side of science**, nor does it highlight the complex steps that are incorporated into a scientist's routine. Remember the ouroboros: humans are curious creatures; it makes sense that we developed a method of knowing about the world based on our curiosity!

Two key components lacking in the simple version of the scientific method are **exploration and discovery**. There are many reasons that a scientist might choose a particular research question: they may be motivated by personal experience, struck by something they read about, or inspired by a student's question in class. Often scientific research reveals more questions than answers, so experienced researchers rarely lack problems to solve. But identifying a research question is just part of the process; most scientists spend more time exploring the literature, sharing ideas, asking questions, and planning their research project than conducting the test itself.

There are actually many paths to scientific discovery. Scientific ideas have many possible starting points and influences, and scientists often repeat "steps" and circle back around. Gathering evidence does not always rest on experiments in the laboratory. Evaluating data is not always clear-cut, and results are sometimes surprising or inconclusive. Many important discoveries were in fact made by mistake. For example, engineer Percy Spencer accidentally melted a chocolate bar in his pocket with a magnetron, which became the first microwave, and Spencer Silver invented the adhesive for 3M Post-it® notes while trying to develop a strong glue. The real scientific process is more similar to the philosophy of the animated television character Ms. Frizzle from *The Magic School Bus*, "Take chances, make mistakes, get messy."

Science itself is a social enterprise that is **influenced by cultural issues and values** (as well as funding priorities). For example, corporations are the biggest funders of scientific research, followed next by government agencies like the National Science Foundation. Those organizations have great influence on what is considered valuable research at any given time.

? EXERCISE

As an example of cultural values influencing the financial support of science, there are many diseases that the World Health Organization (WHO) has classified as "neglected tropical diseases," including dengue, leprosy, rabies, and hookworm, that affect an estimated 1 billion people, mostly in impoverished areas. These debilitating diseases can be just as deadly as diseases that receive more attention, like AIDS and tuberculosis, but these tropical diseases receive comparatively little funding when it comes to research, drug development, and health care development (Farmer et al. 2013).

Why do you think this is? What does this suggest about the priorities, culture, or biases of those funding this medical research?

Scientists also value interactions within the scientific community. This includes informal discussions over a cup of coffee as well as formal interactions, such as presenting at conferences and engaging in **scholarly peer review**. Scholarly peer review is the process where an author's work must pass the scrutiny of other experts in the field before being published in a journal or book. This *helps* keep scientists accountable for ethically responsible research projects and papers—but it's never perfect. Additionally, presenting data at conferences and in articles and books allows researchers to potentially receive critical feedback from academic peers and others to test these ideas and further the field of science toward identifying the best explanations. Note the emphasis on *continued scrutiny and revision*!

Scientific investigation occurs at many levels, from investigating individual cases to understanding processes that affect most of us. We see examples of this particularly in the field of medicine: What is causing this child's mysterious illness? What is the ideal amount of sleep for an adult? All of these questions generate different types of important testable scientific explanations. We have seen that **hypotheses** are typically explanations that address a narrow set of phenomena. In anthropology, we might limit a hypothesis to a particular cultural group or population.

DEFINITION: THEORY

An explanation of observations that address a wide range of phenomena.

But sometimes, astrophysics want to talk about all matter, biologists want to talk about all living things, and we anthropologists want to talk about all humans. A **theory**, then, is an explanation of observations that addresses a *wide* range of phenomena. Like hypotheses, theories also explain how or why something occurs, rely on empirical evidence, and are testable and able to be refuted. Because the term theory is often used casually outside of science, you may hear people try to dismiss a scientific claim as "just a theory." In science there are often multiple competing theories, but over time some are eliminated. **The best theories are those which best explain the most evidence**. Scientific theories that have stood the test of time are thus **supported by many lines of evidence** and remain reliable for forming predictions.

Some well-tested theories accepted by most scientists include the theory of general relativity, which explains the law of gravitation and its relation to other forces, and **evolutionary theory**, which describes how heritable traits can change in a population over time.

DEFINITION: LAW

A statement of prediction about what will happen given certain conditions.

While scientific hypotheses and theories share many characteristics, laws are quite different. A **law** is a prediction about what will happen given certain conditions, *not* an explanation for how or why it happens. A law is not a version of a theory or one which is broadly accepted. Despite its broad acceptance across the scientific community, evolutionary theory will never be the 'law of evolution'

because we cannot construct a predictive conditional statement. We may, however, some day be able to express certain elements of evolution as laws given enough data.

Perhaps the best example of a scientific law is still Newton's universal law of gravity. The law allows us to predict the gravitational force between any two objects using an equation, but it does not explain *why* gravity works. Newton also gave us the 'three laws of motion.' Laws are important, and their discovery often promotes the development of theories.

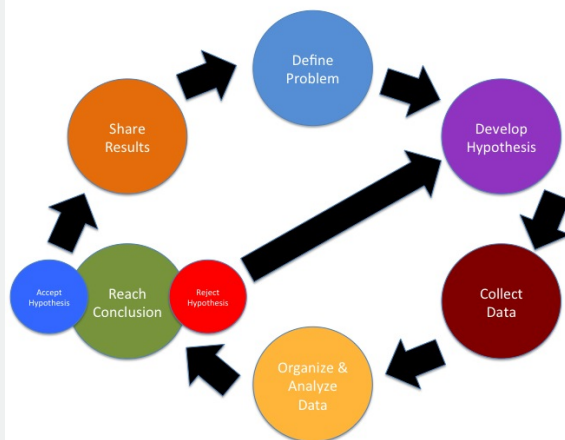
✓ EXAMPLE

The ancient Greek mathematician and inventor Archimedes discovered that the buoyant force on an object submerged in a fluid is equal to the weight of the fluid displaced by the object. Today this is known as Archimedes' Buoyancy Principle. (For our purposes, a principle is just a type of law.) This law is useful for many things, including density calculations and designing ships. Purportedly, Archimedes made this discovery when he noticed the water level rise in his bathtub as he climbed in it. Realizing its importance, he is said to have shouted "Eureka!" and proceeded to run naked through the city of Syracuse. While this is a fun story (and may not be true), it does remain that scientific laws, alongside scientific hypotheses and theories, do have a very important role in the scientific process and in generating scientific explanations about our natural world.



Archimedes is portrayed here having just discovered his Principle of Buoyancy. The vignette is by Count Giammaria Mazzuchelli (1707–1765).

↑ SUMMARY OF THE SCIENTIFIC METHOD



Simplified diagram of the Scientific Method. Define Problem, to Develop Hypothesis, to Collect Data, to Organize & Analyze Data, to Reach a Conclusion (either Accept or Reject the Hypothesis). From Accept Hypothesis to Share Results, to Define Problem. From Reject Hypothesis to Develop Hypothesis.

1. **Define the Problem.** This is based on observation—either something you've observed from nature or from something that's already been written.
2. **Develop Hypothesis.** Propose a *testable* explanation for the observed phenomenon.
3. **Collect Data.** Develop and run an experiment to test the hypothesis. The experiment provides data as to whether the hypothesis is supported or not.
4. **Organize Data & Analyze Results.** As it sounds. Turn the raw data into a coherent narrative—answer *how* the data supports or refutes the hypothesis.
5. **Develop Conclusion.** Develop a statement that sums up what the data (collected during the experimental phase) says about the hypothesis.
6. **Share Knowledge.** Share whether your hypothesis was reported. Especially important if it wasn't!

- Science does not "prove" anything. Hypotheses are falsified or supported.
- For a hypothesis to be accepted into theory—a generally accepted explanation of specific phenomena—it undergoes rigorous testing.
- Contradictory supported-hypotheses are possible; some refer to this as **equifinality**. The data collected support two (or more) hypotheses and, in most cases, there is not sufficient data to support one hypothesis more than the other. The hope is to eventually have enough evidence to overwhelmingly support one particular hypothesis.

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1.2: THE FOUR FIELDS



Artist's depiction of a woman hunting, created in 1565. Contrary to some long held beliefs, women have always played a role in hunting game. (credit: "Illustration of activities of Lapps and Finns: Men and women hunting with bows and arrows on snowshoes; "women hunt...as nimbly...or more than men" by Illustration of activities of Lapps and Finns/Library of Congress Prints and Photographs Division)

Imagine a research project that contains these three members:

Randy Haas discovered the 9,000-year-old grave of a teenager buried with a hunting tool kit in the Andes mountains of Peru. Haas found that this hunter from long ago was a young woman. This discovery has upset the notion that hunting was the exclusive activity of men throughout human evolutionary history.

Daniel Miller is part of a global team researching how people use smartphones in various parts of the world, including Brazil, Cameroon, Chile, China, Ireland, Italy, Japan, East Jerusalem, and Uganda. The team is exploring how smartphones take on different functions in different cultural contexts. Focusing on Ireland, Miller theorizes that smartphones become a kind of personal avatar, expressing and enacting the specific social identity of the user.



Red-tailed monkeys, the subject of anthropologist Michelle Brown's study, are primates that are found in Central and East Africa. This red-tailed monkey lives in Uganda. They are social animals and live in groups of 8-30 individuals. (credit: "Schmidt's Red-tailed Monkey" by Meghan Murphy/Smithsonian's National Zoo, CC0 1.0)

Michelle Brown spends long days observing blue monkeys, red-tailed monkeys, and baboons in a conservation park in Uganda. She records the behavior of these primates as they find food, communicate, and fight with one another. She collects urine and feces to analyze hormone levels, intestinal parasites, and DNA. She

wants to understand how primates compete as individuals and groups for access to various foods in their environment.

What kind of research project could encompass such a diversity of topics and methods? Since this is an anthropology textbook, you can probably guess. Though they conduct research on vastly different topics, all three are anthropologists. How could the work of these researchers be united in one academic discipline? The reason, as we will see, is that anthropology is vast.

Hopefully, as you read these examples, you were also thinking about the description of science on the previous pages. You might begin to think about the extent to which these sorts of research projects fit into that description. We know already that **anthropology**, the study of human-kind, is guided by a central narrative and set of research commitments. Anthropology aims to overcome bias by examining **cultures** as complex, integrated products of specific environmental and historical conditions. Anthropologists use many different research strategies in their efforts to represent people from cultures very different from their own.

Perhaps because of the 'messiness' of studying something as complex as human culture, some have criticized the discipline as non-scientific. Add to this that anthropology explores controversial topics that may challenge individual assumptions and values. The goal is to understand the full experience of humanity, including elements that may seem unfamiliar or uncomfortable. Like science more broadly, however, anthropology more plainly teaches a set of skills for setting aside personal perspectives and keeping an open mind while learning about the diversity of human practices and ideas. As discussed further throughout this text, this does not mean abandoning individual personal values, but rather suspending judgment temporarily while learning to understand the perspectives of others.

Because asking questions (or forming hypotheses, if you prefer) about humans results in such a vast array of questions and related methods for investigation, the larger discipline of anthropology is often broken down into its four-subfields. The rest of this chapter presents a basic introduction to each of them as well as the over-arching aspects of anthropology (like 'holism') which unite them. The rest of this textbook then presents a chapter on each of these same four fields. We were given a look at them at the very beginning, but here they are again:

- Biological (sometimes called Physical or Evolutionary) anthropology,
- Cultural (sometimes called Social) anthropology,
- Archaeology,
- and Linguistic anthropology.

BONES, STONES, THRONES, AND TONES

We have a rhyming pneumonic device for remembering the four fields and the central emphases that define them. Biological anthropology emphasizing the morphology of the human body and all that goes with it is described as looking at 'bones.'

Archaeology often looks at how past humans used their environment including, perhaps most famously, the building of structures and the creation of tools, so they are given 'stones.' Social anthropology's emphasis on power structures, relationships, rituals, and other cultural features is represented by 'thrones.' And linguistic anthropology's emphasis on communication—including ideas like accents and inflection—gets 'tones.' Taken together, we are **bones, stones, thrones, and tones.**

SHARED COMMITMENTS

Anthropology is a vast field of study. Anthropology is unique in both its enormous breadth (it is interested in virtually everything) and its distinctive focus (humans). Put simply, anthropology is the study of humanity across time and space. Anthropologists study every possible realm of human experience, thought, activity, and organization. Remember our ouroboros; human as we are, we can only engage in social and natural worlds through our human minds and human bodies. Even engagement with nonhuman realms such as astronomy and botany are conditioned by our human senses and cognition and varies across different societies and times.

You may be thinking, If anthropology is the human aspect of absolutely everything, then does anthropology encompass the other social disciplines, such as political science, religious studies, and economics? This is not the case. Certainly, anthropologists are frequently multidisciplinary, meaning that while their research and teaching are focused within the discipline of anthropology, they also engage with other disciplines and work with researchers and teachers in other fields. But the way that scholars in the other social disciplines approach their subject matter is different from the way anthropologists approach those same subjects.

The distinctive approach of anthropology relies on a central narrative, or story, about humanity as well as a set of scholarly commitments. This central story and these common commitments hold the discipline together, enabling anthropologists to combine insights from diverse fields into one complex portrait of what it means to be human.

Anthropology is everything, but it's not just *anything*. Anthropology is the study of humanity guided by a distinctive narrative and set of commitments.

Anthropologists are great storytellers. They tell many, many stories about all aspects of human life. At the heart of all of these stories is one fundamental story: the “story of humanity,” a rich and complex narrative. A narrative is a story that describes a connected set of features and events. Do you recognize a parallel between story/narrative and hypothesis/theory? Narratives can be fictional or nonfictional. The narrative of anthropology is a true story, a factual narrative about the origins and development of humanity as well as our contemporary ways of life. **The central narrative of anthropology** can be summarized this way:

Human beings have developed flexible biological and social features that have worked together in a wide variety of

environmental and historical conditions to produce a diversity of cultures.

Three features of this narrative are especially important to anthropologists. These features form **three central commitments** of anthropology. In academic study, a commitment is a common goal recognized by the scholars in a discipline. In anthropology, these are:

- Exploring sociocultural diversity
- Understanding how societies hold together
- Examining the interdependence of humans and the rest of nature

EXPLORING SOCIOCULTURAL DIVERSITY

As the narrative suggests, humans in a diversity of conditions create a diversity of cultures. Rather than trying to find out which way of life is better, morally superior, more efficient, or happier, or to make any other sort of judgment call, anthropologists are committed to describing and understanding the diversity of human ways of life. Setting aside judgments, we can see that humans everywhere create culture to meet their needs. Anthropologists discover how different cultures devise different solutions to the challenges of human survival, social integration, and the search for meaning.

What are you wearing today? What about your professor? Are they wearing a bathrobe and slippers, or perhaps a cocktail dress with stilettos? You can be (almost) certain not. But why not? You might assume that what Americans wear for class is completely normal, but this assumption ignores the question of what makes something “normal.”



Ghanaian professionals wearing local fashions to promote the national textile industry. (credit: “Ghanaian Ladies” by Erik (HASH) Hersman/flickr, CC BY 2.0)

In many countries, for instance, university students typically wear dress shirts with slacks or skirts to class. Many Ghanaian students would not dream of wearing ripped jeans or tight leggings to class, considering such casual dress disrespectful. American students put much more emphasis on comfort than on presentation, an overall trend in American dress. Even in office settings, it is now acceptable for Americans to wear casual clothing on Fridays. In the West African country of Ghana, “casual Friday” never caught on, but office workers have developed their own distinctive Friday dress code. As the local textile industry became threatened by Chinese imports, Ghanaian office workers began wearing outfits sewn from locally manufactured cloth on Fridays, creating a practice of “National Friday Wear.”

So which way is better, the American way or the Ghanaian way? Anthropologists understand that *neither way is "better"* and that each addresses a need within a particular culture. Casual Friday is great for Americans who crave comfy leisurewear, while National Friday Wear is great for Ghanaians who want to boost their local economy and show their cultural pride.

Anthropologists recognize not only diversity across different cultures but also the diverse experiences and perspectives within a culture. Do you ever buy used clothing at thrift shops, or do you know people who do? An old green men's trench coat bought at a vintage clothing store may be a favorite of a college student. The mother of that student may not feel the same way and offer to buy their child a new coat much to the distress of the owner of the coat! To people who have grown up in the 1930's and 1940's, used clothing was associated with the hard times of the Great Depression. For the newer generations, used clothing is a way to find unique, affordable clothing that can stretch the boundaries of mainstream style. Although people in a culture share a general set of rules, they interpret them differently according to their social roles and experiences, sometimes stretching the rules in ways that ultimately change them over time.



A Ghanaian trader in her secondhand clothing shop (credit: "Market Woman - Kejetia Market - Kumasi - Ghana - 03" by Adam Jones/flickr, CC BY 2.0)

In Ghana, most used clothing is imported from the United States and Europe in large bales that local vendors purchase and sell in market stalls. A person from the United States or Europe is locally referred to as an *obruni*. Used clothing is called *obruni wawu*, or "a foreign person has died," reflecting the assumption that no living person would give away such wearable clothing. Many Ghanaians love to pick through the piles of *obruni wawu* in the market, thrilled to find recognizable brands and unusual styles. Some, however, associate *obruni wawu* with poverty. The stalls that sell *obruni wawu* are often called "bend-over boutiques," referring to the subservient posture adopted by customers rifling through the piles of clothing on the ground. *Obruni wawu* is suitable in some situations but certainly not in others. A particular Ghanaian movie included a scene where a man trying to woo a much younger woman. When the man gave his

would be girlfriend a bag full of *obruni wawu* as a gift, it caused the audience to burst out laughing. The gift was humorous and inappropriate to the audience.

As with clothing, different cultures come up with different solutions to common challenges such as housing, food, family structure, the organization of work, and finding meaning in life. And people in every society discuss and argue about their own cultural norms. Anthropology seeks to document and understand the diverse range of solutions to common human challenges as well as the diversity of conflicting perspectives within each culture.

UNDERSTANDING HOW SOCIETIES HOLD TOGETHER

Just as the various parts of our bodies all work together (the brain, the heart, the liver, the skeleton, and so forth), the various parts of a society all work together as well (the economy, the political system, religion, families, etc.). Frequently, anthropologists discover that changes in one realm of society are related to changes in another realm in unexpected ways. When farmers in Ghana began growing cocoa for export during the colonial period, the agricultural shift dramatically altered gender relations as men monopolized cash crops and women were relegated to vegetable farming for their families' consumption and local trade. As men benefited from the profits of the cocoa trade, relations between men and women became more unequal.

Anthropologists have a favorite word for the way that all elements of human life interrelate to form distinctive cultures: **holism**. Sometimes those parts reinforce one another, encouraging stability; sometimes they contradict one another, promoting change.

✚ FORMS OF SOLIDARITY

This analogy of parts working together (like organs) comes from Emile Durkheim's concept of '**organic solidarity**' (named for those 'organs' rather than the sense of 'living matter'). Durkheim proposed this along with a contrasting form of 'solidarity.' The other he called '**mechanical solidarity**.'

Durkheim observed that smaller, more egalitarian, societies operated on shared beliefs, practices, and a collective conscience. They are 'mechanical' because the members are like the roughly interchangeable components of a machine. In other words, their 'solidarity' is more automatic. In contrast, larger, more stratified, societies operate on inter-dependence of roles and the functional relationship of individuals. The 'organs' of an organism cannot be swapped out like the cogs of a machine and no part of the system can survive without the others.

In either case, the 'whole' of a given 'society' is defined in part by the way its form of 'solidarity' holds it together.

Anthropologists are curious about how different cultures create different categories of people and use those categories to organize the activities of social life. In many farming societies, for instance, men do certain kinds of agricultural work and women do others. In societies where land must be cleared in order to sow crops, men often chop down trees and clear the brush while women do the planting. In societies that utilize large-scale industrial farming,

migrants or people of a specific ethnicity or assigned racial category are often recruited (or forced) to perform the manual labor required to grow and harvest crops. In industrial capitalist societies (like the United States), one group of people owns the factories and another group works the machines that produce the industrial products.

Relations between groups can be cooperative, competitive, or combative. Some cultures promote the equality of social groups, while many others reinforce inequality among groups. **Holism** is not the same as harmony. Anthropologists are interested in how society holds together but also in the conditions that can cause conflict, change, and disintegration.

You may have heard the word *polarized* used to describe the sense that two different groups in American society are moving farther and farther apart in their values, opinions, and desires. Some suggest that the contradictory perspectives of these two groups threaten to tear American society apart. Others suggest that Americans are united by deeper values such as freedom, equal opportunity, and democracy. Using holism to understand this issue, an anthropologist might consider how the perspectives of each group relate to that group's economic experiences, political convictions, and/or religious or moral values. A comprehensive use of holism would explore all of these aspects of society, looking at how they interact to produce the polarization we see today and suggesting what might be done to bring the two groups into productive dialogue.

We'll look at holism in more detail in the coming pages. For now, we might use the following definition:

DEFINITION: HOLISM

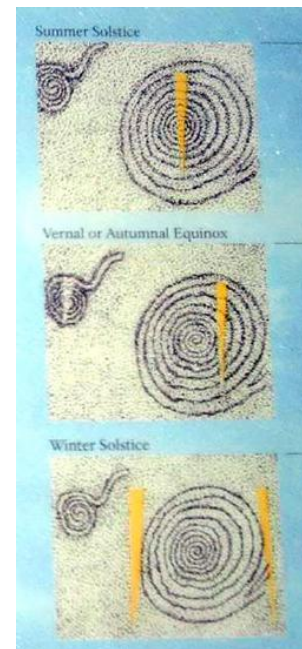
The perspective on the human condition that assumes that mind, body, individuals, society, and the environment interpenetrate, and even define one another; the anthropological view that the whole of a culture is greater than the sum of its parts.

EXAMINING THE INTERDEPENDENCE OF HUMANS AND NATURE

As our narrative suggests, anthropologists are interested in the natural environment, the way humans have related to the natural world over time, and how this relationship shapes various cultures. Anthropologists consider how people in different cultures understand and use the various elements of nature, including land, water, plants, other animals, climate, and space. They show how people interact with these elements of nature in complex ways.

Archaeologists working in prehistoric sites all over the world have documented how prehistoric people understood celestial objects and used them to navigate their waterways, create calendars and clocks, regulate farming activities, schedule religious ceremonies, and inform political leaders. This area of study is called **archaeoastronomy**. In Chaco Canyon in the American Southwest, archaeologists have discovered that buildings in the major settlement areas were aligned so that certain windows would provide perfect vantage points to view the sun and moon at pivotal times of the year, such as solstice and equinox. The Sun Dagger, consisting of two whorl-shaped petroglyphs (stone etchings) on Fajada Butte, is precisely positioned under a rock crevice so as to indicate the

solstices and equinoxes when the sun shines through the crevice. Unfortunately, tourist foot traffic at the site has altered the width and direction of the crevice so that the Sun Dagger no longer marks these celestial events accurately.



The Sun Dagger at Fajada Butte (credit: National Park Service/Wikimedia Commons, Public Domain)

The people of Chaco Canyon may have been particularly attuned to the features of their environment as they constructed their complex civilization in the challenging environment of the high desert. With scarce rainfall and brief growing seasons, their survival depended on accurate identification of opportune planting and harvesting times. With the onset of a 50-year drought, farming became more and more precarious. Eventually, the ancient peoples of Chaco were forced to abandon the area.

Some anthropologists study how people interact with the plants in their area. The field of **ethnobotany** examines how people in different cultures categorize and use plants for food, shelter, tools, transportation, art, and religion. Ethnobotanists also conduct research on plants used in healing to discover the relationship between cultural practices and the pharmaceutical properties of these plants. Some examine the cultural use of psychoactive plants such as mushrooms and peyote in religious ritual. For instance, anthropologist Jamon Halvaksz studied the controversial use of marijuana among youth in New Guinea (2006). Young people told Halvaksz that marijuana helped them work harder, overcome shame, and understand ancestral stories. Critics of the practice told Halvaksz that marijuana dried the blood of people who used it, making their offspring weak and feeble. Marijuana use has generated similar controversies in other countries, including the United States, with some arguing that the drug provides relaxation and pain relief while others claim it interferes with cognitive abilities and motivation.

Our relationship with nature is reciprocal. Nature shapes humanity, and humanity shapes nature. Exploring how nature shapes humanity, anthropologists speculate about how aspects of the environment

have shaped the emergence and development of human biology, such as our ability to walk, the shape of our teeth, and the size of our brains. Dramatic climactic shifts over the past several million years have forced periods of rapid biological and cultural adaptation, resulting in new hominin species and new skill sets such as language and toolmaking. In more recent archaeological time periods, environmental characteristics have shaped religious beliefs, gender relations, food-getting strategies, and political systems. Environmental forces can trigger the beginning or the end of a society. Some archaeologists study how natural events such as volcanic eruptions and droughts have led to mass migrations and the collapse of empires.

Our reciprocal relationship with nature also works the other way around; that is, humans shape nature. Our environments are shaped by the food-getting methods of our societies as well as the way we acquire and trade resources such as oil, natural gas, diamonds, and gold. Many anthropologists explore how contemporary ways of life change the natural world at local, regional, and global levels. Farming dramatically impacts ecosystems with the clearing of prairies, wetlands, and forests. Fishing can deplete certain species, changing the whole ecosystem of rivers and coastal waters. Responding to population pressures, people construct dams to channel water to emergent cities. The redirection of water transforms regional ecosystems, turning wetlands into deserts and deserts into resource-hungry cities.

Some scholars use the term **Anthropocene** to describe the contemporary period of increasing human impact on the ecosystems of our planet. Large-scale pollution, mining, deforestation, ranching, and agriculture are causing dramatic environmental disruptions such as climate change and mass extinction of plant and animal species. Many anthropologists are studying these problems, focusing on how people are working locally, regionally, and globally to promote more sustainable ways of living in our natural world.

DEFINING THE FOUR FIELDS

Let's recall the central narrative of anthropology: *Human beings have developed flexible biological and social features that have worked together in a wide variety of environmental and historical conditions to produce a diversity of cultures.*

Researching this argument is a vast endeavor requiring many complementary approaches and techniques. Anthropology comprises four main approaches, the four subfields of our discipline: biological, archaeological, cultural, and linguistic (bones, stones, thrones, and tones). Each subfield specializes in exploring a different aspect of the common narrative. Combining insights from the four fields gives us a rich and complex understanding of any specific issue you could name such as gender, inequality, race, medicine, industry, and the environment. Let's take a look at each subfield and then, since it is both an important example and one we can all relate to on some level, examine how the subfields combine in the study of racial categories and relations.

BIOLOGICAL ANTHROPOLOGY 🦴

Biological anthropology focuses on the earliest processes in the biological and sociocultural development of human beings as well as

the biological diversity of contemporary humans. In other words, biological anthropologists study *the origins, evolution, and diversity of our species*. Some biological anthropologists use genetic data to explore the global distribution of human traits such as blood type or the ability to digest dairy products. Some study fossils to learn how humans have evolved and migrated. Some study our closest animal relatives, the primates, in order to understand what biological and social traits humans share with primates and explore what makes humans unique in the animal world.

The Dutch primatologist Carel van Schaik spent six years observing orangutans in Sumatra, discovering that these reclusive animals are actually much more social than previously thought (2004). Moreover, van Schaik observed that orangutans use a wide variety of tools and pass down skills to their young. By studying these primates, van Schaik and other biological anthropologists gain insight into the origins of human intelligence, technology, and culture. These researchers also warn that habitat loss, illegal hunting, and the exotic pet trade threaten the survival of our fascinating primate cousins.

Biological anthropologists frequently combine research among primates with evidence from the human fossil record, genetics, neuroscience, and geography to answer questions about human evolution. Sometimes their insights are startling and unexpected. Anthropologist Lynne Isbell argues that snakes have played a key role in the evolution of human biology, particularly our keen sense of sight and our ability to communicate through language (Isbell, 2009). Isbell's "snake detection theory" posits that primates developed specialized visual perception as well as the ability to communicate what they were seeing in order to alert others to the threat of venomous snakes in their environment. She points to the near-universal fear of snakes shared by both humans and primates and has documented the prevalence of snake phobia in human myth and folklore. Isbell's research highlights how human-animal relations are central to humanity, shaping both biology and culture.

Not all biological anthropologists study primates. Many biological anthropologists study fossilized remains in order to chart the evolution of early **hominins**, the evolutionary ancestors of modern humans. In this field of study, anthropologists consider the emergence and migration of the various species in the hominin family tree as well as the conditions that promoted certain biological and cultural traits. Some biological anthropologists examine the genetic makeup of contemporary humans in order to learn how certain genes and traits are distributed in human populations across different environments. Others examine human genetics looking for clues about the relationships between early modern humans and other hominins, such as Neanderthals.

Forensic anthropology uses the techniques of biological anthropology to solve crimes. By analyzing human remains such as decomposed bodies or skeletons, or tissue samples such as skin or hair, forensic anthropologists discern what they can about the nature of a crime and the people involved. Key questions are who died, how they died, and how long ago they died. Often, forensic anthropologists can discover the age, sex, and other distinctive features of perpetrators and victims. Looking closely at forms of

bodily trauma and patterns of blood or bullets, they piece together the story of the crime. They work on investigative teams with law enforcement officers and medical experts in ballistics, toxicology, and other specialties. Forensic anthropologists often present their findings as witnesses in murder trials.

Not all of these crimes are contemporary. Sometimes, forensic anthropology is used to understand historical events. Excavating the historic Jamestown colony of early English settlers in North America, archaeologist William Kelso found a human skull in the midst of food remains. Noticing strange cut marks on the skull, he called upon Douglas Owsley, a forensic anthropologist working for the Smithsonian Institution, to help him figure out what the markings meant. Owsley determined that the markings were evidence of intentional chopping to the skull with a sharp blade. He concluded that the skeleton belonged to a 14-year-old girl who had been cannibalized by other settlers after she died. This interpretation corroborates historical evidence of severe starvation in the colony during the harsh winter of 1609–1610.

ARCHAEOLOGY 🪦

Archaeologists use artifacts and fossilized remains to explore how environmental and historical conditions have produced a diversity of human cultures – the study of **archaeology**. **Artifacts** are objects made by human beings, such as tools or pottery. **Fossils** are the remains of organisms preserved in the environment. Archaeologists have developed careful methods of **excavation**, or removing fossils and artifacts from the ground, in order to learn as much as possible about how people lived in times before and after the development of writing. They are interested in how people met basic needs such as clothing and shelter, as well how they organized their societies in family groups, trade networks, and systems of leadership. Many archaeologists seek to understand how humans lived in relation to the natural world around them, altering the environment at the same time that the environment was shaping their evolution and social development.

A group of archaeologists led by Tom Dillehay spent seven years excavating a set of sites in northern Peru, charting the development of human society in this area over a period of 14,000 years (2017). They traced the society from the early ways of life to the emergence of cities and early states, discovering how people there developed fishing, farming, and herding strategies that led to increased sociocultural complexity. The team collected data on the plants and animals of the area as well as the buildings, tools, cloth, and baskets made by the people. They concluded that the people who lived in this area placed a high value on cooperation and living in harmony with nature.

Some archaeologists focus on more specific topics in more recent time periods. Archaeologist Eric Tourigny examined the graves at pet cemeteries in the United Kingdom from 1881 to 1981 (2020). Looking at the epitaphs on the gravestones of the pets, Tourigny noted a change from earlier Victorian ways of thinking of pets as friends to later, more modern ways of conceptualizing pets as members of the family. He noted, too, that epitaphs expressed an increasingly common belief that pet owners would be reunited with their pets in the afterlife.

CULTURAL ANTHROPOLOGY 🌍

Cultural anthropology is devoted to describing and understanding the wide variety of cultures referred to in anthropology's central narrative. Cultural anthropologists explore the everyday thoughts, feelings, and actions of people in different cultures as well as the cultural and historical events that they consider important. Examining social discourse and action, cultural anthropologists seek to understand unspoken norms and values as well as larger forces such as economic change and political domination. Cultural anthropologists also study how different societies are structured, including the roles and institutions that organize social life.

Cultural anthropologists often live for many months or years in the societies they study, adopting local ways of living, eating, dressing, and speaking as accurately as possible. This practice is called **fieldwork**. Anthropologists who undertake fieldwork might write an **ethnography**, an in-depth study of the culture they have been studying. Classic ethnographies of the early 20th century often portrayed the cultures of non-Western peoples as harmonious and unchanging over time. Bronislaw Malinowski, a pioneer of the long-term fieldwork method, spent nearly two years studying trade and magic among the Trobriand peoples living in what is now the Kiriwina island chain northeast of New Guinea. His ethnography, *Argonauts of the Western Pacific* (1922), describes how Trobrianders undertook canoe voyages from island to island for the ceremonial exchange of white shell bracelets and red shell necklaces among different island groups, an exchange system known as the kula ring. Curiously, these highly valued objects had no use whatsoever, as no one ever wore them. Rather, the exchange of bracelets and necklaces functioned as a means of enhancing social status (for the givers) and reinforcing trade relationships. Malinowski argues that this form of exchange took the place of warfare. Exploring the kula ring in great detail, Malinowski also learned about many other aspects of Trobriand culture, such as the making of tools and canoes, farming practices, gender roles, sexuality, and magical beliefs and practices.

Today, cultural anthropologists tend to focus more on issues involving conflict and change, such as suicide bombing in Afghanistan (Edwards 2017), a creationist theme park in Kentucky (Bielo 2018), sperm donation in Denmark (Mohr 2018), and garbage pickers in Rio de Janeiro (Millar 2018). Often, anthropologists explore overlooked and marginalized perspectives on controversial issues, shedding light on the cultural complexities and power dynamics involved. Anthropologist Tracey Heatherington was interested in why some people were resisting the creation of a conservation park on the Italian island of Sardinia (2010). The central highlands of Sardinia are home to many endangered species and old growth forests, as well as local herding peoples who fiercely resisted the appropriation of their homeland. Heatherington's research identified three competing perspectives: those of global environmentalists, the national government of Italy, and the local people of Sardinia. The global environmentalists view the Sardinian highlands as a delicate ecosystem that should be protected and controlled by environmental experts. The Italian government sees in the same land an opportunity to develop ecotourism and demonstrate the Italian commitment to environmentalism. The local peoples of Sardinia treasure their homeland as the foundation of their way of

life, an intimate landscape imbued with history and cultural value. As the controversy drew these three perspectives together, Western-led global environmentalism combined with national government to undermine the legitimacy of local knowledge and authority. Heatherington describes how stereotypes of Sardinians as ignorant and culturally backward were used to delegitimize their resistance to the conservation park, drawing our attention to forms of ecological racism that lurk in the global environmental movement.

LINGUISTIC ANTHROPOLOGY 🎵

As you might guess, **linguistic anthropology** focuses on language. Linguistic anthropologists view language as a primary means by which humans create their diverse cultures. Language combines biological and social elements. Some linguistic anthropologists study the origins of language, asking how language emerged in our biological evolution and sociocultural development and what aspects of language might have given early hominins an evolutionary advantage. Other linguistic anthropologists are interested in how language shapes our thinking processes and our views of the world. In addition to its cognitive aspects, language is a powerful tool for getting things done. Linguistic anthropologists also study how people use language to form communities and identities, assert power, and resist authority.

Linguistic anthropologists frequently conduct the same kinds of long-term, immersive research that cultural anthropologists do. Christopher Ball spent a year living and traveling with the Wauja, an indigenous group in Brazil (2018). He describes the many routine and ritualized ways of speaking in this community and how each kind of talk generates specific types of social action. “Chief speech” is used by leaders, while “bringing the spirits” is used for healing the sick. Ceremonial language is used for giving people names and for conducting exchanges between different indigenous groups. Ball, like many linguistic anthropologists, also examined public speeches, such as the ones delivered by Wauja leaders to protest a dam on a nearby river. Ball also analyzed the forms of language used by state officials and development workers to marginalize and subordinate indigenous groups such as the Wauja.

Language is central to the way we conceptualize ourselves and our lives. Have you ever been asked to write an essay about yourself, perhaps as part of a school assignment or college application? If so, you might have used different phrases and concepts than if you’d been chatting with a new acquaintance. The purpose and intended audience of our language use shapes the way we represent ourselves and our actions.

Anthropologist Summerson Carr examined an addiction treatment program for homeless women in the Midwestern United States, looking at the role of language in the therapeutic process (2011). After observing therapy sessions and self-help meetings, she describes how addiction counselors promote a certain kind of “healthy talk” that conveys deep cultural notions about personhood and responsibility. As patients master this “healthy talk,” they learn to demonstrate progress by performing very scripted ways of speaking about themselves and their addiction.

HOW THE FOUR FIELDS WORK TOGETHER: THE EXAMPLE OF RACE

With their unique methods and emphases, the four fields of anthropology may seem like completely different disciplines. It’s true that anthropologists from the four fields don’t always agree on the best approach to sociocultural inquiry. Biological anthropologists often see themselves as “hard” scientists committed to studying humanity through the scientific method. Cultural anthropologists rely on the “softer” methods of observation, participation, and interviews. Someone who studies the genetic distribution of blood types and someone who studies an addiction treatment program may have a difficult time finding common ground.

Increasingly, however, urgent concerns such as inequality and climate change have highlighted the importance of an integrated approach to the study of humanity. The issue of racial inequality is an excellent example. Beginning with an approach from the cultural side of our discipline, many anthropologists explore what we think we know about the concept of race. How many racial categories do you think there are in the world? How can you tell a person’s racial identity? What do you know about your own racial category? In the end, anthropologists largely conclude that the contemporary concept of ‘race’ we know is relatively new—but the aspects of humanity foundational to its existence have been around just as long as we have.

Biological anthropologist Jada Benn Torres and cultural anthropologist Gabriel Torres Colón teamed up to explore how people use genetic ancestry testing to construct notions of collective history and racial belonging (2020). For instance, if you learn through genetic testing that your ancestors most likely came from Nigeria, you might begin to feel a certain identification with that country and with the continent of Africa as a whole. You might begin to feel that you have less in common with the people of your country of citizenship and more in common with the people of your country of ancestry, a racial connection perhaps felt as more fundamental than the sociocultural connection to your home culture. While concerned about the potential for spreading misconceptions about racial categories, Torres and Colon also note that racialized solidarity across national boundaries can foster transnational movements for social justice. Such research shows how we *actively construct* our concepts about race using biological information about ourselves, all the time believing that those concepts are embedded in nature.

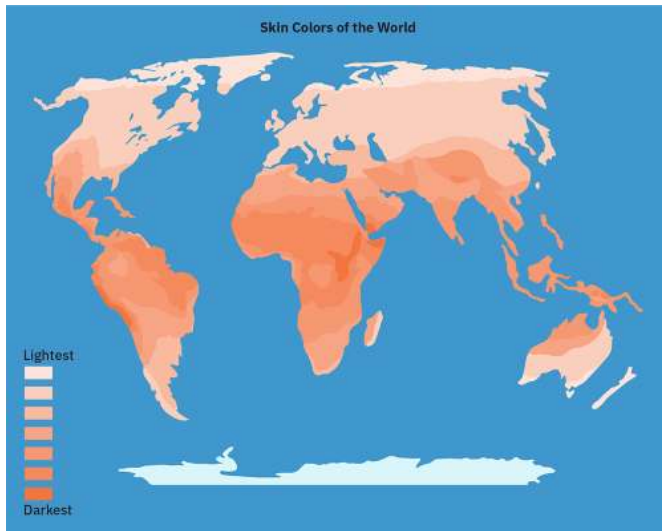


Figure 1.6 This map shows the predicted skin colors of people based on the levels of ultraviolet radiation in the areas where they live. (CC BY 4.0; Rice University & OpenStax)

Importantly, biological anthropology demonstrates that our common notions of race are inaccurate. Biological anthropologists such as Agustín Fuentes (2012) and Nina Jablonski (2006) have looked carefully at the global distribution of human traits such as skin color, facial features, hair texture, and blood type, among other markers, in order to determine if humans are indeed grouped into discrete categories based on race. Short answer: *biologically speaking, there are no real racial categories*. Each human trait varies along a spectrum, and the various traits are mixed and matched among people in ways that make racial distinctions impossibly inaccurate. As an example, take the issue of skin color, which is the most common way people assign race. Jablonski demonstrates that skin color varies along a spectrum, from pinkish beige to dark brown, with people throughout the world having skin of every possible shade between those two. Originally, humans evolving on the African continent had dark skin to protect them from the direct ultraviolet light of the sun. As some early humans migrated north into environments with less direct sunlight, their skin lightened to allow the absorption of vitamin D from the much weaker sunlight.

Today, if we look at people with deep historical connections to particular geographical areas, we find that skin color shifts gradually with location. Imagine setting out on a road trip from Kinshasa, the capital of the Democratic Republic of the Congo, just a few degrees south of the equator in central Africa, and traveling all the way up to the city of Tromsø in Norway, north of the Arctic Circle. This 157-hour trip would take you through Nigeria, Niger, Algeria, Spain, France, Germany, Denmark, and Sweden. If you were paying attention to the skin color of the indigenous peoples in each location, you would notice a gradual shift from deep brown in Kinshasa to lighter brown in Algeria to dark beige in southern Spain to lighter beige in Sweden. You might also notice other changes, such as more green and blue eyes and more red and blond hair, as you head into northern Europe. At no point in your trip could you identify a boundary between groups. Rather, you would see a gradual spectrum of change.

Whether looking at visible characteristics such as skin color or invisible genetic markers such as blood type, biological anthropologists have demonstrated time and time again that there is no scientifically justifiable way to divide the human population into racial categories. Any way you draw the lines, there will be more variation within categories than between categories.

Does this mean that race does not exist? In terms of biology, that is exactly what it means. But in terms of social reality, unfortunately not. ***Race does not exist in nature, but race does exist in our minds, our practices, and our institutions.*** Archaeological excavations of the material lives of various groups in the United States, including people from China and Ireland as well as enslaved peoples from Africa, show how notions of race shaped their whole ways of life: the buildings in which they lived, the clothing they wore, the property they owned, and the structure of their families (Orser 2007; Singleton [1985] 2016). In contemporary societies, cultural anthropologists studying forms of racial inequality in societies all over the world—including the United States, the Dominican Republic, Brazil, Japan, Kenya, and Zimbabwe—have uncovered the different ways that each of these societies constructs racial categories and uses various criteria to assign (and often reassign) race to a particular person.

Moreover, in-depth ethnographies illuminate the severity of racism in the everyday lives of people of color in the United States and elsewhere. After three years of fieldwork on the West Side of Chicago, anthropologist Laurence Ralph documented the suffering of people in this Black neighborhood as they contend with discrimination, economic deprivation, gang violence, and political marginalization (2014). Ralph emphasizes that the people he observed dream of a better life for themselves and their children, in spite of these struggles, and describes how many turn to social and political activism in an attempt to make their neighborhood a better place for everyone who lives there.

Linguistic anthropologists are interested in how race is constructed and expressed through language. Marcyliena Morgan studied the underground hip-hop scene in Los Angeles, exploring how Black emcees and musicians craft linguistic codes that reference their experiences of police violence, urban unrest, gang activity, and gentrification (2009). Like Ralph, Morgan highlights the creativity and resilience of Black American communities in the face of enduring racism in American society.

Taken together, these various anthropological approaches to race provide more insight and understanding than any one approach ever could. Overturning the biological myth of race is essential to understanding the complex reality of human diversity, but it is not enough. It would be a mistake to pretend that racial categories do not matter just because the concept of race has no basis in biology. The combined work of archaeologists, cultural anthropologists, and linguistic anthropologists demonstrates how the mythic notion of race has been used to exploit and marginalize certain people throughout history and into the present. We also see how people respond to racial subjugation with creativity and resilience, inventing cultural forms of resistance and mobilizing their communities through social activism.

HOLISM

In 2020, the COVID-19 pandemic swept across the globe. Nearly 210 million people had fallen sick with the coronavirus and more than 4 million had died as of August 2021. Medical researchers are still studying the long-term effects of this illness on the lungs and brains of people who have recovered. Some have discovered psychological effects as well, such as increased risks for depression, anxiety, and schizophrenia.

Beyond the medical realm, the effects of the pandemic reached into every aspect of our societies and our everyday lives. In societies all over the world, people were forced to remain at home, “sheltering in place” from the dangers of the disease. Businesses closed their doors to the public, and many shut down permanently, unable to pay their bills. By May 2020, nearly 50 million Americans had reported losing their jobs due to the pandemic. The epidemic of disease ballooned into an epidemic of grief as people mourned the loss of the those who had died and worried about those who had fallen sick. Stressed out by so many disruptions, some adults turned to alcohol and drugs, and addiction rates soared. Incidents of domestic violence escalated. Racial violence against Asian Americans increased as some Americans blamed China for the emergence and global spread of the disease. People everywhere reported feeling lonelier and more cut off from their friends and family members.

And yet there were also some positive consequences. Because people were not driving as much, air quality improved in many urban areas, giving relief to many people who suffer from asthma. Looking up into the night sky, some people were able to see stars for the very first time. Some people reported valuing their friends and family members even more now that they could not spend time with them in person. New social media technologies spread and many people learned to use existing technologies. People also became aware of the valuable contributions made by “essential workers” in drugstores, hardware stores, and grocery stores as well as hospitals and nursing homes.

How did a virus cause so many changes? **The various elements of society are entwined in a complex whole.** Dramatic changes in one area, such as epidemic disease in the realm of public health, can trigger a chain of effects throughout other social realms, such as the family, the economy, religion, and the political system.

You’ll recall the word *holism* from our earlier discussion about anthropology’s commitment to understanding how the many parts of society work together. **Holism** is a distinctive method of analysis that foregrounds the ever-changing relationships among different realms of culture. You likely put this together already, but the holism of anthropology is also a key piece to what holds together its otherwise disparate four fields! Given a particular ‘whole,’ each of the four fields lends its own perspective. In turn, this perspective is just one piece of the larger (‘whole’) puzzle. That definition again:

DEFINITION: HOLISM

The perspective on the human condition that assumes that mind, body, individuals, society, and the environment interpenetrate, and even define one another; the anthropological view that the whole of a culture is greater than the sum of its parts.

SOCIETY AS AN INTEGRATED WHOLE

In the 2010s, certain rural areas in Africa saw a significant drop in infant mortality, puzzling researchers who found no major improvements in healthcare services, parenting practices, or aid distribution. The key difference appeared to be the rise of mobile phone use, particularly mobile money transfers that made it possible for parents to quickly mobilize their family networks and get the funds necessary for medical care. This technological shift enabled families to quickly access financial help in emergencies, such as when a sick baby needed immediate medical attention. The connection between financial technology and infant survival illustrates how indirect factors can have a powerful impact on health outcomes.

Anthropology’s holistic approach helps uncover this sort of hidden connection by examining all aspects of human society. For example, marriage practices vary widely across cultures and are influenced not just by morals or gender norms, but also by economic and subsistence strategies. In farming societies, polygamy (multiple spouses) may be practical due to the economic value of having many children to help with labor. In contrast, industrialized societies like the U.S. tend to favor smaller families and experience more marital instability due to economic pressures and the high cost of raising children. Today, this presents as ostensibly monogamous (one partner) marriages and low birthrate. Consider, however, the number of these marriages which end in divorce (near half) as well as the regularity with which ‘monogamous’ partnering is met with infidelity. Anthropologists recognize the complexities involved and make it not so simple as the difference between means of production and forms of marriage. At least, it is not *just* that.

These two cases show how deeply interconnected different social realms can be—something anthropologists are uniquely positioned to explore.

SOURCES OF CONTRADICTION, CONFLICT, AND CHANGE

Holistic analysis considers not only how the various features of culture hold together but also how change in one feature can generate cascading changes among others. Often, anthropologists begin their analysis by focusing on one significant change in the lives of a particular cultural group and then chart the ramifications of that change through various other realms of culture.

For example, Anthropologist Attiya Ahmad studied South Asian women working as domestic laborers in Kuwait, highlighting how migration leads to profound personal and cultural transformation. These women must adapt to a new language, religion, gender expectations, and household norms, often becoming emotionally bonded yet socially subordinate in their host families. Though they migrate for financial reasons—supporting their families back home—their return is often fraught with tension. Changed by their experiences abroad, they are expected to resume traditional roles, leading many to feel alienated and seek alternative communities or spiritual fulfillment through Islamic teachings, sometimes converting despite family and employer disapproval.

Cultural change, as anthropology shows, often begins in one area and expands into others. The #MeToo movement, started in 2006, began as a call for solidarity with survivors of sexual harassment and has grown into a global campaign reshaping norms around gender and power. While it largely began in Hollywood, its influence spread to various sectors and across the globe, prompting both reforms and resistance. In countries like China and Nigeria, local interpretations of the movement reflect distinct cultural dynamics. Some critics argue the movement imposes uniquely 'American' values, as seen in France, where many push back against what they see as an attack on traditional flirtation. This illustrates how global movements are shaped—and sometimes resisted—by local cultural values.

While some anthropologists actively support the #MeToo movement, our methods of cross-cultural comparison call on us to set aside our personal values (at least temporarily) in order to more objectively understand how people in various cultural contexts interpret and act on the cross-cultural campaign against gender-based harassment and assault. This method of suspending personal values is key to understanding how all the elements of a particular culture interact with one another, including pressures from the outside.

OVERCOMING ETHNOCENTRISM

Have you ever known somebody who seems to think the world revolves around them? The kind of friend who is always talking about themselves and never asks any questions about you and your life? The kind of person who thinks their own ideas are cool and special and their own way of doing things is absolutely the best? You may know the word used to describe that kind of person: **egocentric**. An egocentric person is entirely caught up in **their own perspective** and does not seem to care much about the perspectives of others. It is good to feel proud of your personal qualities and accomplishments, of course, but it is equally important to appreciate the personal qualities and accomplishments of others as well.

The same sort of “centric” complex operates at the level of culture. Some people in some cultures are convinced that their own ways of understanding the world and of doing things are absolutely the best and no other ways are worth consideration. They imagine that the world would be a much better place if the superior beliefs, values, and practices of their own culture were spread or imposed on everyone else in the world. This is what we call **ethnocentrism**.

ENCULTURATION AND ETHNOCENTRISM

We are all brought up in a particular culture with particular norms and values and ways of doing things. Our societies teach us how to behave in given situations, how to take care of our bodies, how to lead a good life, and what we should value and think about. Our guardians, teachers, religious leaders, and bosses give us instruction about our roles, responsibilities, and relationships in life. By the time we are in our late teens or early twenties, we know a great deal about how *our society* works and our role in that society. Anthropologists call this process of acquiring our particular culture **enculturation**. All humans go through this process. It is natural to value the particular knowledge gained through our own process of enculturation because we could not survive without it. It is natural to

respect the instruction of our parents and teachers who want us to do well in life. It is good to be proud of who we are and where we came from. (Note that while some people outside of anthropology use 'enculturation' in a pejorative sense, they tend to be referring to 'indoctrination.' It is important not to confuse the two.)



DEFINITION: ENCULTURATION

The process by which individuals learn and adopt the norms, values, behaviors, language, and customs of their culture.

Just as egocentrism is tiresome, it can be harmful for people to consider their own culture so superior that they cannot appreciate the unique qualities and accomplishments of other cultures. When people are so convinced that their own culture is more advanced, morally superior, efficient, or just plain better than any other culture, we call that **ethnocentrism**. When people are ethnocentric, they do not value the perspectives of people from other cultures, and they do not bother to learn about or consider other ways of doing things.

Beyond the sheer rudeness of ethnocentrism, the real problem emerges when the ethnocentrism of one group causes them to harm, exploit, and dominate other groups. Historically, the ethnocentrism of Europeans and Euro-Americans has been used to justify subjugation and violence against peoples from Africa, the Middle East, Asia, and the Americas. In the quest to colonize territories in these geographical areas, Europeans developed a variety of styles of ethnocentrism which have dominated popular imagination over the past two centuries. These styles each identify a cultural “self” as European and a **cultural other** as a stereotypical member of a culture from a specific region of the world. Using both of these styles of ethnocentrism, Europeans strategically crafted their own coherent self-identity in contrast to these distorted images of other cultures.

PRIMITIVISM AND ORIENTALISM

Since the 18th century, views of Africans and Native Americans have been shaped by the obscuring lens of **primitivism**. Identifying themselves as enlightened and civilized, Europeans came to define Africans as ignorant savages, intellectually inferior and culturally backward. Nineteenth-century explorers such as Henry M. Stanley described Africa as “the dark continent,” a place of wildness and depravity (Stanley 1878). Similarly, European missionaries viewed Africans as simple heathens, steeped in sin and needing Christian redemption. Elaborated in the writings of travelers and traders, primitivism depicts Africans and Native Americans as exotic, simple, highly sexual, potentially violent, and closer to nature. Though both African and Native American societies of the time were highly organized and well-structured, Europeans often viewed them as chaotic and violent. An alternative version of primitivism depicts Africans and Native Americans as “noble savages,” innocent and simple, living in peaceful communities in harmony with nature. While less overtly insulting, the “noble savage” version of primitivism is still a racist stereotype, reinforcing the notion that non-Western peoples are ignorant, backward, and isolated.

Europeans developed a somewhat different style of ethnocentrism toward people from the Middle East and Asia, a style known as

orientalism. As detailed by literary critic Edward Said (1979), orientalism portrays peoples of Asia and the Middle East as irrational, fanatical, and out of control. The “oriental” cultures of East Asia and Middle East are depicted as mystical and alluring. The emphasis here is less on biology and nature and more on sensual and emotional excess. Middle Eastern societies are viewed not as lawless but as tyrannical. Relations between men and women are deemed not just sexual but patriarchal and exploitative. Said argues that this view of Asian and Middle Eastern societies was strategically crafted to demonstrate the rationality, morality, and democracy of European societies by contrast.

In his critique of orientalism, Said points to the very common representation of Muslim and Middle Eastern peoples in mainstream American movies as irrational and violent. In the very first minute of the 1992 Disney film *Aladdin*, the theme song declares that Aladdin comes from “a faraway place / where the caravan camels roam / where they cut off your ear if they don’t like your face / it’s barbaric, but hey, it’s home.” Facing criticism by antidiscrimination groups, Disney was forced to change the lyrics for the home video release of the film (Nittle 2021). Many thrillers such as the 1994 film *True Lies*, starring Arnold Schwarzenegger, cast Arabs as America-hating villains scheming to plant bombs and take hostages. Arab women are frequently portrayed as sexualized belly dancers or silent, oppressed victims shrouded in veils. These forms of representation draw from and reproduce orientalist stereotypes.

Both primitivism and orientalism were developed when Europeans were colonizing these parts of the world. Primitivist views of Native Americans justified their subjugation and forced migration. In the next section, we’ll explore how current versions of primitivism and orientalism persist in American culture, tracing the harmful effects of these misrepresentations and the efforts of anthropologists to dismantle them.

THE BIAS OF BACKWARDNESS

Common to both primitivism and orientalism is the notion that European and Euro-American cultures are more advanced and civilized than other cultures. Since at least the 19th century, Euro-American thinking has been dominated by the idea that the various cultures of the world can be evaluated on a scale of sociocultural sophistication from least advanced to most advanced. Typically, Native American and African cultures were considered the most primitive, while those of Asia and the Middle East were thought of as slightly more developed but certainly not as civilized as the societies of Europe, which were ranked at the top as the epitome of human progress.

The astrophysicist Neil deGrasse Tyson has noted that even today popular culture has a tendency to look at Western civilizations in terms of their technological progress and sophistication and dismissing the intelligence and sophistication of ancient societies like the Egyptians or Andean indigenous peoples. Rather than recognizing their accomplishments as indications of their similar intelligence and engineering abilities (the much simpler solution), we develop obscure notions such as, “it must have been aliens.”

Early anthropology played a role in promoting this ethnocentric way of thinking. Nineteenth-century anthropologists detailed various

hypothetical schemes charting the developmental stages that each culture would go through in its pursuit of the European ideal of civilization. One very prominent scheme was proposed by the British anthropologist **Edward Tylor** (1932-1917). Tylor suggested that each culture progressed from “savagery” to “barbarism” to “civilization.” Since the change from one stage to another could not be witnessed by the researcher, such “evolutionary” schemes were largely based on hypothetical conjecture, sometimes called “theorizing from the armchair.” It is important to note that this type of theory of ‘linear cultural evolution’ is a misuse of the term ‘evolution’ which is by no means linear.

While some anthropologists played a role in popularizing this way of thinking, others worked to expose it as misguided and inaccurate. The writings of American anthropologist **Franz Boas** (1858-1942) highlighted the fact that no culture is isolated in its process of developmental change. Instead, each culture develops through interactions with other cultures, as new ideas and inventions diffuse from one culture to the next. Moreover, cultural change is not structured by an overall trajectory of ‘progress’ as defined by the European example; rather, cultures change in many ways, sometimes adopting new ways of doing things and other times reviving and reclaiming older ways. Through these varied patterns of change, each culture forges its own unique history. While Boas has his own problems, his thinking was much more in line with the thinking of anthropology we know today—so much so that he is considered by some the ‘father of American anthropology.’

While it took some time to come back around, to some degree, all anthropology today borrows from these original ideas of Boas. An early student of Boas who pioneered this trajectory was **Margaret Mead** (1901-1978). Mead’s approach to anthropology emphasized the role of culture in shaping individual behavior, particularly through childhood socialization and gender roles. Unlike Tylor, who viewed culture as a progressive evolution from “primitive” to “civilized” stages, Mead rejected linear models and universal hierarchies. Instead, like Boas, she emphasized **cultural relativism**—the idea that each culture should be understood on its own terms. Through her fieldwork in Samoa and New Guinea, Mead argued that many traits thought to be “natural,” like gender roles or adolescence, are actually culturally constructed, not biologically determined. While Tylor focused on broad comparisons and Boas on historical particularism, Mead centered her work on how culture directly shapes individuals’ lives, helping to popularize anthropology and bring attention to the diversity of human experience. We’ll look again at cultural relativism shortly.

While the evolutionary schemes of 19th-century anthropology have been disproved, the underlying notion of sociocultural progress toward a Euro-American ideal is still a widespread form of ethnocentric bias outside of anthropology. Many people still refer to some countries as “developed” and “modern” and others as “undeveloped” and “backward.”

These labels are rooted in Euro-American values. Championing capitalism and technology, many Europeans and Americans view the generation of material wealth as the primary measure of the success of any society. The divide between the more and less “advanced”

countries of the world is largely a distinction between the richer and poorer countries. European and American societies, which have become wealthy through the development of global trade and industrial capitalism, are considered the most successful. Societies that have not achieved the levels of wealth and technology associated with Euro-American industrial capitalism are sometimes labeled “undeveloped.” Societies that have not industrialized at all are sometimes called “premodern” or simply “traditional.”

As with older evolutionary schemes, this way of thinking relies on the notion that each society pursues economic development in isolation. The poorer countries of the world are told: if you work hard and apply the correct economic policies, then you too can become rich like the United States, the United Kingdom, and Germany. But how did those countries become rich in the first place? Certainly not in isolation. The Boasian emphasis on cultural interaction also applies to economic change. To a large degree, European and American societies became wealthy by dominating other societies and keeping them poor. European countries constructed a system of global capitalism designed to make them very rich by extracting raw materials and human labor from their colonies. In fact, that was the whole impetus for colonialism.

✓ EXAMPLE 1

The cultural anthropologist **Sidney Mintz** is one of many who have studied how this happened. Mintz explored how European merchants designed a very lucrative system of production and consumption based on sugar (1985). As European consumers began developing a taste for sugar in the 17th century, European merchants developed sugar plantations in the New World using the labor of enslaved people transported from West Africa. Sugar produced on these plantations was exported to Europe and the rest of the world, earning a hefty profit for the European merchants who designed the system. Local people living in the places where sugar was produced did not benefit much from this trade, and enslaved people suffered and died for it. Similar systems were developed for the production of other global commodities such as cocoa, coffee, tea, and cotton. Some commodities required enslaved labor and others involved small farmers, but the basic structure of the trade was the same. The economies of many South Asian and African countries were designed entirely around the export of primary commodities, the production of which was controlled by European merchants who reaped the profits from this global trade. Many postcolonial countries still rely on the export of these primary commodities.

What do these historical processes mean for understanding the world today? European merchants and governments crafted strategic ways of thinking about the parts of the world they wanted to invade and colonize. To justify the development of the slave trade, the plantation system, and colonial rule, Europeans labeled many non-Europeans as backward peoples needing the civilizing influence of European domination. This form of bias persists in contemporary notions of backwardness applied to the poorer peoples and parts of the world.

In reality, the colonial system was a global mechanism for European merchants and governments to extract wealth from other parts of the world. European merchants took great care to maintain control over these forms of highly profitable trade, edging out local merchants and forbidding local competition. Even today, we see the remnants of this system in Euro-American domination of global trade. If the world seems divided between rich and poor, it is not because some countries work hard and others are “backward.” It is because the global system was founded on forms of inequality that endure into the present.

THE ANALYTIC OTHER AND CULTURAL RELATIVISM

By being a part of a culture, that means there is an “other” culture out there. In everyday language, we use the term “othering” as a means to recognize another individual or culture as fundamentally different from “us” and, because of those differences, possibly inferior and even dangerous. This is one of the dangers of doing anthropology, but, if we can avoid the trap of ‘othering,’ we can actually do the opposite and demonstrate the value of cultural differences. To do this, anthropology creates another kind of “other.” We study the **Analytic Other**, that is, people or cultures who are, owing to history, foreign to us, or whom we make foreign so as to study them with qualified objectivity. (“True objectivity” is unattainable, but, we can admit what we do and don’t know.) By examining the similarities and differences among various societies, anthropologists aim to understand the range of human behavior and cultural expression. This approach, in part, sometimes attempts to identify cultural ‘universals,’ or elements that are common across all human societies.

DEFINITION: ANALYTIC OTHER

A group, people, or culture which is foreign to us or whom we make foreign so as to study them with qualified objectivity.

When we begin to recognize the diversity of cultures ‘out there,’ we can see just how many “others” (analytic or otherwise) there are—even in our own communities. As a result of globalization, humans, with rapidly increasing cultural contact started to reveal the extent of that **ethnocentrism** we just learned about. Again, ethnocentrism is the tendency to view one’s own culture as superior to others and as a measuring stick by which to evaluate all others. Even in the early days of anthropology, “primitive” cultures were seen as “early” and therefore inferior along a ‘progression’ to civilization.

Thankfully, in the early 20th century, a handful of anthropologists decided it was time to use the study of “others” to examine their own cultures and to test assumptions that might be ethnocentric. For example, we just read about Margaret Mead. She published *Coming of Age in Samoa* in 1928 in which she examined the adolescence problem as originating in culture, not as a physical and inevitable result of hormones as commonly thought in the United States at the time. Through a comparative method, we can learn that while human populations face some common problems, such as growing up, each addresses those problems in different ways. Gradually, anthropology

was no longer the study of “savages” or “primitives;” it became the study of all human cultures. As **Ruth Benedict** (1887-1948) pointed out in *Patterns of Culture* (1934), people of different cultures simply interpret life differently. Her observation implied that **one cannot judge one culture as superior to another**.

Ethnocentrism’s opposite, then, is **cultural relativism**: the idea that we should seek to understand another person’s beliefs and behaviors from the perspective of their culture rather than our own. The guiding philosophy of modern anthropology is closer to cultural relativism (but even that is not without its problems—several topics are heavily debated). Anthropologists try not to judge other cultures based on their values. Instead, anthropologists seek to understand people’s beliefs within the system they themselves have for explaining things.

DEFINITION: CULTURAL RELATIVISM

The idea that we should seek to understand another person’s beliefs and behaviors from the perspective of their own culture rather than our own; understanding people’s beliefs within the system they themselves have for explaining things.

✓ EXAMPLE 1

A frequently cited example of analyzing the underlying premises is **E. E. Evans-Pritchard** (1902–1973), a British anthropologist who published *Witchcraft, Oracles, and Magic among the Azande* (1937), a work of ethnography as theory. His study of the Azande of the southern Sudan was meant to indicate why and how Azande beliefs in magic and witchcraft made perfect sense according to Azande premises (and to many peoples everywhere who wanted to understand human ills such as disease and death). He avoided ethnocentric notions like “they are ignorant primitives.” His point was that their beliefs made sense given their premises, and that they were as logical as any other people. The main reason the Azande work is so much cited is that the main discovery is that we are all caught in our premises, our unchallenged assumptions.

The long-standing ethnocentric mistake in anthropology is somewhat surprising given the theories put forth by Franz Boas. Boas elaborated on cultural relativism and pushed hard against the common tendency to judge others by one’s own culture rather than by the basic assumptions of the culture being studied. During the development of anthropology in North America, the significant contribution made by the American School of Anthropology was cultural relativism. Boas is acknowledged for redirecting American anthropologists away from cultural evolutionism and toward relativism. He was staunchly opposed to the idea of biology shaping culture, certain cultures being more developed than others, and the idea of human races.

The patterns in culture presumed by cultural evolutionism (belief in a linear progression from primitive to civilized) were not found in the societies Boas studied. Instead, a better understanding of cultural differences was to be attributed to their social environments, a concept he called **historical particularism**. Boas attributed similar

cultural patterns or behaviors to **diffusion**—sharing ideas with other cultures that came into contact—or some **accident** that had two cultures come up with the same idea.

Boas also encouraged **holism**. As we’ve seen, holism in anthropology has two meanings which are related to one another. One is that **cultures are an integrated system**. The other refers to an approach that maintains that **it is impossible to understand humans by looking at only a part of their experience**, e.g., only their biology or only their material culture. Anthropology takes a holistic approach to understanding the human experience—we must look at how everything interacts to reach an understanding of humans.

But, as it turns out, all people—including anthropologists—are ethnocentric to some degree. Why do we behave the way we do? Why do we believe what we believe? Most people find these kinds of questions difficult to answer. Often the answer is simply “because that is how it is done.” But anthropologists prefer the answer “that is the way it is done in our culture at this time.”

Ethnocentrism is not a useful perspective in contexts in which people from different cultural backgrounds come into close contact with one another, as is the case in many cities and communities throughout the world. People increasingly find that they must adopt culturally relativistic perspectives in governing communities and as a guide for their interactions with members of the community. (This is why intercultural communication is such an important part of business programs.)

THE CHALLENGE OF REPRESENTING OTHERS

The anthropological goal of looking at an “analytic other” and representing their point of view as an “insider” of that perspective is controversial. Is it truly possible to step outside your own identity to really understand a different perspective? How can a researcher from one culture possibly understand how it feels to be a member of another culture? Even anthropologists who study their own cultures may find themselves researching people from different classes, ethnicities, genders, or other categories. Is it possible to accurately represent the perspectives of people whose lives are so different from your own? Is it ethical? Is it valuable?

For decades, White European and American anthropologists conducted research and wrote ethnographies as if the challenge of representing cultures very different from their own was really no problem at all. Empowered by White privilege and ethnocentrism, many earlier anthropologists believed that long-term intensive fieldwork was enough to give them cross-cultural insight into the perspectives of the people they studied.

Too frequently, those anthropologists reduced the complexity of the non-Western cultures they studied to just one point of view, as if the people in that society all interpreted their cultural rules the same way and never disagreed or changed the rules over time. But every culture comprises multiple perspectives that often contradict one another, generating sociocultural conflict and change. I am sure you can almost instantly think of several examples in “American” culture!* Recognizing this situation, contemporary anthropologists often conduct research among several different subgroups and

geographical locations, integrating insights from these various arenas into a comprehensive, dynamic, and **holistic** view of cultural complexity. Today, we describe two key perspectives anthropologists rely on for describing cultures called "emic" and "etic" perspectives. The **emic perspective** is an *insider view*, focusing on the local meanings, beliefs, and behaviors as understood by the people within the culture. In contrast, the **etic perspective** is an *outsider view*, analyzing cultural phenomena using an external, more hopefully objective framework. Good anthropological work balances these two perspectives—and acknowledges the strengths and limitations of each. This practice is called **reflexivity**.

Then there is the question of deep-seated bias, often operating unconsciously among researchers and the people they study. Consider the situation of a White American anthropologist conducting research in an African country previously colonized by Europeans. European colonialism left behind a legacy of White privilege in postcolonial African countries. Earlier anthropologists did not often recognize how racialized power dynamics might shape their research and writing, distorting their representations of the peoples they studied. In the 1960s, anthropologists began to think more carefully about these issues, realizing that an "insider's point of view" (that of oppressed populations) is never perfectly achievable by those who share cultural foundations with the oppressors. As human beings, our own perspectives are conditioned by our own enculturation, our own ways of seeing and thinking about the world around us.

If an insider's point of view is never really possible, should we give up on this aspirational goal of the discipline? In such a scenario, researchers would only study and write about people from the same sociocultural categories as themselves. So, for example, Americans would only research and write about other Americans. But are all Americans really members of the same sociocultural category? (*You have the answer to this if you provided those examples above.) Could an upper-class Asian American from Manhattan research and write about a poor Black community in the Deep South? Could a Latino man write about a group of Latinx/Latina/Latino people consisting of all genders? American culture is not unique in its complex array of identities. In all cultures, people have multiple identities as members of multiple sociocultural categories. While you may be an insider within your culture in some respect, you may be an outsider by some other measure. The ethical question of who can represent who is riddled with difficulties.

Moreover, resigning ourselves to studying "our own people," whoever they might be, is tantamount to giving up on cross-cultural research and the insight, empathy, dialogue, and transformation that frequently result from it. Anthropological insights have been key to rethinking American notions of sexuality, family, and race, among so many other pressing issues. We need the skills of cross-cultural research now more than ever. While perfect representations of different communities and cultures may be impossible, many anthropologists now deploy innovative methods designed to address the problems of history and power at the heart of the discipline. The aim is not to achieve perfect ethnography but to work ethically and collaboratively to produce what contemporary cultural

anthropologist **Nancy Scheper-Hughes** (1944–) has termed "good enough ethnography."

Faced with the challenges of representation, many anthropologists practice methods of **collaboration** with the individuals and groups that they study and with one another. Collaborative ethnography has a very long history in cultural anthropology, traceable all the way back to early Euro-American ethnographies of Native Americans. Often, anthropologists began their research by employing a local person as a translator or field assistant, a role that usually evolved into something much more cooperative. Today, anthropologists often collaborate with the cultures they study through **participant observation**. This is largely what it sound like, and we will learn more about it later on.

Beyond this, anthropologists today collaborate with the people they study in a number of other ways. Some involve local people as readers and editors of their work, sometimes including community responses in the published work. Some conduct focus groups to generate local feedback on particular chapters or topics. Some hold community meetings or forums to talk about the major themes and implications of their work. And some even collaborate with members of the local community as equal coauthors on books and articles. Such methods strengthen ethnography by ensuring accuracy, promoting multiple perspectives, and striving to make anthropological work more relevant to the communities being studied. Collaboration also draws attention to the personal side of ethnography. Instead of extracting ethnographic "facts" from the process of fieldwork, many contemporary anthropologists focus on describing particular people, insightful conversations, and cooperative practices encountered in their research. Rather than trying to work our way from the outside to become 'insiders,' these strategies help to bring the 'insiders' out. This produces a wider, more **holistic**, constellation of personal perspectives.

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CHAPTER OVERVIEW

Biological anthropology uses a scientific and evolutionary approach to answer many of the same questions that all anthropologists are concerned with: What does it mean to be human? Where do we come from? Who are we today? Biological anthropologists are concerned with exploring how humans vary biologically, how humans adapt to their changing environments, and how humans have evolved over time and continue to evolve today. Some biological anthropologists also study what humans and nonhuman primates have in common and how we differ.

You may have also heard biological anthropology referred to as physical anthropology—a discipline that dates to as far back as the eighteenth century, when it focused mostly on physical variation among humans. These researchers dedicated themselves to measuring bodies and skulls (anthropometry and craniometry) in great detail (figure below). Many also acted under the misguided racist belief that human biological races existed and could be used comparatively. Anthropologists today agree that there are no biological human races and that all humans alive today are members of the same species and subspecies: *Homo sapiens sapiens*. Differences we can see between peoples' bodies are due to a wide variety of factors, including environment, diet, activities, and genetic makeup.

The subdiscipline has thankfully changed a great deal since these early years. Biological anthropologists no longer identify human differences in order to assign people to groups, like races. The focus is instead on understanding how and why human and primate variation developed through evolutionary processes. The name for the subdiscipline has transitioned in recent years (from *physical anthropology* to *biological anthropology*) to reflect these changes. Many believe the term *biological anthropology* better reflects the subdiscipline's focus today, which includes genetic and molecular research.

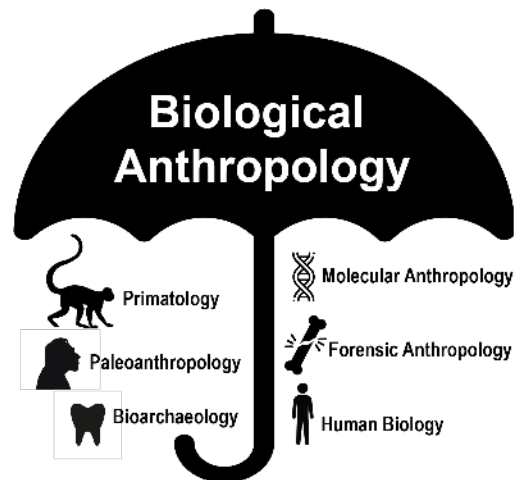


An anthropometric device used to measure a subject's head, circa 1913. Credit: [Head-Measurer of Tremeame \(side view\)](#) by A.J.N. Tremeame, Man 15 (1914): 87–88 is in the [public domain](#).

THE SCOPE OF BIOLOGICAL ANTHROPOLOGY

There are at least six **subfields** within biological anthropology: primatology, paleoanthropology, molecular anthropology, bioarchaeology, forensic anthropology, and human biology. Each

subfield focuses on a different dimension of what it means to be human from a biological perspective. In this course, we will only scratch the surface of primatology, paleoanthropology, and (evolutionary) human biology.



Biological anthropology includes primatology, paleoanthropology, bioarchaeology, molecular anthropology, forensic anthropology, and human biology. Credit: [Subfields of biological anthropology \(Figure 1.16\)](#) original to [Explorations: An Open Invitation to Biological Anthropology](#) by Mary Nelson is under a [CC BY-NC 4.0 License](#).

PRIMATOLOGY

Primatologists study the anatomy, behavior, ecology, and genetics of living and extinct nonhuman primates, including apes, monkeys, tarsiers, lemurs, and lorises. Primatology research gives us insights into how evolution has shaped our species, since nonhuman primates are our closest living biological relatives. Through such studies, we have learned that all primates share a suite of traits.



A mountain gorilla feeds on insects. Their fingers and fingernails are very similar to that of humans. Credit: [Mountain gorilla finger detail.KMRA](#) by Kurt Ackermann (username KMRA) is under a [CC BY 2.5 License](#).

PALEOANTHROPOLOGY

Paleoanthropologists study human ancestors from the distant past to learn how, why, and where they evolved. Because these ancestors lived before there were written records, paleoanthropologists have to rely on various types of physical evidence to come to their conclusions. This evidence includes fossilized remains (particularly fossilized bones), DNA, artifacts such as stone tools, and the

contexts in which these items are found. In recent years, paleoanthropologists have made some monumental discoveries about hominin evolution. These findings helped us learn that human evolution did not occur in a simple, straight line but, rather, branched out in many directions. Most branches were evolutionary “dead ends.” Humans are now the only living hominins left on planet Earth.



Donald Johanson and an Australopithecus fossil skull. Credit: Donald Johanson 2009 by Julesasu has been designated to the [public domain \(CC0\)](#).

MOLECULAR ANTHROPOLOGY

Molecular anthropologists use molecular techniques (primarily genetics) to compare ancient and modern populations as well as to study living populations of humans or nonhuman primates. By examining DNA sequences, molecular anthropologists can estimate how closely related two populations are, as well as identify population events, like a population decline, that explain the observed genetic patterns. This information helps scientists trace patterns of migration and identify how people have adapted to different environments over time.

BIOARCHAEOLOGY

Bioarchaeologists study human skeletal remains along with the surrounding soils and other materials. They use the research methods of skeletal biology, mortuary studies, osteology, and archaeology to answer questions about the lifeways of past populations. Through studying the bones and burials of past peoples, bioarchaeologists search for answers to how people lived and died, including their health, nutrition, diseases, and/or injuries. Most bioarchaeologists study not just individuals but entire populations to reveal biological and cultural patterns.

FORENSIC ANTHROPOLOGY

Forensic anthropologists use many of the same techniques as bioarchaeologists to develop a biological profile for unidentified individuals, including estimating sex, age at death, height, ancestry, or other unique identifying features such as skeletal trauma or diseases. They may also go to a crime or accident scene to assist in the search and recovery of human remains, aiding law enforcement teams (figure below). The popular television show *Bones* told the fictional story of a forensic anthropologist, Dr. Temperance Brennan, who brilliantly interpreted clues from victims’ bones to help solve crimes. While the show includes forensic anthropology techniques

and responsibilities, it also includes many inaccuracies. For example, forensic anthropologists do not collect trace evidence like hair or fibers, run DNA tests, carry weapons, or solve criminal cases. Forensic anthropology is considered an **applied** area of biological anthropology, because it involves a practical application of anthropological theories, methods, and findings to solve real-world problems. While some forensic anthropologists are academics that work for colleges and universities, others are employed by public safety and law agencies.



A remembrance of the victims of El Mozote Massacre in El Salvador. Forensic anthropologists played an important role in identifying the victims of this massacre during the Salvadoran Civil War. Credit: [Untitled](#) by [Presidencia El Salvador](#) has been designated to the [public domain \(CC0\)](#).

HUMAN BIOLOGY

Many biological anthropologists do work that falls under the label of “human biology.” This type of research explores how the human body is affected by different physical environments, cultural influences, and nutrition. These include studies of **human variation** or the physiological differences among humans around the world. Some of these anthropologists study **human adaptations** to extreme environments, which includes physiological responses and genetic advantages to help them survive. Others are interested in how nutrition and disease affect human growth and development. Biological anthropologists engage in a wide range of research that spans the breadth of human biological diversity.

The six subfields of biological anthropology all help us to understand **what it means to be biologically human**. From molecular analyses of our cells to studies of our changing skeleton, to research on our nonhuman primate cousins, biological anthropology assists in answering the central question of anthropology: What does it mean to be human? Despite their different foci, all biological anthropologists share a commitment to using a scientific approach to study how we became the complex, adaptable species we are today.

2.1: Evolution

2.2: Our Primate Relatives

2.3: Biological Humans

2.4: Today's Human Variation

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All organisms are products of evolution adapted to their environment. (a) Saguaro (*Carnegiea gigantea*) can soak up 750 liters of water in a single rain storm, enabling these cacti to survive the dry conditions of the Sonora desert in Mexico and the Southwestern United States. (b) The Andean semiaquatic lizard (*Potamites monticola*) discovered in Peru in 2010 lives between 1,570 to 2,100 meters in elevation, and, unlike most lizards, is nocturnal and swims. Scientists still do not know how these cold-blood animals are able to move in the cold (10 to 15°C) temperatures of the Andean night. (credit a: modification of work by Gentry George, U.S. Fish and Wildlife Service; credit b: modification of work by Germán Chávez and Diego Vásquez, ZooKeys)

All living organisms, from bacteria to baboons to blueberries, evolved at some point from a different species. Although it may seem that living things today stay much the same, that is not the case—evolution is an ongoing process.

The theory of evolution is the unifying theory of biology, meaning it is the framework within which biologists ask questions about the living world. Its power is that it provides direction for predictions about living things that are borne out in ongoing experiments. The Ukrainian-born American geneticist Theodosius Dobzhansky famously wrote that “nothing makes sense in biology except in the light of evolution” (“Biology, Molecular and Organismic.” *American Zoologist* 4, no. 4, 1964: 449). He meant that the tenet that all life has evolved and diversified from a common ancestor is the foundation from which we approach all questions in biology.

In anthropology—and in the subfield of biological anthropology in particular—we are especially interested in evolution because it helps to explain the *biological* foundations of what it means to be 'human.' We learned that anthropology is an evolution-based discipline. This means it is one among many disciplines which recognizes the importance in understanding evolution in order to understand its subjects: humans. Further, by better understanding our place in the 'evolutionary tree' does two things for us. First, it helps us to recognize some of the problems with **human exceptionalism**—the belief that humans are unique and superior to other living beings, often based on characteristics like emotion, language, reason, culture, or morality. Second, by using **comparative** studies based on our relationship to other primate species, we can develop new research questions and investigations to better understand our past and present selves as a species. In some cases, our similarities can be even more revealing than our differences! This has led some to question traditional attempts to limit the label of 'human' to our current species *Homo sapiens sapiens* and continually push the title back in time to include many others including *Homo neanderthalensis*

(Neanderthals), *Homo erectus*, and even *Homo heidelbergensis* and more.

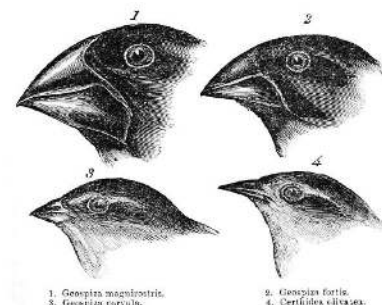
UNDERSTANDING EVOLUTION

Evolution by natural selection describes a mechanism for how species change over time. Written record goes as far back as the ancient Greeks who expressed evolutionary ideas. The modern theory of evolution largely began in the eighteenth century. Naturalist Georges-Louis Leclerc Comte de Buffon reintroduced ideas about the evolution of animals and observed that various geographic regions have different plant and animal populations, even when the environments are similar. Some at this time also accepted that there were extinct species.

James Hutton, a Scottish geologist and naturalist, proposed a theory of slow geological change. It can be difficult for us to conceive of a time when this idea was new! Nineteenth century geologist Charles Lyell popularized Hutton's view. A friend to Charles Darwin. Lyell's ideas were influential on Darwin's thinking: the slowness a process of change rather than short, catastrophic bursts, provided an analogy for Darwin's observations about biological change. In the early nineteenth century, Jean-Baptiste Lamarck published a book that detailed a mechanism for evolutionary change. We now refer to this mechanism as **inheritance of acquired characteristics**: the environment causes modifications that offspring use or disuse during its lifetime and thus **bring about change in a species**.

CHARLES DARWIN AND NATURAL SELECTION

In the mid-nineteenth century, two naturalists, Charles Darwin and Alfred Russel Wallace, independently conceived and described the actual mechanism for evolution based on their observations having traveled around the world--through the Pacific and to South and Central America. On the **Galápagos Islands** west of Ecuador, Darwin observed species of organisms on different islands that were clearly similar, yet had distinct differences. Famously, the ground **finches** comprised several unique beak shapes (figure below). He observed that some finches closely resembled another finch species on the South American mainland. Darwin imagined that the island species might be species modified from one of the original mainland species. Upon further study, he realized that each finch's varied beaks helped the birds acquire a specific type of food. For example, seed-eating finches had stronger, thicker beaks for breaking seeds, and insect-eating finches had spear-like beaks for stabbing their prey.



Darwin observed that beak shape varies among finch species. He postulated that ancestral species' beaks had adapted over time to

equip the finches to acquire different food sources.

Wallace and Darwin both observed similar patterns in other organisms and **independently developed similar explanations** for how and why such changes could take place. Darwin called this mechanism natural selection. Natural selection, or “survival of the fittest,” is that the more prolific reproduction of individuals with favorable traits that survive environmental change because of those traits. This leads to evolutionary change. Today, we might more accurately describe the process as “survival of the fit enough,” but the core idea remains. Natural selection, Darwin argued, was an inevitable outcome of three principles that operated in nature.

- First, most **characteristics** of organisms are **inherited**, or passed from parent to offspring (although no one, including Darwin and Wallace, knew how this happened at the time).
- Second, more offspring are produced than are able to survive. **Resources** for survival and reproduction are **limited**.
- Third, offspring **vary** among each other in regard to their characteristics and those variations are inherited.

Darwin and Wallace reasoned that offspring with inherited characteristics which allow them to best compete for limited resources will survive and have more offspring than those individuals with variations that are less able to compete. These three features working in concert are **natural selection**.

Given arguments today about evolution, you might not believe it really is that simple—but it is! If the three points outlined above are true (and more and more evidence of this is found every day)—then evolution exists as science understands it.

Remember, scientists will always hold short of claiming evolution has been 'proved'—but it is still the best theory given the preponderance of evidence so far and it has yet to be falsified!

PROCESSES AND PATTERNS OF EVOLUTION

Natural selection can only take place if there is variation (differences) among individuals in a population. We now know these differences have a genetic basis when it comes to evolution. This is critical because non-genetic reasons (such as diet) *can also* cause variation among individuals. Genetic diversity in a population comes from two main mechanisms: **mutation** and **sexual reproduction**.

Mutation, a change in DNA, is the ultimate source of new genetic variation in any population. The genetic changes that mutation causes can have one of three outcomes the observable characteristics created by genetic information. These observable characteristics are called **phenotypes**. A mutation affects the organism's phenotype in a way that:

- gives it reduced fitness—lower likelihood of survival or fewer offspring,
- gives it increased fitness—greater likelihood of survival or more offspring, or
- has no effect on fitness.

Sexual reproduction also leads to genetic diversity: when two parents reproduce, unique combinations of genes produce the unique features of offspring.

We call a heritable trait that helps an organism's survival and reproduction in its present environment an **adaptation**. Scientists describe groups of organisms adapting to their environment when a genetic variation occurs over time that increases or maintains the population's “fit” to its environment. A platypus's webbed feet are an adaptation for swimming. A snow leopard's thick fur is an adaptation for living in the cold. A cheetah's fast speed is an adaptation for catching prey.

Whether or not a trait is favorable depends on the current environmental conditions. The evolution of species has resulted in enormous variation in form and function. Sometimes, evolution gives rise to groups of organisms that become tremendously different from each other. We call two species that evolve in diverse directions from a common point **divergent evolution**. In other cases, similar traits evolve independently in distantly related species. For example, flight has evolved in bats, insects, and birds, and they all have structures we refer to as wings, which are adaptations to flight. However, these wings have evolved from very different original structures. We call this phenomenon **convergent evolution**, where similar traits evolve independently in species that do not share a recent common ancestry.

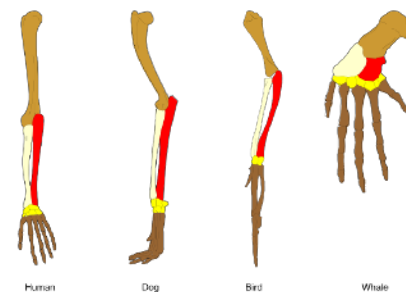
These physical changes occur **over enormous time spans** and help explain how evolution occurs.

EVIDENCE OF EVOLUTION

The evidence for evolution is compelling and extensive. Looking at every level of organization in living systems, biologists see the signature of past and present evolution.

Fossils provide solid evidence that organisms from the past are not the same as those today. Similarities between them also show gradual evolutionary changes over time. Scientists determine the age of fossils and categorize them from all over the world to determine when the organisms lived relative to each other. The resulting **fossil record** tells the story of the past and shows the evolution of form over millions of years.

Another type of evidence for evolution is the presence of structures in organisms that share the same basic form. For example, the bones in human, dog, bird, and whale appendages all share the same overall construction (figure below) resulting from their origin in a common ancestor's appendages. Over time, evolution led to changes in the bones' shapes and sizes in different species, but they have maintained the same overall layout. Scientists call these **homologous structures**.



The similar construction of these appendages (human, dog, bird, and whale) indicates that these organisms share a common ancestor.

Some structures exist in organisms that have no apparent function at all (wings on flightless birds, leaves on some cacti, and hind leg bones in whales) and appear to be residual parts from a past common ancestor. We call these unused structures without function **vestigial structures**. In other cases, similar characteristics (such as wings in bats and birds) occur because of environmental constraints and not due to a close evolutionary relationship. We call these **analogous structures**.

Further, **convergence** of form in organisms that share similar environments provides evidence. For example, species of unrelated animals living in the arctic region have been selected for seasonal white phenotypes during winter blending in with the snow and ice. These similarities occur not because of common ancestry, but because of similar selection pressures—the benefits of predators not seeing them.



The white winter coat of the (a) arctic fox and the (b) ptarmigan's plumage are adaptations to their environments. (credit a: modification of work by Keith Morehouse)

The study of the anatomy of an organism's development to its adult form (called **embryology**) also provides evidence of relatedness between now widely divergent groups of organisms. Structures that are absent in some groups often appear in their embryonic forms but then disappear. For example, all vertebrate embryos have 'pharyngeal arches' during embryonic development. These develop into gills and gill slits which fish keep these into adulthood and some amphibians keep as juveniles. In mammals (like humans) these become the mandible (jawbone) and hyoid (a bone in the throat). 'Great ape' embryos, including humans, have a tail structure during their development but which does not develop into a tail by birth.

The **geographic distribution** of organisms on the planet also follows patterns best explained by evolution in conjunction with movement over geological time. Broad groups that evolved before the supercontinent Pangaea broke up (about 200 million years ago) are distributed worldwide. Groups that evolved since the breakup appear uniquely in regions of the planet which were connected when those species are thought to have developed. Perhaps the best example is marsupial diversification in Australia with the absence of other mammals. This reflects Australia's long continental isolation.

Like anatomical structures, the **molecular structures** of life reflect descent with modification. The universality of DNA (Deoxyribonucleic Acid—the complex molecule serving as the 'genetic instruction manual' for all living organisms) reflects evidence of a common ancestor for all of life. We need not get into the complexities of this here, but in general, the relatedness of groups of organisms is reflected in the similarity of their DNA

sequences—exactly the pattern that we would expect from descent and diversification from a common ancestor!

MISCONCEPTIONS OF EVOLUTION

Although the theory of evolution generated some controversy when Darwin first proposed it, biologists almost universally accepted it, particularly younger biologists, within 20 years after publication of *On the Origin of Species*. Nevertheless, the theory of evolution is a difficult concept and misconceptions about how it works abound.

One of the most common misconceptions is that **evolution is "just a theory."** Critics of the theory of evolution dismiss its importance by purposefully confounding the everyday usage of the word "theory" with the way scientists use the word. Like other theories describing understood facts about the world, the theory of evolution describes facts about the living world. It has survived significant efforts to discredit it scientifically! The everyday version of the word "theory" meaning a guess is more akin to a "hypothesis." When someone says "just a theory," they are implying that there is little evidence supporting it and that it is still in the process of rigorous testing. This is a mischaracterization.

Another misconception is that **species evolve 'on purpose.'** Statements such as "species evolve in response to a change in an environment" are quite common, but statements like this run the risk of assigning intention to species. A changed environment results in benefits to some individuals in a population and produces a change in the population. Note that the variation that natural selection works on *is already in a population* and *does not arise in response* to an environmental change. Evolution is not 'goal directed.' Species do not become 'better' over time—just 'fit' for their environment. Evolution has no goal of making faster, bigger, more complex, or smarter species. What characteristics evolve in a species are a function of the variation present and the environment, both of which are constantly changing in a **non-directional** way. A trait that fits in one environment at one time may well be fatal at some point in the future. This holds equally well for every species from fungi to humans.

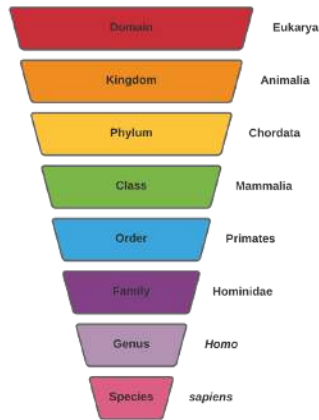
Also, evolution is the change in a **population's** genetic composition **over time**. Another misconception is that *individuals* evolve. Individuals do change over their lifetime, but this is *development* in coordination with the individual's environment. When thinking about the evolution of a characteristic, it is probably best to think about the change of the 'average' of a characteristic in the population over time. Related to the point above "organisms" don't evolve but "species" do.

It is also a common misunderstanding that evolution includes an explanation of life's origins. Some critics even use this as a means to critique the theory claiming that it fails to do so adequately. But the theory of evolution does not *try* to explain the origin of life—just how life has *changed* since it began. Put simply, only once a mechanism of **inheritance** was in place were living things subject to the principle of natural selection.

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You might recall from your past schooling the system of classifying organisms by Domain → Kingdom → Phylum → Class → Order → Family → Genus → Species. Humans (as a species) share an "order" with other "Primates" (all monkeys, baboons, tarsiers, gibbons, lorises, and apes) and with the "family" called "Hominids" (the eight remaining species of 'great apes'). In this chapter, we will take a look at the evolutionary background of this order as well as taking a look at the currently living species which make up the rest of the primates.



This chart shows the 'nested' structure of classification from Domain to Species. Our own species (*Homo sapiens*) is provided as an example.

Biological anthropologists are particularly interested in evolution because they, like all anthropologists, are interested in what it means to 'be human' and, as science has learned more about the evolutionary past and about these related species, we have come to recognize that many of the features we thought made us 'special' are actually not quite that unique! Rather famously, anthropologists assumed humans were the only species to use tools until, in the 1960s, Jane Goodall discovered that chimpanzees would strip leaves off of sticks to go 'fishing' for termites. They even showed preference for certain kinds of implements over others and could be observed 'teaching' their techniques to others. When met with this discovery, Goodall's mentor Louis Leaky is quoted to have said: "Now we must redefine 'tool,' redefine '[human],' or accept chimpanzees as humans."

By looking at the evolutionary differences between other primates and/or other hominids and us, biological anthropologists can paint a better picture of not only what (maybe) sets us apart, but also what we might have in common. As for Leaky's quote, you can still find anthropologists today who happily carry on following any one of those three options.

WHO ARE THE PRIMATES?

To begin with, I may have already showed my hand by asking "who" and not "what" in the heading for this section. Part of the reason anthropologists are interested in all primates is because the 'human' and even the 'cultural' line is increasingly blurry when we begin to look at our close cousins in evolutionary terms. In this section, we will look at what helps to define our primate order.

Humans are primates, but let's begin by dispelling perhaps the greatest misconception of human evolution: **we (humans) did not evolve from monkeys**. Rather, given a thorough understanding of evolution, all extant (currently present) primates (including monkeys as well as humans) evolved from a **common ancestor**. As a result, monkeys are not our ancestors but something more like very distant cousins. Similarly, we did not evolve from chimpanzees or another extant (currently living) ape species. Once again, we instead share a common ancestor. Humans, chimpanzees, and bonobos are a bit like first cousins. Humans, orangutans, and gorillas are more like second cousins.



CAUTION

It is wildly inaccurate to call chimpanzees or bonobos 'monkeys.' (Both species are actually far more closely related to us than to monkeys!) In terms of 'phylogenetic' ancestors, the relationship between a chimpanzee and a monkey is similar to that between a horse and a rhinoceros!

Humans have much in common with other animals, especially the other apes and the monkeys. We have in common tools, reasoning, complex sociality, reciprocity and even Culture, according to some definitions. We also share susceptibility to many of the same diseases like polio, measles, and Ebola. Because humans share so much in common socially and biologically with apes, monkeys and similar species, we are all classified in the same family called the Primates. **Primateology** is a sub-discipline of biological anthropology that focuses on primate behavior, biology, and conservation.

DEFINING PRIMATES

We classify all animals according to their similarities and differences. Carolus Linnaeus (1707-1778) was a Swedish botanist who set out to categorize all of Earth's animal and plant species according to their physical similarities and differences called **morphology**. (Prior to Linnaeus many Europeans subscribed to the idea of the "Great Chain of Being" as a classification system of rocks, plants, animals, humans, and divine beings ranked according to their moral perfection with God at the top.) The system that Linnaeus initiated is not based on ranking species according to better or worse but on their physical similarities. More recently, genetic information has been used to paint an even clearer picture based on the evolutionary tree.



Four different primate skulls which are morphologically different. From left to right: Human, Chimpanzee, Orangutan, and Macaque. Skulls and jaw bones (mandibles) are especially telling for biological anthropologists because eyes and eye sockets, teeth, and brain cavities can be very revealing of perception, diet, and cognitive priorities or “intelligence.” [Source: PLoS Biology, [Wikimedia Commons](#)]

You are likely familiar with the class called Mammalia. Mammals are vertebrates which share characteristics such as nursing young, giving birth to live young, being warm blooded, and having fur.

Primates—including human beings—are characterized by a number of distinct physical features that distinguish them from other mammals. Some of these common tendencies are morphological and others revolve around life history, features having to do with the timing and duration of life events. Not all primates have every single trait listed and so these can be thought of as primates trends or tendencies. These include

- opposable thumbs and (in nonhuman primates) opposable big toes;
- the presence of five digits (fingers or toes) on the appendages;
- flat nails instead of curved claws;
- postorbital bars (bony rings that completely surround the eyes);
- pads at the tips of the fingers made up of deposits of fat and nerves;
- reduced reliance on sense of smell and a relatively small snout;
- binocular vision (being able to see one three-dimensional image with both eyes);
- depth perception;
- a relatively slow reproductive rate and late sexual maturity;
- a relatively long period of immaturity marked by learning from adults;
- high degree of parental investment in offspring;
- relatively large brain size; and
- complex sociality.

Some of these traits enhance dexterity and enable primates to use their hands and feet differently from other mammals. Other traits on this list represent a shift in emphasis among the sense organs between primates and other mammals. The effects of these differences have all had an effect on the behavior of this related subset of mammal species.

The primate hand has five fingers and is capable of grasping. Some primates like apes and Old-World monkeys have true opposable thumbs, meaning the thumb can be oriented in opposition to the other digits. Grasping hands allows primates to manipulate their environment and for some, make and use tools. Primates have an expanded capacity for touch, especially by the hands, rather than smell. Some primates, especially those that are arboreal, living in trees, also have grasping feet.



The hands and feet of a Barbary macaque (*Macaca sylvanus*). [Source: Grez, [Wikimedia Commons](#)]

Primates tend to have relatively poor smell, but keen eyesight. The genes for smell in primates are either turned off by regulator genes or are deactivated by mutations. All primates have fields of vision that overlap, which allows for keener three-dimensional depth perception called stereoscopic vision or stereopsis. Because many primates are arboreal (live in trees), it has been suggested that keen eyesight is critical for judging distance and depth of tree branches. Others argue that this type of vision developed in relation to predation of insects. A binocular field of vision is common in predators who need to judge distances while non-overlapping fields of view are more common in prey animals, who need a wider field of vision to spot predators.

Primates tend to live in social groups. Social grooming is especially important for many primates. Baboons who groom each other regularly, are more likely to come to each other’s aid in a crisis. Thus social grooming is a form of reciprocity (exchanging favors). There are exceptions, for example, orangutans (especially their males) lead mostly solitary lives.

Primates also have larger-than-expected brains for their body size. This is called their **encephalization quotient**. Increasingly, however, we are coming to realize that brain functions have more to do with the folds and wrinkles that make up the brain than overall brain size. Brain areas related to memory, thought, and association are increased in primates. Primates proportionally devote more brain to the neocortex than any other animal—the portion of the brain related to cognition, memory, and abstraction. As a result, primates can solve complex problems. (In fact, chimpanzees have been observed to outcompete humans on some memory tasks.)

Primates use flexible thinking to forage for patchily distributed food and solve physical problems, but also to negotiate group dynamics.

Primates often live in socially complex groups and must form and manage social ties and avoid conflict. Most primate relationships require skillful negotiation in some form. Studies with other primates (such as baboons) have revealed that the ‘stress’ we experience from these social relationships may be common across primates.

In addition, primate infants take a long time to develop and a strong mother-infant bond develops. Most primates give birth to a single offspring and offspring often receive extensive care called “parental investment” from the mother or, less commonly, from both parents. During this long period of dependency, the infant learns appropriate behavior and how to solve problems. Humans stand out in this arena with an especially long period of juvenile dependence relative to their lifespans.

PRIMATE EVOLUTION

Studying nonhuman primates in their environment is key to understanding variations in behavior. For example, the behavior (such as tool use and hunting patterns) of chimpanzees that live in the tropical regions of Africa is quite different from the behavior of chimpanzees that live in the savanna at Fongoli in Senegal, in West Africa. The two environments also show differences in gender roles with both males and females in the Fongoli savannah group involved in hunting while only male chimpanzees hunt in the rainforests.

An important question that primatologists and biological anthropologists seek to answer is: do nonhuman primates have culture? Whenever we see an exchange of ideas where one individual is involved in teaching another and when that knowledge is passed on to others in a group is according to anthropologists, a form of culture. We see this happen in chimpanzee groups where older chimpanzees teach the young how to use sticks to termite-fish, the process of extracting termites from a termite mound using a stick.

Primatologists are still working to address why primates evolved as they did and how they filled and exploited the range of ecological niches they have filled through today (if we include ourselves, it is virtually all of them). Over the last century, various hypotheses have been raised to account for the evolution of primates and their unusual anatomical characteristics.

HYPOTHESES FOR PRIMATE EVOLUTION

For many groups of mammals, there is a key feature that led to their success. A good example is powered flight in bats. Primates lack a feature like this. Instead, if there is something unique about primates, it is probably a *group of features* rather than one single thing. Because of this, anthropologists and paleontologists struggle to describe a single ecological scenario that could explain the rise and success of our own order. Three major hypotheses have been advanced to consider the origin of primates and to explain what makes our order distinct among mammals.



The three major hypotheses for primate evolution are **Left:** the arboreal hypothesis, **Center:** the visual predation hypothesis, and **Right:** the angiosperm-primate coevolution hypothesis. [Source: *Explorations: An Open Invitation to Biological Anthropology* (2nd ed.) by [Mary Nelson](#) under a [CC BY-NC 4.0 License](#)]

The **arboreal hypothesis** proposes that primates evolved the traits they did as an adaptation to life in the trees. Specifically, primates evolved thumbs and big toes that are perpendicular to the other digits to help them grasp onto branches. Leaping limb to limb helps to explain the need for binocular vision and depth perception. And movement into the air (versus against the ground) may have contributed to our loss of smell—perhaps evolved to better taste as they began to consume more fruits.

We might note, however, that forward-facing eyes are characteristic not only of primates but also of predators such as cats and owls that prey on small animals. Thus, forward-facing eyes, grasping hands and feet, and the presence of nails instead of claws may instead be adaptations that helped early primates succeed as predators. According to the **visual predation hypothesis**, primate features are adaptations first for hunting insects and other small prey in the shrubby forest undergrowth and the lowest tiers of the forest canopy.

The visual predation hypothesis was unpopular with some anthropologists. One reason for this is that many primates today are not especially predatory. Another is that, whereas primates do seem well adapted to moving around in the smallest, terminal branches of trees, insects are not necessarily easier to find there. A counterargument to the visual predation hypothesis is the **angiosperm-primate coevolution hypothesis**.

This coevolution hypothesis states that the basic primate traits developed in coevolution with the rise of flowering plants, also known as angiosperms. Flowering plants provide numerous resources, including nectar, seeds, and fruits, and their appearance and diversification were accompanied by the appearance of ancestral forms of major groups of modern birds and mammals. Some argue that visual predation is not common among modern primates and that forward-facing eyes and grasping extremities may have arisen in response to the need for fine visual and tactile discrimination to feed on small food items, such as fruits, berries, and seeds, found among the branches and stems of flowering plants—particularly at their extremities.

Further support for this hypothesis came in 1990 when D. Tab Rasmussen noted several parallel traits in primates and the South American woolly opossum known for similarly foraging on both fruits and insects. Noting that insects are also attracted to fruit (and flowers) and provide a convenient opportunity for a primarily fruit-eating primate to gather protein, Rasmussen proposed something of a compromise between the visual predation hypothesis and the angiosperm-primate coevolution hypothesis.

But we now know that evolution is a complex process continually modifying populations in light of their environments. It is possible primates evolved as a result of some further combination of elements from each of these hypotheses. It is also possible none of them hit the mark. They are simply some of the best guesses put forward and so far supported by fossil and genetic evidence.

Given the length of time the primate order is thought to have been around, it is no surprise that there are many more specific classifications within it. While it is not strictly necessary to know them all for most anthropologists, having a sense of how broad the order is can help us to make sense of our common traits. And again, those common traits are what make all of what makes us ‘human’ possible. Let’s take a brief look at the primates still alive today.



The senegal bushbaby (*Galago senegalensis*) is an example of an arboreal primate thought to closely resemble some of our earliest primate ancestors. Their behavior and lifestyle seem to fit with many elements of each of the three main hypotheses proposed for primate evolution. [Source: [Wikimedia Commons](#)]

PRIMATES IN DEEP TIME

Over the last half century or so, scientists have developed a number of reliable techniques for determining the age of some very old things—including fossils. They have gotten very good at being able to reliably put fossils in order producing what is known as a ‘chronology.’ This chronology is broken into nested spans of time known as eons, eras, periods, epochs, and ages. At the far end of the scale (eons), the spans of time are extremely large. Four eons span the formation of the earth as a planet to the present time. Eons, apart from the current one at 539 million, are measured in *billions* of years. At the near end (age), the spans of time are still large but much more fathomable (thousands or millions of years).

In evolutionary terms, you will often hear about periods and epochs spanning hundreds of thousands to tens of millions of years. (One famous epoch you may have heard of is the Pleistocene. This can be a particularly confusing *epoch* because its everyday name is the Ice Age.) Regardless of the time scale, these spans of time constitute the convention of ‘**geologic time**’ used by scientists (including paleoanthropologists) to describe Earth’s history. It is called geologic time in part because the main way of defining a given span is by **stratigraphy**—the relative position of layers (strata) of rock and other materials over time with older layers lower than newer ones.



A butte in Palo Duro Canyon in Randall County, Texas, United States shows clear layers (strata) of sediment deposited, eroded, and moved about over millions of years. [Source: Larry D. Moore, [CC BY 4.0, Wikimedia Commons](#)]

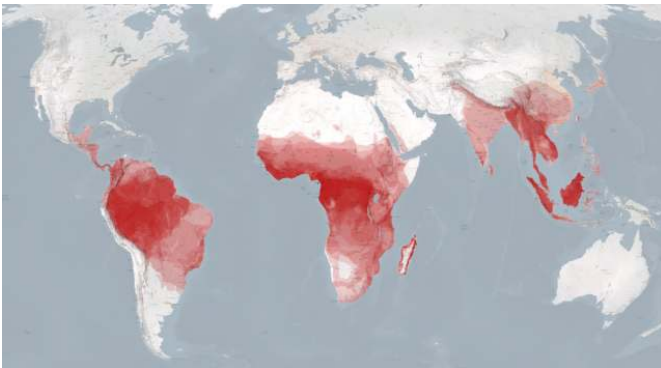
Coupled with **absolute dating techniques** paleontologists, geologists, ecologists, and other scientists can produce an increasingly accurate picture of Earth’s past. In contrast to relative dating which can only say *x* is younger/older than *y* (a relative comparison), absolute dating is called ‘absolute’ because it can say *x* is *n* years old (an absolute value). Techniques of absolute dating rely on known values and rates of change to determine the numerical age of a material. One common absolute dating technique is radiometric dating which uses calculations based on known and constant rates of radioactive decay in materials. An example is ‘carbon-14’ / ‘radiocarbon’ dating. Another technique is thermoluminescence (TL) dating which uses lab-controlled heat exposure to measure stored energy caused by natural background radiation over time. Cosmogenic surface exposure dating measures rare isotopes created when cosmic rays interact with the Earth’s surface. Dendrochronology is a form of dating which uses a combination of absolute and relative techniques. This specialty relies on the fact that trees in seasonal climates produce distinct annual growth rings, with ring width reflecting the environmental conditions during that year. Dendrochronology involves counting tree rings (including fossilized ones) based on known patterns to determine the age of the wood.

All this talk of ‘deep time’ is to help put the earliest primates—and how scientists know anything at all about them—into context. The techniques described above along with the use of the “molecular clock”—which can estimate the time since two species diverged from a common ancestor based the principle that certain DNA mutations accumulate over time at a relatively constant rate—help to produce an increasingly accurate picture of our earliest primate ancestors.



An artist's rendition of *Purgatorius*, a squirrel-like species from the North American continent thought to be one of the first primates. [Source: PNAS, [Wikimedia Commons](#)]

The Paleocene epoch began approximately 65 million years ago (MYA) and ended about 54 MYA. It is the most poorly understood epoch of the Cenozoic era, as it is the time period with the fewest fossils to represent it. However, this epoch is considered important to primate evolution because it offers the first unequivocal record of the earliest primates. Evidence of the most primitive primate yet identified was found in the U.S. state of Montana, in a geological deposit that was dated to the earliest part of the Paleocene. This creature is known as *Purgatorius*. *Purgatorius* is similar to extinct and living primates and distinct from other mammals based on its teeth.



The species density of modern non-human primates thought to all descend from *Purgatorius* or a creature like it. Darker red indicates greater density. Note the lack of primates in the region in which *Purgatorius* itself originated and the similarities of climate in the shaded regions. [Source: [Wikimedia Commons](#)]

The Eocene epoch, which began approximately 54 MYA and ended about 34 MYA, is marked by the disappearance of *Purgatorius* and the first appearance of primates that more closely resemble modern-day primates, especially in their bony eye sockets. This contrasts with other mammals whose postorbital bars are part bone and part cartilage. Some fossil specimens also possess a toothcomb and/or a grooming claw, characteristics that are exclusively found in lemurs, lorises, and “bushbaby” primates today. Other anatomical characteristics that are significant would be the ankle bones which researchers believe played a key role in the evolutionary success of primates. The evolution of primates during the Eocene was tremendous. Fossil primates in Eocene deposits are common in

North America and Europe and are becoming known in Asia and Africa. However, there are currently no known fossil primates from the Eocene in South America or Antarctica.

The Oligocene epoch, which began approximately 34 MYA and ended about 22 MYA, marks the appearance of the first fossil monkeys. The earliest unambiguous such fossils were found about 60 miles from Cairo, Egypt. Again largely based on their teeth, these “Fayum primates” are divided into two main groups believed to be the earliest New World and Old World monkeys, respectively.

The Miocene epoch contains fossil evidence of some of the earliest apes. The earliest Miocene ape, found in Africa, is *Proconsul* which lived from about 23 MYA to about 14 MYA. Unlike modern apes, the *Proconsul* lacked long, curved digits, suggesting that they were able to hang from branches but more often moved about on all four of their limbs. *Proconsul* also lacked a tail, which is why they are considered apes and not monkeys. Another well-known ape from the Miocene is *Sivapithecus*. *Sivapithecus* fossils are very common throughout Asia, with a particularly large number having been found in Turkey. Like modern-day humans, they exhibit very thick dental enamel, suggesting that these apes regularly ate very hard foods. The most intriguing aspect of *Sivapithecus* morphology is that the skulls show a tremendous resemblance to the living orangutan in features such as its tall nasal openings and high eye sockets.



Proconsul africanus. **Left:** A reconstructed skeleton (lighter white material) created based on fossil evidence (darker brown portions visible in the limbs, spine, and skull) [Source: [Wikimedia Commons](#)]. **Right:** An artist's rendition [Source: Mauricio Antón, [Wikimedia Commons](#)].

The Middle Miocene was also a time of great ape diversification, or “adaptive radiation,” in Africa, though many species would later go extinct as the climate changed. One example is *Kenyapithecus africanus* an early African ape discovered in modern-day Kenya, known for its relatively large, triangular molars and robust jaw, suggesting adaptations for hard object feeding and possibly knuckle-walking locomotion. Discovered by Louis Leakey and initially considered a potential human ancestor due to its more derived teeth, *Kenyapithecus* is now viewed as an early member of the great ape and human clade, diverging after *Proconsul* and but before the common ancestor of modern great apes and humans.

MODERN PRIMATE CLASSIFICATIONS

As paleontologists work to reconstruct the primate family tree from ‘deep time’ up to the species alive today, they have established a number of groupings within the Primate order. There are three main branches: monkeys, apes, and prosimians. Humans are also primates and can be classified as apes. The ancestry of primates can be charted by ‘branching.’ The main branches of primates are: prosimians, monkeys, and apes. The classification of primates is

quite complex, but dividing the primates into these three simple categories provides a baseline for understanding the more nuanced aspects of primate classification.



Left: One of the most well-known prosimians, the ring-tailed lemur (*Lemur catta*) endemic to the island of Madagascar [Source: Sannse, [Wikimedia Commons](#)]. Right: A largely nocturnal prosimian, the Sunda slow loris (*Nycticebus coucang*) is native to Indonesia, West Malaysia, southern Thailand and Singapore [Source: David Haring, [Wikimedia Commons](#)].

Prosimians are thought to have branched off from the primate line earliest and are therefore different in many respects from other primates. That is, they retain features of earlier fossil primates. They tend to be smaller, more often nocturnal, better smellers, less social and more insectivorous (insect eaters) than other primates. The broad groups of prosimians are lorises, galagos, pottos, and lemurs. Lemurs only live on the island of Madagascar (where there are no monkeys) and have diversified into more than 30 species, all of which are endangered. Most lemurs are arboreal, or tree-dwelling, but others are terrestrial, living on the ground. Arboreal lemurs move about mainly by clinging and leaping. Because their bodies are adapted for leaping, lemur legs are long in comparison to their arms. While ideal for moving among branches, moving on the ground results in an odd balletic leaping movement.



The tarsier presents something of an evolutionary puzzle for primatologists. [Source: Jasper Greek Golangco, Creative Commons, [Wikimedia Commons](#)]

It is worth mentioning the tarsier. It belongs to the family Tarsiidae and has both prosimian and anthropoid characteristics making it difficult for scientists to classify. Tarsiers were once thought to be in the prosimian group, but through genetic research are now known to be closer to monkeys and apes. All tarsiers live in Southeast Asia and are arboreal, nocturnal, insectivorous and very small. One of the characteristics that tarsiers share with other humans is the inability

to manufacture their own Vitamin C. At the same time, they are the smallest known primate and with extremely large nocturnal-adapted eyes that take up much of the space in their skull. Tarsiers are also the only primate carnivore, eating largely flying insects and sometimes small animals like bats and lizards. Tarsiers do not do well in captivity. They are extremely sensitive to noise and become easily stressed.

Consider the puzzle tarsiers present anthropologists. When thinking about the evolution of traits which make primates more human, features like hands and the inability to manufacture their own Vitamin C seem important. At the same time, the oddity of being carnivorous and nocturnal complicates things. This puzzle remains for primatologists because it still seems to be an important piece of the picture of primate evolutionary history.

The other infraorder to share a suborder with tarsiers is the ‘Simiiformes.’ Simiiformes are further divided into **Platyrrhini** (“New World Monkeys” of the Americas) and **Catarrhini** (“Old World Monkeys” and the apes of Africa and Asia).



A capuchin monkey (*Cebus capucinus*). A species of New World (South and Central American) Monkey. [Source: Steven G. Johnson, [Wikimedia Commons](#)]

The name Platyrrhini is derived from the rounded shape of the external nostrils, which open off to the sides in New World monkeys. They are also distinguishable by their prehensile tails that serve as an extra limb for extra support when moving in the trees.



Olive baboons, seen here grooming, are Old World Monkeys. [Source: Muhammad Mahdi Karim, [Wikimedia Commons](#)]

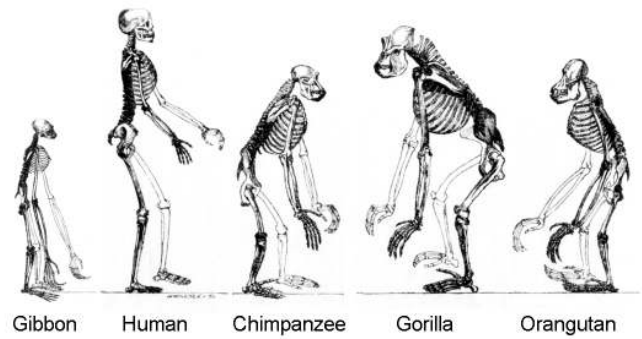
The **Catarrhini** differ from the New World primates in that they possess narrow nostrils that face downward. The Catarrhini contain two superfamilies, Cercopithecoidea (Old World Monkeys) and **Hominoidea** (the apes; and finally a more familiar-sounding Latin term). The most distinguishing feature of these “hominoids” is that they do not have tails and are largely terrestrial (ground-dwelling versus arboreal). Examples of Hominoidea include gibbons, chimpanzees, bonobos, gorillas, orangutans... and humans.

The approximately 75 species of **Old World monkeys** (Cercopithecoidea) live in Africa and South Asia and are typically larger than their New World counterparts. Next to the apes, these are our closest living relatives. Notably, all New World monkey species live in social groups. Some species (like the proboscis monkey) are also sexually dimorphic—displaying different “secondary sexual characteristics” like size, weight, coloration, and behavior between males and females. Old world monkeys are also more terrestrial than their arboreal New World cousins.

OUR CLOSEST LIVING COUSINS: THE APES

All nonhuman **apes**, more closely related to Old World monkeys than New World monkeys, live in Africa and southern Asia. Humans, of course, live on every continent. Compared to monkeys, apes are large-bodied (the largest of the primates), large-brained, and most are terrestrially adapted. Also, unlike monkeys, apes do not have tails. The ape shoulder has greater rotation than monkeys allowing them to hang and swing from branches. All apes are **diurnal**, active during the day. Apes are divided into the lesser apes or (gibbons) and the great apes (gorillas, chimpanzees, bonobos, orangutans, and humans).

Gorillas, chimpanzees and bonobos live in tropical Africa, while the orangutan lives in southeast Asia on only two islands of Indonesia. Most are primarily herbivorous eating leaves or fruits, and to a lesser extent in some species insects and meat. The African great apes live in complex social groups, while the orangutan is mainly solitary. All great apes except humans are endangered.



Drawing comparing ape skeletons. [Source: Public Domain, [Wikimedia Commons](#)]

The **lesser apes** (gibbons) live in southeast Asia and are smaller than other apes with smaller brains. Lesser apes are mainly arboreal and have a particular type of locomotion called brachiation which involves swinging from branch to branch by the arms. Lesser apes resemble monkeys, but they lack tails. They often live in socially monogamous pairs, but males do not typically provide much in the way of parental investment.



A 'lesser ape.' *Hylobates lar entelloides* or central lar gibbon, a subspecies of white-handed gibbon vulnerable to extinction and endemic to Malaysia, Myanmar, and Thailand. [Source: JJ Harrison, [Wikimedia Commons](#)]

There are two general varieties of gorillas, the western and the eastern, all of which are critically endangered. Mountain gorillas are a well-known eastern gorilla living in central Africa in the Congo, Rwanda, and Uganda. **Gorillas** are the largest of the apes and live exclusively in Africa in social groups called troops consisting of 10-20 gorillas including the silverback male, adult females, and their children. The silverback is the only breeding male in the group and he protects his access to females. As in humans, this is referred to as **polygyny**. Gorillas have a mainly vegetarian diet of leaves sometimes supplemented with insects and spend most of their waking hours eating. They move about by knuckle-walking rather than on their palms. Gorillas are mostly terrestrial, typically building nests on the ground for sleeping. Infants are helpless and require a high degree of parental investment from the mothers. Newborn gorillas nurse at least once per hour. Silverbacks will protect offspring aggressively and socialize juveniles. The lifespan of a gorilla in the wild is between 35 and 40 years.



A male mountain gorilla looking contemplative with his head in his hand. [Source: Charles J. Sharp, [Wikimedia Commons](#)]

Orangutans lives exclusively in Indonesia on Sumatra and Borneo (the only great ape to live outside Africa). Orangutans differ from other great apes in that they are mainly solitary and live high in the rainforest canopy. Orangutans live mainly on fruits and leaves, and like all great apes build nests. They've even been known to fashion leaf umbrellas to protect themselves from rain. Orangutans are sexually dimorphic. Orangutans are critically endangered due to the pet trade, logging, and palm oil production. Like other apes, orangutan infants require a great deal of maternal care, staying with their mothers for six years and are particularly susceptible to extinction because they reproduce only every seven or eight years—among longest 'interbirth intervals' (IBI) among mammals.



An orangutan female sharing a piece of fruit with her baby. [Source: Bernard DUPONT, [Wikimedia Commons](#)]

There are two species of chimpanzees, *Pan troglodytes* (chimpanzees) and *Pan paniscus* (bonobos). **Chimpanzees** live in tropical Africa as well as a savanna environment. Like gorillas, chimpanzees are knuckle-walkers. Chimpanzees spend time on the

ground and in trees. They prefer fruits and occasional protein such as mammals, birds, or eggs. Chimpanzees are less sexually dimorphic than gorillas, though males are larger. Chimpanzees form multi-male and multi-female troops of up to 60, but typically travel in smaller parties. Next to humans, they have the highest incidence of **tool** use among the primates, using termite and ant sticks, rocks for nut cracking, leaf sponges, and even a kind of spear. Female chimpanzees use tools most often.



Left: A vocalizing mother chimpanzee and her baby [Source: H. Zell, [Wikimedia Commons](#)]. Right: A chimpanzee seen using a stick as a tool to obtain and eat ants from a tree branch [Source: Colorado State University Libraries, [Wikimedia Commons](#)].

Males tend to be dominant among chimpanzees. Females move out of their group upon sexual maturity while males remain. This allows males to form coalitions—critically important social networks based on friendships cemented through grooming and other interactions. For this reason, chimpanzees are often described as “political”. Dominant males will have preferential access to food and sexual partners but must also ‘keep to peace’ to maintain their position. Males also perform dramatic displays—hooting, jumping, dragging objects, and thumping—designed to intimidate other males.

Males will also hunt on occasion and eat more meat than females. Chimpanzees and bonobos are the only adult primates besides humans to share food. They share food for many of the same reasons humans do—to support close relatives (mother to offspring), to support friendships (reciprocation), and “tolerated theft” (when protecting food is more costly than sharing).

Among chimpanzees, females, rather than males, move out of their natal troop into a new troop. Males remain in their natal troop and form reciprocal bonds and strong male-male relationships. They also defend their territory and perform silent boundary patrols of their territory. Jane Goodall reported one troop of chimpanzees systematically killing all the males in a neighboring troop that had splintered off from the first. Female chimpanzees undergo an obvious ovulation cycle called estrus. Males are only interested in copulation during estrus. Male chimpanzees also prefer to mate with older females. It is thought this may be because they are more competent mothers than younger female chimpanzees.

Chimpanzees use a wide range of vocalizations from grunts to pant-hoots. They also use gestures. The outstretched hand is used to request an item (usually food). Chimps do not ‘point’ in the wild but can be taught to do so in captive environments.



Pan paniscus (bonobos) are closely related to chimpanzees but are more matriarchal than their 'common chimpanzee' (*Pan troglodytes*) cousins. [Source: Pierre Fidenci, [Wikimedia Commons](#)]

Bonobos have been isolated from other chimpanzees for about a million years. While bonobos look very similar, they are socially very different. Among bonobos, females tend to be more dominant and females display by dragging objects. Males bonobos, who stay in their natal group, get their status from their high-ranking mothers. Overall, bonobos are less aggressive than chimpanzees and resolve social tension through sexual behavior. Bonobos engage in non-reproductive sexual behavior to alleviate social stresses, especially among females, and resolve disputes.

LOOKING AT PRIMATES TO UNDERSTAND OURSELVES

By studying other primates, anthropologists aim to gain insight into both our own evolutionary history and the traits that connect us to other members of this order. Are there, for example, behaviors we might label “cultural” among our Old World monkey cousins? Among even more distantly related New World monkeys?

When we look at primate features from morphology and sensory adaptations to complex social behaviors, we can see that primates display a wide range of features that have allowed them to thrive in

diverse ecological niches over millions of years. And yet, we cannot seem to shake the similarities. These characteristics—such as opposable thumbs, stereoscopic vision, and extended juvenile dependence—are not only central to primate survival but also lay the groundwork for the traits we recognize today as “distinctly” human.

The study of primate evolution is equally important. Recalling what we now know about evolution and its mechanisms, an understanding of the emergence primates through a combination of environmental pressures and adaptive responses has helped set the stage for the emergence of some other, more familiar, great apes in the next chapter—hominins including the genera *Australopithecus* and *Homo* (including us). Fossil evidence, genetic research, and behavioral studies all contribute to our understanding of primates from the perspective of biological anthropology. By examining both our closest relatives and more distant primate cousins, we can begin to see that the qualities we value in human societies—such as culture, cooperation, and “intelligence”—are perhaps more ‘primate’ than special. Primatology not only enriches our knowledge of the natural world in general but should also deepen our understanding of what it means to be human in particular.

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Recall that the ends of the ‘branches’ on the evolutionary/taxonomic tree are Order → Family → Genus → Species. In the previous chapter, we looked at the order of primates. In this chapter, we will look at the hominins (a “tribe” between family and genus) with an eye toward the genus *Homo* which is today home to a single species—our own, *Homo sapiens*. This genus once included multiple species we might consider ‘biological humans.’ Then again, if we thought the order of primates complicated what it means to be ‘human,’ trying to draw lines within our genus (or even tribe) is even trickier!

One thing to keep in mind as you read this chapter: we have a tendency for linear thinking. Today, scientists understand that human evolution was truly not a linear process. That said, this chapter still largely presents it like that for two reasons. First, especially at the introductory level, it is easier to wrap our heads around. Second, while we now know that the “braided stream” analogy fits better than the “evolutionary tree” analogy, we do not yet know enough about how earlier species interacted. It’s a tradeoff. We know *that* there was a braided stream, but to guess how it was braided would paint a picture less accurate than the more linear version.

On the subject of time, it might be helpful here to present or review some terms which will be used in the remainder of this chapter. These terms are often shorthand for paleoanthropologists interested in early human ancestors and ‘modern’ biological humans.

- **Miocene:** A *geologic* epoch. 23 to 5.3 million years ago. Often divided into three parts: early (23-16 mya), middle (16-12 mya), and late (12-5.3 mya).
- **Pliocene:** A *geologic* epoch following the Miocene. 5.3 to 2.6 million years ago. Often divided into two parts: early (or Zanclean, 5.3-3.6 mya) and late (or Piacenzian, 3.6-2.6 mya)
- **Pleistocene:** A *geologic* epoch following the Pliocene. “The Ice Age.” 2.6 mya to 12,000 years ago. Divided into three parts: early (2.6 mya-774,000 years ago), middle (774,000-129,000 years ago), and late (129,000-12,000 years ago).
- **Paleolithic:** A *paleontological* and *archeological* era lasting from 3.3 mya to 12,000 years ago. This era covers much of the late Pliocene and all of the Pleistocene. This is also known as the “Stone Age” (the word “paleolithic” comes from the Greek for ‘old stone’). Divided into three periods: Lower (3.3 mya-300,000 years ago), Middle (300,000-50,000 years ago), and Upper (50,000-12,000 years ago).
- **Neolithic:** An *archeological* era lasting from 12,000 to 3,000 years ago. The agricultural age for many humans. The name means ‘new stone.’

AUSTRALOPITHECUS & PARANTHROPUS

We use term ‘hominin clade’ to refer to all species considered to be in direct lineage to humans, which include the genera *Homo*, *Australopithecus*, *Paranthropus*, and *Ardipithecus*. Do not be confused by the shorthand ‘hominin’ to refer to this clade given that the ‘hominines’ today include humans and chimpanzees + bonobos. These terms have been understood to represent different things over the years, but in this chapter, *hominids* refers to all modern and extinct great apes, which include humans, gorillas, chimpanzees, and

orangutans and their ancestors. *Hominins* refers to the hominin clade—the human-est species there have been.

The first hominid fossils appear in **the late Miocene**, 10 to 5 mya. Sometime between 7 mya and 4 mya, hominids moved out of the trees and began to adapt more fully to a ground-based living niche. *Sahelanthropus tchadensis* lived approximately 7 mya in west Africa and is thought by some to be the last common ancestor of humans and chimpanzees. Genetic studies indicate that this species lived at the time of the divergence, but morphology suggests that *Sahelanthropus* was not bipedal. *Orrorin tugenensis* dated to approximately 6 mya was found in Kenya and was proposed to be a hominin due to anatomical traits that suggest bipedalism. Another feature that suggests that *Orrorin* was truly a hominin is the teeth, which exhibit thick dental enamel and small, square molars, much like modern humans.

While all *hominins* may differ in varying ways from one another, they all share one anatomical behavioral complex: bipedal locomotion. Scientists can hypothesize about how a creature moved by analyzing several aspects of its morphology. A variety of indicators show bipedalism including: the lengths of the legs in relation to the arms, the arch and relative length of the foot, big toes parallel to the others, the angle at which the femur (upper leg bone) meets the pelvis (hip bones) and at which it angles straight down or inward, and spinal curves that make it possible for the hips to balance the weight of the upper body.

The evolution of hominin bipedalism required complex anatomical reorganization. For natural selection to produce such a tremendous amount of change, the benefits of these changes must have been great. There have been dozens of hypotheses for these changes, ranging from freeing hands to carry tools, food, or offspring to increasing energy efficiency or the ability to maintain the body’s temperature (thermoregulation) by exposing more of the body’s surface.

The **Pliocene epoch** extended from 5 mya to 1.8 mya. Fossils from the Pliocene show evidence of clearly bipedal hominins. They also show evidence of cultural behavior. *Ardipithecus ramidus* (‘Ardipithecus’ means ‘earth/ground ape’ and ‘ramidus’ means ‘root’) was found in Ethiopia and dated to about 4.4 mya. Their morphology suggests bipedalism. *Ardipithecus* possesses numerous traits, such as thin dental enamel, evidence of a reduced canine, and an opposable big toe.

The next species to look at are ‘australopithecine’ species. *Australopithecus* means “southern ape.” This group had diverse physical characteristics related to morphology of the teeth and skull. Based on these characteristics, paleoanthropologists classified these species into *gracile* and *robust* forms classified under *Australopithecus* (*Australopithecus anamensis*, *A. afarensis*, *A. africanus*, *A. garhi*, and *A. sediba*) and *Paranthropus* (*Paranthropus robustus*, *P. boisei*, and *P. aethiopicus*) respectively. The gracile species emerged around 4 mya and disappeared 2 mya, while robust species continued to exist for another million years.



The fossil known as Lucy. *Australopithecus afarensis*. [Source: "120", [Wikimedia Commons](#)]

In 1973, about 40% of a skeleton was found in Ethiopia by paleoanthropologist Donald Johanson. He famously called the skeleton Lucy, after a Beatles song. It was dated to around 3.75–2.8 mya and was determined to be a member of the species *Australopithecus afarensis*. Since then, more specimens of this species have been found in Kenya, Tanzania, and Ethiopia, all in East Africa dated from 3.9 mya. Morphological features like longer arms and feet suited for branches suggest *A. afarensis* moved more like other great apes than humans. However, the shape of their pelvis (hip bones) looks substantially more like a modern human's than it does an ape's. Most paleoanthropologists believe that this change in pelvic shape indicates they moved on two legs if not in exactly the same way humans do. Current consensus is that *A. afarensis* was both arboreal and bipedal.



The Taung skull/child. *Australopithecus africanus*. [Source: Emőke Dénes, [Wikimedia Commons](#)]

A notable specimen of *Australopithecus africanus* (3.3 to 2.1 million years ago) is now known as the Taung skull or Taung child. With a brain like a chimpanzee but other human-like features it was once assumed to be an intermediary step on the way to becoming human. Most importantly, scientists at the time of the Taung skull's discovery noted that the forward position of the foramen magnum indicated that the skull was poised on top of the vertebral column, suggesting bipedalism and an upright posture.



Reconstructed cranium of *Australopithecus garhi*. [Source: 宜蘭第一公民, [Wikimedia Commons](#)]

Also found in Ethiopia, *Australopithecus garhi* is dated to approximately 2.5 mya. Its brain was slightly larger than *A. afarensis*. *A. garhi*'s incisors are larger than those of any of the known australopithecines or Homo. The function of the large incisors is not yet known. The most exciting aspect of *A. garhi* is that it provides evidence of the earliest use of stone tools by a hominin as fossils were found those of ruminants, such as antelopes displaying numerous cut marks consistent with butchering.



The 'gracile' cranium of *Australopithecus sediba*. [Source: Brett Eloff. Courtesy [Profberger](#) and [Wits University](#), [Wikimedia Commons](#)]

Australopithecus sediba was discovered in a cave in South Africa and is considered an important species because it appears in the fossil record around 2 mya—around the time the genus Homo's emergence. The classification of *A. sediba* was initially difficult to determine, due to its complex overlapping features, which include humanlike spine, pelvis, hands, and teeth but a chimpanzee-like foot. Classified as a species of *Australopithecus*, *A. sediba* is considered a direct ancestor of *Homo erectus* and *Homo ergaster*. *A. sediba* could be a descendent of *A. africanus*, which suggests the species may be a dead end within the lineage to humans.



Skull of *P. boisei*. Note substantial cheekbones, brow ridge, and crest at the top of the skull. [Source: [Bjørn Christian Tørrissen, Wikimedia Commons](#)]

Two species of *Paranthropus* (more robust cousins to *Australopithecus*) include *P. aethiopicus* (2.7 to 2.3 mya) discovered in Ethiopia and *P. boisei* (2.5 to 1.1 mya) discovered in the Eastern Rift Valley (a 1,200-mile continental rift zone through Ethiopia, Kenya, and Tanzania). *P. aethiopicus* is thought to be somewhere between the ‘robust’ and ‘gracile’ australopithecines while *P. boisei* is sometimes described as ‘hyper-robust.’

Paranthropus robustus (from 2 to 1 mya) was also discovered in South Africa. The most obvious difference between *A. africanus* and *P. robustus* is that *robustus* is more—well—robust! Its features include large skull attachments for chewing muscles indicating a diet reliant on hard nuts and seeds. This interpretation was further supported by scanning electron microscopy (SEM) used to evaluate the markings etched into the teeth. As the teeth increased in size the incisors and canines shrank, giving *Paranthropus* a flatter face with less projection of the jaw. There are some who argue that depending on the environment and locale, some *Paranthropus* may have been omnivores, with varied diets similar to those of *H. ergaster*.

GENUS HOMO

We are increasingly discovering that the evolution of the genus *Homo* is more complex than previously thought. The earlier view of a simple progression from *Australopithecus* (a name meaning ‘southern ape’) to *Homo habilis* (‘handy man’) to *Homo erectus* (‘upright man’) to *Homo sapiens* (‘wise man’) as clearly delineated stages no longer holds up.

Rather, scientists have largely concluded there was tremendous variability during the last four million years. While fossils classified as *H. habilis*, for example, show many of the characteristics of the genus *Homo*, such as brain expansion and smaller tooth size, their small body size and long arms are more akin to australopithecines. There is also tremendous variability within the fossils assigned to *H. habilis*, so there is little consensus on whether it is one or multiple species of *Homo*, a member of the genus *Australopithecus*, or even a yet-to-be-defined new genus. Similarly, there are considerable differences in skull morphology and body size and form of *H. erectus*, of which some specimens show more similarity to *H. habilis* than previously thought.

What does this diversity mean for how we should view early *Homo*? Which are our ancestors? Which are our close cousins? How often were they both? First, there isn’t an abrupt break between *Australopithecus* and *H. habilis* or even between *H. habilis* and *H. erectus*. Characteristics we define as *Homo* don’t appear as a unified package; they appear in the fossil record at different times. This is known as **mosaic evolution**. Indeed, fossil species such as *A. sediba*, as well as *H. naledi* and *H. floresiensis*, have displayed unexpected combinations of early and later ‘human’ traits.

There is no universal consensus on what is included within the term “archaic *Homo*.” The term is used as an umbrella category encompassing all the diverse *Homo* species after *H. erectus*. *H. erectus* lived during the Pleistocene (spanning 2 mya to 120,000 years ago) and was the first human species to evolve a humanlike body plan and gait, to leave Africa and colonize Asia and Europe. Archaic *Homo* are often distinguished from anatomically modern humans by the characteristics of a thick skull, prominent brow ridges, and lack of a prominent chin. Archaic *Homo* are viewed as transitional between *H. erectus* and *H. sapiens* and display many overlapping and varied traits. It has been proposed that archaic *Homo* may have been the first species to use language, based on the size of their brains and the fairly large social groups they lived in.

A key characteristic shared by both the australopithecines and the *Homo* is bipedalism. But what criteria other than bipedalism might be used to classify a species under the genus *Homo*? Many anthropologists have attempted to establish specific criteria to use in determining a classification of *Homo*.

As with any definition, this is further complicated by a sort of chicken-and-the-egg effect. We might say *Homo* is defined by bipedalism, tool use, large family/political structures, features of the skull, or certain brain structures, but are these common to a subset of species we happen to call *Homo* or is the other way around? Put another way, if we found a species with all these features but lacking features of the skull, would we call them *Homo* or redefine the genus?



Skull of *H. habilis*. In contrast to *Paranthropus* or *Australopithecus*, *habilis* displays increasingly “Homo” gracility. [Source: [Gunnar Creutz, Wikimedia Commons](#)]

One strategy paleontologist used is to rely on a ‘**type specimen**’ as reference. For example, *Homo habilis* (dated between 2 and 1.7 mya) is considered to be one of the earliest species in the genus

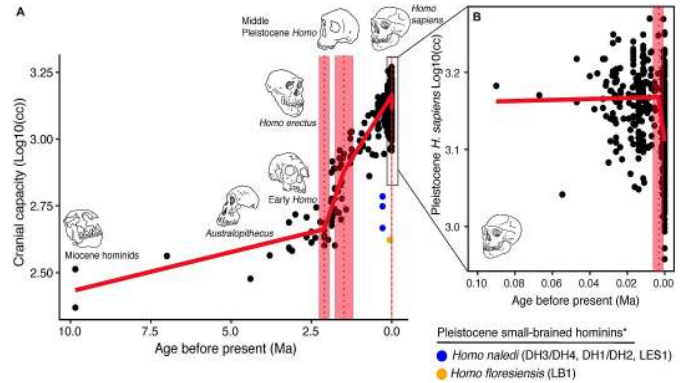
Homo. The type specimen *H. habilis* was found in 1960 at Olduvai Gorge by Jonathan and Mary Leakey. The specimen consisted of a partial juvenile skull, hand, and foot bones. It possessed teeth that were much smaller than those of any australopithecine and was possibly in coexistence with *Paranthropus*. Based on an imprint of the interior of the brain case (**endocranial cast**), it was determined that *H. habilis* may have possessed what is called a Broca's area in the brain. The **Broca's area** is especially important for speech development leading some scientists to suggest *H. habilis* started to develop the neural networks necessary for human speech or possibly already had speech itself.



The Broca's area's position indicated in red. [Source: Database Center for Life Science, [Wikimedia Commons](#)]

By looking at the inside of the skull, paleontologists can learn a lot about the brain that used to reside there. In paleoanthropology, **encephalization** refers to a progressive increase in brain size over time and which is assumed to correlate with an increase in behavioral, cognitive, and cultural complexity. Cognitive developments correspond with our ability to construct and form ideas, including the ability to think and communicate with symbolic and abstract language, such as that used in storytelling, ritual, and art. There are always exceptions, however, such as the island-dwelling, small-brained *H. floresiensis*. Despite having a very small brain, *H. floresiensis* made and used tools and built fires. This discovery has challenged what we thought we knew about the correlation of brain size and cognitive development in human evolution. As we learned about primates in general in the last chapter, however, brain functions may have more to do with the complexity of the brain than its overall size.

The **encephalization quotient (EQ)** (or size of brain in relation to expected brain given body size) can serve as at least a baseline indicator of classification within the genus *Homo*. In short, the larger the brain weight relative to the overall body weight, the more likely that the brain was used for more complex cognitive tasks. While EQ is a strong tool for studying brain size in early hominins, there are always potential margins of error when dealing with fragmentary fossils, and increasingly scientists propose alternative forms of measurements. Some hypotheses consider the number of cortical neurons and neural connections the most important when considering cognitive ability—superseding size or EQ so much as to make them unreliable. According to this approach, the density of the cortex is more associated with intelligence than is brain size. And these alternate approaches perhaps better explain those exceptions in the fossil records.



This chart maps the trend in brain size among hominids/*Homo* over the last 10 million years. Note the call-out box showing the explosion of fossil evidence over the last 100,000 years and clustering of brain size therein. Outliers referenced in this chapter (*H. naledi* and *H. floresiensis*) are also indicated. [Source: DeSilva, et al., [frontiersin.org](#) via [Wikimedia Commons](#)]

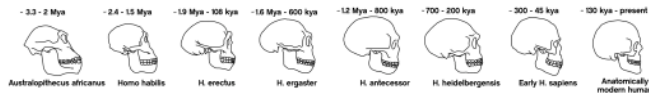
One critique of paleoanthropology is the tendency to privilege or over-rely on observations about the brain. Unfortunately, portions of skulls are more common in the fossil record than the rest of skeletons. The features of the rest of the body are referred to as **postcranial features**. In some cases, portions of a skull are all we have to go on. In other cases, *all* we have are postcranial features (a clavicle and a few fingers, for example). This can be equally frustrating for paleoanthropologists because our definitions of hominin species often rely on a combination of both types of data. The best 'type specimens' therefore have some of both. Many ongoing debates among paleoanthropologists about hominin species center around how to best classify species based on the limited data.

For example, *H. habilis* has been at the center of several debates regarding their taxonomic position and relationship with other early archaic *Homo* species. For example, *H. habilis* was initially believed to have been a direct human ancestor through the lineage of *Homo erectus* and then modern humans. This viewpoint is now debated and has resulted in a scientific divide between those supporting *H. habilis* and those suggesting another *Homo* species, *H. rudolfensis*, as being the ancestor of *H. erectus*. *H. rudolfensis* is an archaic *Homo* dated to about 2 mya, which coexisted with other *Homo* species during that time period. A cranium was discovered in in Kenya, but scientists are missing postcranial materials. There are hypotheses that propose that *H. rudolfensis* might be a *H. habilis* male, exhibiting a larger cranium than that seen in a female *H. habilis*. Others suggest it is a completely different species.

While there are still questions as to the phylogenetic relationship of *H. habilis* and *H. rudolfensis*, there is general agreement that *Homo* did evolve from *Australopithecus*. The timing and placement of the split between *Australopithecus* and *Homo*, however, is still debated.

All this is to say, attempts at defining *Homo* or any of the species within it is complex, let alone trying to determine the particular lineages between them (with or without australopithecines in the mix). For our purposes, we will have to be content taking several species today grouped among *Homo* as examples and pieces of a complex puzzle recognizing that mosaic evolution, the braided stream, and even our own definitions of *Homo* will likely alter our understanding of how these pieces fit together.

ANCIENT DIVERSITY



Comparison of skulls over the last 3.3 million years from *A. africanus* to *H. sapiens* and "anatomically modern humans." [Source: SimplisticReps, [Wikimedia Commons](#)]

Homo antecessor (1.2 to 0.8 mya) has been found in Spain, France, and England. They represent the oldest fossil evidence for the presence of the genus *Homo* in Europe. *H. antecessor* was found in Spain within a cave known as "the Pit of Bones," where fossils of 28 individuals have been found that date at or before 780,000 years ago. The site is an important one that stretches over a long period of time and displays the emergence and divergence of various *Homo* physical characteristics that later appear in the Neanderthal. Morphologically, it might even have been possible to mistake *H. antecessor* for modern humans or Neanderthals. One very modern trait exhibited by this species is the presence of a facial depression above the canine tooth called the **canine fossa**, which is also found in modern humans.

H. antecessor has also been found with extensive stone tools and animal bones. Cutmarks are present on the majority of animal remains that are believed to have been transported to the site rather than consumed where they were killed. Some suggest the practice of bringing food back to the site is evidence of social cooperation, suggesting both a division of labor and a custom of food sharing. Oddly, many of the bones of *Homo antecessor* show the same evidence of cutmarks as the animal bones, indicating that flesh was removed from the bones with the goal of dismemberment. Some scientists have taken this to mean that *H. antecessor* practiced cannibalism. However, humans have also been known to remove the flesh from bones during funerary rites. Whether the cutmarks made by *H. antecessor* represent cannibalism, a funerary rite, or another yet unknown practice is still being debated.

Homo naledi (235,000–335,000 years ago) were found in the Rising Star cave system in South Africa in the 2010s. Bones from as many as 15 individuals were recovered from the cave. Despite their relatively recent date, they have exceptionally small cranial capacities, comparable to australopithecines, notably smaller than all other *Homo*. The presence of this small-brained hominin at the same time that Neanderthals and *H. heidelbergensis* were around is further evidence that multiple hominin lineages were coexisting and evolving at the same time. The classification of *H. naledi* has proved to be a challenge. They show no evidence of stone tool use, but there is evidence (equally convincing and controversial) that *H. naledi* used the cave system as a place to bury their dead.

The Denisovans (named for where they were discovered, Denisova Cave in Siberia, Russia) are archaic *Homo* thought to have lived between 500,000 and 30,000 years ago. Because of this lack of fossil evidence, very little is known of their anatomical features. A jaw and two teeth found in a cave on the Tibetan Plateau (in China) was dated to 160,000 years ago. Protein analysis determined the jaw to be Denisovan and from a member of a population who were most likely well adapted to living in high altitudes.

Because so few bones have been found, most understanding of this species comes from genetic analyses. According to nuclear DNA studies, Denisovans and Neanderthals were more closely related to each other than they were to modern humans. DNA evidence suggests that the Denisovans interbred with modern humans and with local Neanderthal populations over multiple time periods. *H. heidelbergensis* is typically considered to have been the direct ancestor of both Denisovans and Neanderthals, and sometimes also of modern humans.

One specimen called "Denny" is a first-generation hybrid with a Denisovan father and a Neanderthal mother. Denny indicates Late Pleistocene *Homo* species interbred when the groups met. Comparison of the DNA of these three groups suggest that most modern-day Europeans and Asians inherited about 1–4 percent of their DNA from Neanderthals, with no Denisovan ancestry in Europe and 0.1 percent in China. The genetics found in Tibetans, Melanesians, and Indigenous Australians are currently being challenged; originally, they were thought to be about 3–5 percent Denisovan and 2.74 percent Neanderthal, but new evidence suggests there could be a third group yet unknown contributing to the Pacific Islander **genome**. Statistical and genetic evidence can serve as indicators of the existence of this kind of group for which no fossils have yet been found. These are referred to as **ghost populations**. For example, there are indications that 2–19 percent of the DNA of four West African populations may have come from an unknown archaic hominin that split from the ancestor of humans and Neanderthals between 1 mya and 360,000 year ago.

Recently a new archaic *Homo* fossil surfaced in Harbin, China, dated to about 146,000 years ago. ***H. longi***, "Dragon man," or "the Harbin cranium" may represent a lineage of the Denisovans or a new species, but it is clear it was robust and able to adapt to one of the coldest regions of China. It had a large brain, thick brow ridges, and fairly large teeth, similar to what is found in the Denisovans.



Cranium of *Homo heidelbergensis*. [Source: [G.Garitan](#), [Wikimedia Commons](#)]

Homo heidelbergensis is an incredibly variable group. Many archaic *Homo* species are included in this group because they possess features that can best be described as a mosaic between *H. ergaster*, *H. erectus*, and "anatomically modern humans."

One *H. heidelbergensis* individual, known as Mauer, was found in Germany and is represented by a mandible (lower jaw) that is dated

to approximately 600,000 years ago. It has a robust mandible and a receding chin like earlier *Homo ergaster* but has very small molars like anatomically modern *H. sapiens*. The jaw is so big and the teeth are so small that there is plenty of space for additional teeth to develop behind the wisdom teeth. Given that the third molar (the wisdom tooth) has already erupted, it has been suggested that this individual was between 20 and 30 years at death. Another, known as the Petralona cranium, was found in Greece with ambiguous dates between 700,000 to 100,000 years ago but animal fossils found with Petralona indicate Petralona is between 350,000 and 200,000 years old. Petralona combines *H. ergaster*-like traits with a cranial capacity like anatomically modern *H. sapiens*. A third, known as Bodo, found in Ethiopia, is very possibly the oldest archaic human specimen from Africa and is dated to approximately 600,000 years ago. Bodo's cranial capacity is within the range of variation for modern humans. It is a robust cranium with very thick bones and two separate brow ridges.



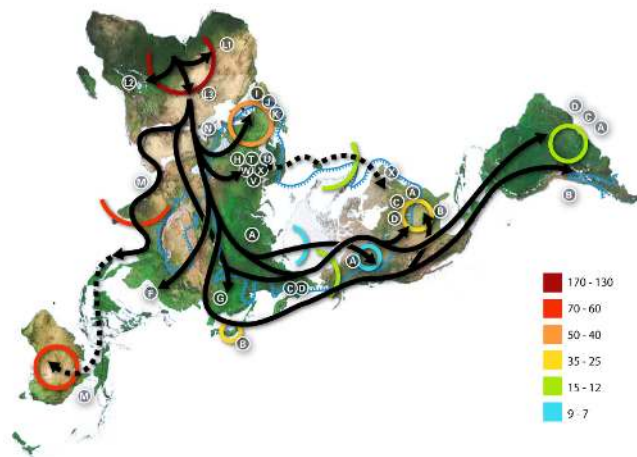
The mandible of the *H. heidelbergensis* individual known as Mauer.
[Source: [Gerbil](#), [Wikimedia Commons](#)]

Bodo was found with hand axes suggesting the butchering of animals. There are cutmarks on the Bodo cranium that resemble those made by cutting fresh bone with stone tools. It has been suggested that the Bodo cranium is the earliest evidence of the removal of flesh immediately after death using a stone tool. The cutmarks were made symmetrically and with specific patterns on the cranium, which is interpreted as strong evidence that the defleshing was done purposefully for funerary practices. Once again, others have suggested that the cutmarks indicate that Bodo may have been practicing cannibalism.

In addition to their use of stone tools, *H. heidelbergensis* is also believed to have used spears about 400,000 years ago. The spears were made using '**hafting**' technology which involves attaching stone points to a handle made of another substance, such as wood. Hafting gives stone tools more utility, as they can now be thrown (as with a spear), shot (as with an arrow), or used with more leverage (like an axe). This increased efficiency in hunting and killing animals is believed to have created a situation in which *H. heidelbergensis* had regular access to meat and other high-quality foods. Another interesting aspect of *H. heidelbergensis* is that they are associated with clear archeological evidence for modified dwellings consisting of stone foundations as well as controlled fire dated to around 780,000 years old.

Homo floresiensis, also known as "the Hobbit (of Flores)" was discovered on the island of Flores in Indonesia in 2003. The species has been dated to approximately 100,000–60,000 years ago. What was surprising about this species is its small size—adults under 4 feet tall. The cave where *H. floresiensis* was found, shows evidence of the use of fire for cooking and contains bones with cutmarks. As a result of anatomical differences, it is believed that their bipedalism was quite different from that of modern humans, with a high stepping gait and slower walking speed. *H. floresiensis* also had substantially more mobility in the elbow joint, which suggests that they were good tree climbers. Their small brain size is not believed to have affected their intelligence. The brain of *H. floresiensis* does contain a Brodmann area (associated with cognitive abilities) that is the same size as that found in modern humans. Some have suggested that *H. floresiensis* is a sister species of *Homo habilis* that branched off before or shortly after the evolution of *Homo habilis*. Other hypotheses suggest that they were the descendants of *H. erectus* who became stranded on the island.

Homo luzonensis, found on the island of Luzon in the Philippines and dated to at least 50,000–67,000 years ago displays a hybrid of australopithecine traits and *Homo* characteristics, yet lived alongside modern *H. sapiens*. Clearly the genus *Homo* is more diverse and complex than was originally thought, especially within the special evolutionary pressures of island environments.



Map of estimated periods of *Homo* migration over the last 170,000 years. Note that this map 'peels' the globe from the south pole and looks down from the north pole. Africa is in the top left, upper Asia and upper North America are in the center, South America is to the right. The colored legend indicates thousands of years. Importantly, this map shows the multiple 'phases' of migration into Asia as well as the Americas during which times the 'braided stream' occurred. Missing from this illustration are now-hypothesized return(s) to Africa. [Source: [Wikimedia Commons](#)]

HOMO NEANDERTHALENSIS (NEANDERTHALS)



Reconstructed Neanderthal skeleton. [Source: [Ryan Schwark, Wikimedia Commons](#)]

“Neanderthals” have been found only in regions of Europe and the Middle East and are dated to between about 400,000 and 40,000 years ago. The first fossils, which were found in the Neander Valley, were believed to be the remains of an extinct kind of human. They possess several distinctive anatomical characteristics: the skull and brain are larger than that of humans. It is believed that in the Neanderthal brain, the frontal region, which is the center of speech and language, was less developed, while the back of the brain, which deals with the senses, was more developed. This greater development in the back area of the brain could be a survival adaptation found in Neanderthals who had to hunt in often harsh and difficult conditions. Given their morphology, the verdict is still out as to whether they were able to produce complex language similar to *H. sapiens*. It is believed by some researchers that the ability to produce complex speech gave *H. sapiens* their significant edge over the Neanderthal.

Some of the best-known Neanderthal specimens come from a place called Shanidar Cave in Iraq. Within this cave, various skeletal remains of ten individual Neanderthals were found. Nearly all the skeletal remains show some evidence of trauma, suggesting that hunting was risky business. In a comparative study, it was established that during the Upper Paleolithic, modern *H. sapiens* sustained similar injuries as the Neanderthal, but interestingly, these injuries were less likely to result in death. Shanidar also features individuals who suffered grave injury but also suggest healing by care from others. Some paleoanthropologists also conclude there is evidence of **intentional burials** (deliberate placing of the dead in a ritualistic manner). It is hotly debated, but Pollen analysis of the soil surrounding one corpse suggests that spring flowers had been placed in the grave, possibly indicating that the Neanderthal had a belief in an afterlife and established mortuary practices. These two features suggesting compassion and a sense of social responsibility for at least the disabled and quite possibly the deceased members of the community.

Neanderthals have been labeled, perhaps unjustly, as a species with a limited ability to communicate in symbolic or abstract forms. Until recently, the Neanderthal had been assumed to lack the cognitive skills associated with the practice of ritual and art. However, cave paintings discovered in Spain challenge that assumption. These

paintings, which have been dated to around 65,000 years ago, before the arrival of *H. sapiens* in the region, have been determined to be the creative works of the Neanderthal and are currently considered the oldest cave art ever found. Neanderthals created more technologically advanced tools than those produced by *H. erectus*. Archeological sites that date to the Neanderthal period are dominated by flake tools. This means that the Neanderthal struck flakes from cores and then used the flakes as their tools instead of the core. This resulted in smaller and sharper tools with increased utility—but ones that are more difficult for us to find!



Known distribution and significant discovery locations of Neanderthals through portions of modern-day Asia and Europe. Shanidar is roughly central to the shaded area. Today, the known range extends even further north than indicated here. [Source: Berria, [Wikimedia Commons](#)]

The Neanderthal went extinct around 35,000 to 50,000 years ago. There have been various hypotheses as to what caused this, many connected to the fact that Neanderthal coexisted with *H. sapiens* in regions of Europe and Asia for an estimated 2,600–5,400 years. These hypotheses include an inability to adapt to a changing climate and colder temperatures, the spread of disease, competition for food with *H. sapiens*, and even aggressive takeover by the *H. sapiens*, who may have been better able to adapt to environmental changes. Another theory points to evidence that the Neanderthal tended to live in small, scattered groups with limited genetic diversity and low birth rates, which potentially impacted the ability of the Neanderthal to be competitive.

And then some argue that the Neanderthal didn’t go extinct at all because some people still have Neanderthal genes in them. Recent genetic evidence indicates that human-Neanderthal interbreeding was happening as far back as 125,000 years ago. Various mutations and diseases are linked to this Neanderthal DNA, including diabetes, addictions, depression, allergies, and Crohn’s disease. Neanderthal genes are believed to have provided immunity to some viruses that *H. sapiens*, arriving from Africa, would not have had time to build up an immunity against. On the reverse side, *H. sapiens* may have brought diseases from Africa that the Neanderthal did not have resistance to, possibly playing a role in their extinction.

THE BRAIDED STREAM AND ASSIMILATION



Comparison of modern *H. sapiens* (left) and *H. neanderthalensis* (right) skulls. [Source: hairy-museum-matt (original photo), DrMikeBaxter (derivative work), [Wikimedia Commons](#)]

We can consider several explanations for the diversity we see within early *Homo* from about 2.5 million to 1.5 million years ago. One possibility is the existence of multiple contemporaneous species of early *Homo* during this period. In light of environmental instability, it shouldn't be surprising to see fossils from different parts of Africa and Eurasia display tremendous variability. Multiple hominin forms could also evolve in the same region, as they diversified in order to occupy different ecological niches. However, even the presence of multiple species of hominin does not preclude their interacting and interbreeding with one another.

Various lines of evidence about the genus *Homo* point out the need for a more intricate view of this period of human evolution. Rather than obvious demarcations between species and their corresponding behavioral advancements, it now looks like many behaviors were shared among species. Earlier hominins that we previously didn't think had the capability could have been doing things like expanding out of Africa or using stone tools. Meanwhile, some other hominins that we had considered more advanced didn't actually have the full suite of "human" characteristics previously expected.

To further complicate things, recently hypothesized interbreeding between nearer species produces a version of hominin evolution which looks more like a 'braided stream' than a branching tree. The braided stream model of modern human evolution proposes a more complex, interconnected network of diverging and re-converging lineages, rather than a simple linear tree. Fossil and DNA evidence show that hominin populations coexisted and interbred (hybridized) to exchange genes both Africa and as they moved beyond it. The genetic contributions of "early" humans are not straightforward. This model better reflects the ebb and flow of genetic exchange in the hominin gene pool.



A literal 'braided river.' While portions of the river split and re-join the overall path of the river from source to end is still one river. [Source: [Laurent Deschodt](#), [Wikimedia Commons](#)]

Despite some haziness dominating the early *Homo* narrative, we can identify some **overall trends** for the million-year period associated with early *Homo*. These trends include brain expansion, a reduction in jaw protrusion (called facial prognathism), smaller jaw and tooth size, larger body size, and evidence of full terrestrial bipedalism. *These traits are associated with a key behavioral shift that emphasizes culture as a flexible strategy to adapt to unpredictable environmental circumstances.* Included in this repertoire are the creation and use of stone tools to process meat obtained by scavenging and later hunting, controlled fire and cooking, further prolonged childhoods, cooperation in child raising, and the practice of skilled foraging techniques. In fact, it seems cultural innovations drove biological changes, and vice versa, fueling a feedback loop that continued during the later stages of human evolution.

How do researchers make sense of all of these discoveries that cover over at least a million years of time and stretch across every continent except Antarctica? How was modern *Homo sapiens* related to archaic *H. sapiens*? The **Assimilation hypothesis** proposes that modern *H. sapiens* evolved in Africa first and expanded out but also interbred with the archaic *H. sapiens* they encountered outside Africa. This hypothesis is powerful since it explains why Africa has the oldest modern human fossils, why early modern humans found in Europe and Asia bear a resemblance to the regional archaic humans, and why traces of archaic DNA can be found in our genomes today. But while researchers have produced a model that satisfies the data, there are still a lot of questions for paleoanthropologists to answer regarding our origins. What were the patterns of migration in each part of the world? Why did the archaic humans go extinct? In what ways did archaic and modern humans interact? The definitive explanation of how our species started and what our ancestors did is still out there to be found.

"MODERN" HUMANS

Modern *Homo sapiens* first appeared about 200,000 years ago in Africa. Anthropologists generally classify these people as "anatomically modern *H. sapiens*," which is a way of noting that while their bodies are mostly the same as modern humans, they had not yet developed the cultural traditions, symbolic behaviors, and technologies that are seen among later *H. sapiens*. Probably the most defining feature of anatomically modern *H. sapiens* is their chin. Modern *H. sapiens* is the first hominin to exhibit a projecting chin. One of the most common explanations for this anatomical feature is that the chin evolved in response to human speech and protects the jaw against stresses produced by the contraction of certain tongue muscles.

Sometime around 40,000 years ago there was an abrupt change in tool technology, subsistence patterns, and symbolic expression among *H. sapiens*. These changes seem to have occurred almost simultaneously in Africa, Asia, Europe, and Australia. While there is evidence of some creative artistic activity in earlier groups like the Neanderthal, they were not on the same scale as that seen during the Upper Paleolithic. Among these changes, *H. sapiens* began assembling much more elaborate tools. Over the 23,000 years of the Upper Paleolithic, there were many distinctive periods of tool use (archaeologists call these periods "industries").

The Gravettian tool industry showed many instances of animal remains being used for both decorative and traditional tool purposes. The Gravettian tool industry is best known for carved Venus figurines portraying a woman, typically made from ivory or limestone. Most figurines have small heads, wide hips, and large breasts. Most researchers believe that they served a ritual or symbolic function. Some have suggested that they represent an expression of health and fertility.



A so-called "Venus Figure." [Source: Cohen C., [Wikimedia Commons](#)]

The Solutrean tool industry utilized tool-making techniques not seen before. It produced finely worked points with new techniques. The Solutrean is also characterized by the appearance of the atlatl—a long stick used to propel a spear or dart. Functioning as an extension of the arm, this stick of wood or antler added range to a short spear. By 17,000 years ago, the Solutrean tool industry was replaced by the Magdalenian. During this period, bone and ivory continue to be used, as well as stone.

During the Upper Paleolithic, *H. sapiens* created a great deal of cave art. Cave art seems to have been created continually from 40,000 to 10,000 years ago and then disappeared around 10,000 years ago, likely due to climate change. The most well-known cave sites in France are the Chauvet (32,400 years ago) and Lascaux Caves (17,000 years ago). The art in both caves features common subjects, such as bison, horses, and deer, as well as tracings of human hands. Most of the animals depicted were commonly hunted but were not always found with associated deposits of bones. The cave art produced during the Upper Paleolithic show a level of sophistication, sacredness, and possibly even a form of astronomy not seen previously in human history.



A bull is one of the many animals depicted in Lascaux cave. Interestingly, the dots indicated above this one's shoulders may well correspond to a cluster of stars known as the Pleiades—located in exactly the same relationship to the modern constellation Taurus (the bull). One modern theory of Lascaux is that these paintings served as a sort of 'calendar' for hunting. [Source: [JoJan](#), [Wikimedia Commons](#)]

What defines modern *H. sapiens* when compared to archaic *H. sapiens*? Modern humans, like you and me, have a set of derived traits that are not seen in archaic humans or any other hominin. As with other transitions in hominin evolution, such as increasing brain size and bipedal ability, modern traits do not appear fully formed or all at once. In other words, the first modern *H. sapiens* was not just born one day from archaic parents. The traits common to modern *H. sapiens* appeared in a **mosaic manner**: gradually and out of sync with one another. There are two areas to consider when tracking the complex evolution of modern human traits. One is the **physical** change and the other is **behavior** inferred from these physical traits and material culture among them.

The skeleton of what are called “**physically modern Homo sapiens**” has structures that are thinner and smoother (called ‘gracile’). Modern skulls are much rounder, or more **globular**. You can feel the globularity of your own modern human skull. Viewed from the side, the tall vertical forehead of a modern *Homo sapiens* stands out when compared to the sloping archaic version. This is because the frontal lobe of the modern human brain is larger than the one in archaic humans, and the skull has to accommodate the expansion. The trend of shrinking face size across hominins reaches its extreme with our species as well. Continuing a trend in hominin evolution, technological innovations kept reducing the importance of teeth in reproductive success. As natural selection favored smaller and smaller teeth, the surrounding bone holding these teeth also shrank. Related to smaller teeth, the mandible is also gracile in modern humans when compared to archaic humans and other hominins. Interestingly, our mandibles have pulled back so far from earlier hominins that we gained an extra structure at the most anterior point, called the **mental eminence**. You know this structure as the chin.

The rest of the modern human skeleton is also more gracile than its archaic counterpart. The differences are clear when comparing a modern *H. sapiens* with a cold-adapted Neanderthal, but the trends

are still present when comparing modern and archaic humans within Africa. Overall, a modern *Homo sapiens* postcranial skeleton has thinner bones, smoother features, and more slender shapes. A slender frame is adapted for the efficient long-distance running ability that started with *H. erectus*. Furthermore, slenderness is a genetic adaptation for cooling an active body in hotter climates, which aligns with the ample evidence that Africa was the home continent of our species.

Aside from physical differences in the skeleton, researchers have also uncovered evidence of behavioral changes associated with increased cultural complexity from archaic to what they refer to as “**behaviorally modern humans**.” How did cultural complexity develop? Archaeology tells us much about the behavioral complexity of past humans by interpreting the significance of material culture (the things we make). In terms of advanced culture, items created with an artistic element, or as decoration, speak of abstract thought processes. The repeated demonstration of difficult artistic techniques and technological complexity over time indicates social learning and cooperation as well.

The interpretation of brain anatomy is another promising approach to studying the evolution of human behavior. Since the sheer size of the brain is not useful for weighing intelligence within a species, paleoanthropologists are instead investigating the differences in certain brain structures. The differences in organization between modern *H. sapiens* brains and archaic *H. sapiens* brains may reflect different cognitive priorities that account for modern human culture. As with the archaeological approach, new discoveries will refine

what we know about the human brain and apply that knowledge to studying the distant past.

Taken together, the cognitive abilities in modern humans may have translated into an adept use of tools to enhance survival. Researchers Patrick Roberts and Brian A. Stewart (2018) call this concept the **generalist-specialist niche**: our species is an expert at living in a wide array of environments, with populations culturally specializing in their own particular surroundings. The next chapter tracks how far around the world these skeletal and behavioral traits have taken us.

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Humans exhibit biological variation. Humans also have a universal desire to categorize other humans in order to make sense of the world around them. Since the birth of the discipline of **biological anthropology** (or **physical anthropology**, as referred to back then), we have been interested in studying how humans vary biologically and what the sources of this variation are. Before we tackle these big problems, first consider this question: Why *should* we study human variation?



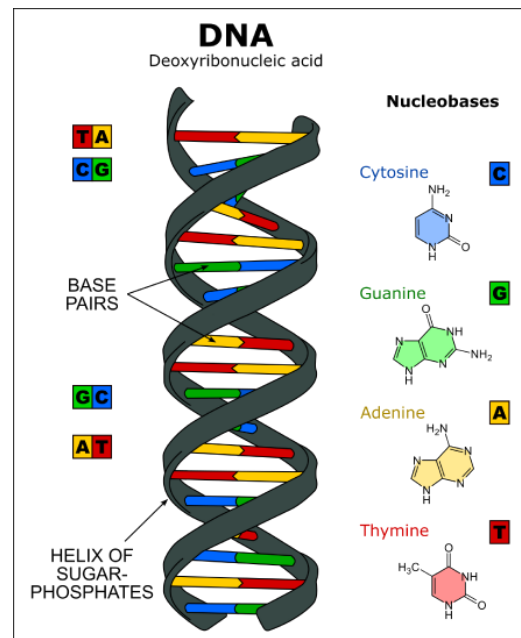
Humans are culturally diverse (in that cultural differences contribute to a great degree of variation between individuals), but those shown are genetically undiverse. (Top left: Hadzabe members in Tanzania; top right: Inuit family; bottom left: Andean man in Peru; bottom right: English woman.) Credit: [Humans are diverse \(Figure 13.1\)](#) original to [Explorations: An Open Invitation to Biological Anthropology](#) by Michael Rivera is a collective work under a [CC BY-NC-SA 4.0](#) license. [Includes [Tanzania – Hadzabe hunter \(14533536392\)](#) by [A_Peach](#), [CC BY 2.0](#); [Inuit-Kleidung 1](#) by [Ansgar Walk](#), [CC BY-SA 3.0](#); [Andean Man](#) by [Cacophony](#), [CC BY-SA 4.0](#); [Jane Goodall GM](#) by [Floatjon](#), [CC BY-SA 3.0](#).]

NOT THAT DIFFERENT: THE HUMAN GENOME VS. THE CONCEPT OF “RACE”

There are certainly academic reasons for studying human variation. First, as we have seen already, it is important to consider the evolution of our species and how our biological variation may be similar to (or different from) that of other species. Second, anthropologists study modern human variation to understand how different biological traits developed over evolutionary time so we can make more accurate inferences about evolution and adaptation among our hominin ancestors, complementing our study of fossil evidence and the archaeological record. Third, it is important to consider that biological variation among humans has biomedical, forensic, and sociopolitical implications. For these reasons, the study of human variation and evolution has formed the basis of anthropological inquiry for centuries and continues to be a major source of intrigue and inspiration for scientific research conducted today.

An even-more-important role of the biological anthropologist is to *improve public understanding of human evolution and variation*. Terms such as **race** and **ethnicity** are used in everyday conversations and the division of humankind into smaller, discrete categories is a regular occurrence in day-to-day life. This can be seen regularly when governments acquire census data with a heading like “geographic origin” or “ethnicity.” Furthermore, such checkboxes and drop-down lists are commonly seen as part of the identifying information required for surveys and job applications. Race is very often understood as rooted in biological differences, ranging from familiar traits as skin color or eye shape to the genetic level. However, race is an “ideological construct” beyond biological and genetic bases at different times relating to our ethnicities, languages, religious beliefs, and cultural practices. Looking at human variation in terms of ‘race’ almost seems silly when compared to our actual *biological* variation as a species.

Some basics of genomics helps put this into perspective. In 2003, The Human Genome Project mapped out the entire human Genome, the entire set of ‘genetic instructions’ for our species. All humans are, genetically speaking, very much alike, sharing more than 99.9 percent of our DNA in common. However, people aren’t identical and genes do differ from one person to another. **Phenotype** refers to the **expression of genes**, such as height or hair color. Some phenotypic variation is not outwardly obvious, like blood type. DNA (deoxyribonucleic acid) is a complex molecule made up of only four “bases:” adenine, thymine, cytosine, guanine, and thymine—A, T, C and G for short. Just as zeros and ones make up the ‘code’ of current computer systems, these four letters form the basic ‘code’ of all life on earth. The bases are paired with one another—A with T and G with C—to form the rungs of the spiral ladder shape, or double helix, of the DNA molecule. The human genome, the complete set of genetic material, contains about 3 billion such pairs. That remaining 0.1% of our DNA accounts for the variation we see between people.



The makeup of a DNA molecule. [Source: Modified by Luke Konkol from image by [Sponk](#) via [Wikimedia Commons](#), [CC BY-SA 3.0](#)]

And where does that 0.1 percent (or one out of every thousand) come from? Occasionally when DNA replicates, a copying error or mutation occurs. These mutations occur randomly. With every child born, there are approximately 50 new mutations. Changes in a single base from one letter to another are called SNPs (“snips”) short for single nucleotide polymorphisms. SNPs are the most common form of genetic difference between people. Sometimes a change in one letter has no effect, other times, a SNP can affect a physical trait like eye color. And in rare cases, a SNP can lead to a debilitating disease like cystic fibrosis, sickle-cell anemia, or Huntington’s disease. SNPs account for much of human variation. Two people chosen at random are likely to differ in 1 in every 1,000 nucleotide bases or 0.1 percent.

But any pair of individuals certainly seem to be more than one one-thousandth different from one another. This is because of how our ever-so-slight differences in DNA *present* in individuals. Sexually produced organisms inherit genes from both their parents. The genes you inherit from each parent may be slightly different. These variants of genes, called **alleles**, are sometimes either dominant or recessive. A dominant allele will mask the expression of the recessive allele. Sometimes, you need two copies of the recessive allele in order for some feature to be expressed. We will see how recessive alleles for certain disease get passed on in part because their presence in a ‘recessive’ state can actually be an advantage.

And so, from a *biological* perspective any two people are statistically more identical than they are different! At the same time ideas about **ethnicity** and **race** have huge social and political impacts, and have been part of the motivation behind various forms of **racism** and **prejudice** today, as well as many wars and **genocides** throughout history. Racism manifests in many ways—from instances of bullying between kids on school playgrounds to underpaid minorities in the workforce, and from verbal abuse to violent physical behaviors. **Prejudice** is negative views toward another group based on some perceived characteristic. Choosing which biological or nonbiological features to use when discussing race is always a cultural process. Race concepts have no validity to them unless people continue to use them in their daily lives.

Biological anthropology is crucial in the public sphere, because it debunks myths surrounding human variation. Rooted in scientific observations, our work can help non-anthropologists recognize how common ideas about “race” have no biological or genetic basis. Humans cannot actually be divided into discrete “races” because most traits vary on a continuous basis and human biology is, in fact, very homogenous compared to the greater genetic variation we observe in closely related species.

Instead, productive biological anthropology today is limited to discussing the presentation of biological traits among *populations*. While these traits like skin tone, build, or eye or nose shape often seem visually significant, it is important to keep in mind that the reason populations of humans vary as much as they do is that the most minor of changes in DNA can present as these physical differences. So far as physical differences in animals go, these are actually very slight. What makes them appear significant to us is the cultural significances we apply to them!

POPULATIONS CHANGE OVER TIME

As early humans left Africa and spread across the globe, they faced numerous challenges related to their new environments. Beyond genetically influenced changes in physiology as a result of evolution, humans have developed lifestyle strategies to cope with and even thrive in a wide range of habitats. The ways populations of humans met such challenges, coupled with their geographic separation throughout the majority of the last two hundred thousand years, have led to the many forms of adaptation in our species. All organisms, including humans, must maintain a baseline of normal functions within their cells, tissues, and organs to survive. This constancy of internal functions is referred to as **homeostasis**. Homeostatic regulation, however, may be disrupted by a variety of both external and internal stimuli known as **stressors**. Within limits, all organisms have evolved certain physiological mechanisms to respond to stressors to maintain homeostasis. The range of changes in the **physiology** (function), **morphology** (form), and/or **behavior** of organisms in response to their environments and potential stressors is regulated by its phenotypic plasticity. Coping with these stressors led to the development of both **adjustments** (behavioral, acclimatory, and developmental) and **adaptations**, which are explained in detail in the following sections.

The term *adjustment* refers to an organism’s nongenetic way of coping with the stressors of its environment. Although adjustments themselves are nongenetic in nature, the ability of an organism to experience or develop an adjustment is based on its phenotypic plasticity, which is linked to its evolutionarily-guided genetic potential. Adjustments occur *exclusively on the individual level*. As such, different individuals within a population may experience a wide range of possible adjustments in response to a similar stressor.

In general, the three main forms of adjustment are: behavioral, acclimatory, and developmental. **Behavioral adjustments** are regarded as cultural responses to environmental stressors and must be constantly altered to meet novel situations posed by the environment. **Acclimatory adjustments** are temporary, reversible changes in an organism’s physiology in response to environmental stressors. The range of acclimatory adjustments that an organism is capable of producing is linked to its underlying phenotypic plasticity and the duration and severity of the stressor. A good example of this is the human response to varying ambient temperatures—vasoconstriction (flushing), vasodilation (blushing), shivering, or cooling by evaporation by producing sweat. **Developmental adjustments** occur only in individuals who spend their developmental period (i.e., childhood and adolescence) under specific environmental conditions, such as high-altitudes with low oxygen levels or with or without access to particular nutrients. Changes during development are directly related to underlying phenotypic plasticity as well as the amount of time during the crucial growth and development period that the individual resides within the challenging environment.

Behavioral, acclimatory, and developmental adjustments are all related to phenotypic plasticity; however, most adjustments are temporary and only affect individuals rather than populations. What if the physiological changes were permanent and affected an entire

population? The long-term, microevolutionary (i.e., genetic) changes that occur within a population in response to an environmental stressor are referred to as an **adaptation**. From an evolutionary standpoint, the term *adaptation* refers to a phenotypic trait (i.e., physiological/morphological feature or behavior) that has been acted **upon by natural selection** to increase a species' ability to survive and reproduce within a specific environment. Adaptations are traits that serve to restore homeostasis. The physiology-based interpretation of adaptations presumes that all traits serve a purpose and that all adaptations are beneficial in nature; however, this may be a fallacy, since some traits may be present without clear evidence as to their purpose.

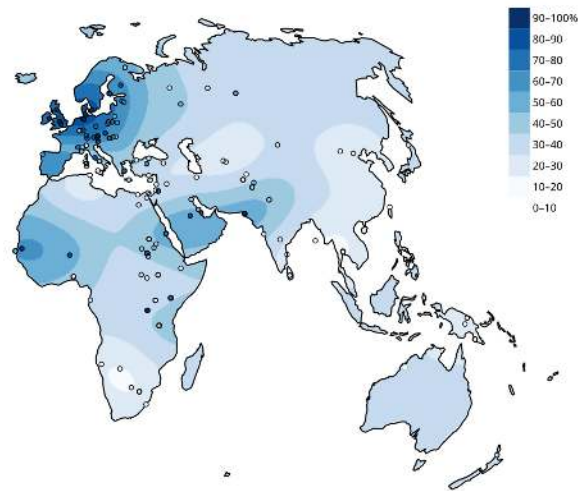
We know that genetic mutations called SNPs are acted upon by natural selection to produce these adaptations. So, why do populations look different from others or have higher frequencies of certain SNPs than others? There are two important ways in which SNPs get distributed which should be familiar to you from our look at evolution in general: the founder effect and natural selection.

Founder effect happens when a small group of people establish a population, bringing with them a limited amount of genetic variation. The founding group is then isolated from others. Sometimes the founders bring with them chance mutations, and so subsequent generations are more likely to have those mutations as well. As an example, on the Micronesian atoll of Pingelap, about one in ten people is totally colorblind, seeing only black and white. It is thought that a typhoon wiped out most of the population in 1775. The king, who was thought to have carried the defective gene, survived and passed it on to his many descendants. The colorblindness also makes people very sensitive to the sun, and they can't see very well at all during the daytime. One solution has been to fish for flying fish at night, which the Pingelap excel at.

In **natural selection**, a trait has some advantage in a particular environment that causes individuals with that trait to survive and reproduce at a higher rate than individuals without the trait. Unlike founder effect, traits confer some advantage to the organism. Recall that, the mutations occur at random, but natural selection acts upon those random mutations. The same process has shaped the human phenotype, from lactose tolerance (or "lactase persistence"), to disease resistance, to skin color.

Human babies can digest lactose until about the age of 4 to 6, then the ability shuts down and people become lactose intolerant. In this case, the gene does not code for a protein but switches on and off the gene that produces lactase. In some populations, SNPs arose such that the ability to digest lactose never switches off and adults can drink milk freely—called **lactose persistence**. Not too surprisingly, populations that can drink milk are those where herding animals are important or were important to their ancestral populations. This is a good example of how a cultural trait, herding, led to the selection of a biological trait, lactose tolerance. In fact, humans are the only mammal that can do this. Shaping our biology as a result of culture is called gene-culture co-evolution. The ability to digest milk, even if it conferred a small advantage, would have led to most people being lactose tolerant.

Different mutations led to lactose tolerance in different populations. Different SNPs account for lactose tolerance in Europe, Africa, and the Middle East. The same SNP accounts for lactose tolerance on Europe and India, indicating a common origin. In northern Europeans, lactose tolerance is a result of just one SNP, a mutation in a single base pair. The Masai cattle herders of Tanzania and other sub-Saharan Africans, however, have *a different mutation that also results in lactose tolerance*. These mutations popped up randomly—and separately—but were acted on through natural selection in each case because they were advantageous in cultures with domesticated animals that could be milked (convergent evolution). It is likely these mutations likewise occurred in populations without milk-producing livestock, but, in these cases, the mutation didn't offer any particular benefit and therefore was not acted upon by natural selection.

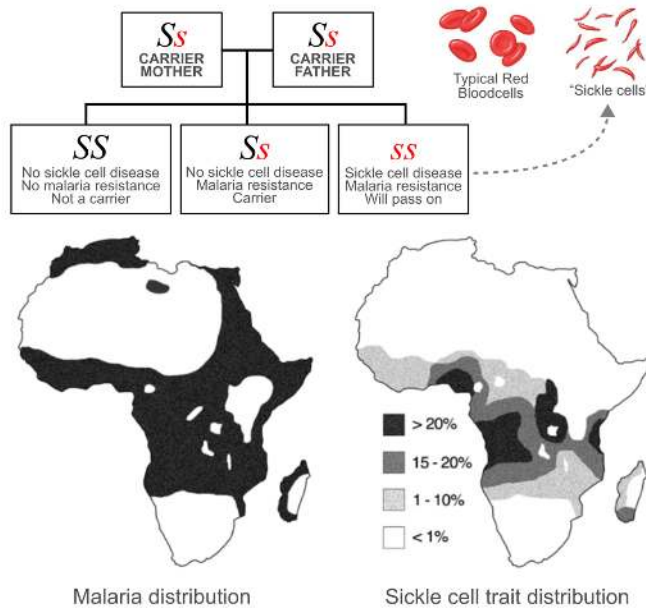


Distribution of adults who can digest lactose in the indigenous population of Africa, Eurasia, and Oceania. Dots represent sampled populations. [Source: Joe Roe via [Wikimedia Commons](#)]

Another example of natural selection in humans is **the sickle cell trait**. A disease called sickle cell anemia is caused by a variant of a gene that produces hemoglobin. The variant is caused by a single SNP from adenine to thymine. Sickle cell anemia is a painful disease that can result in shortened lifespan if left untreated. The normal variant of the gene is designated as *S* and the affected gene as *s*. Individuals inherit alleles each from their mother and father. If a person has *SS* (called homozygous dominant), then they do not have the disease. If a person has the variants *Ss* (heterozygous), then they do not have the disease but are a carrier. Two copies of the variant *ss* (homozygous recessive) causes sickle cell anemia causing red blood cells to become sickle shaped, preventing them from transporting oxygen.

Why would such a harmful mutation become so common in a population rather than fade away? The answer is natural selection. People with the variants *Ss*, who are carriers for the disease, are also resistant to malaria, a zoonotic disease transmitted by mosquitoes. Those with the *SS* variants are not resistant and so the *Ss* variants survive at a greater rate than *SS*. The sickle cell trait is prevalent in those areas where malaria is common like Western Africa, the Arabian Peninsula, and southern India. Because western Africans

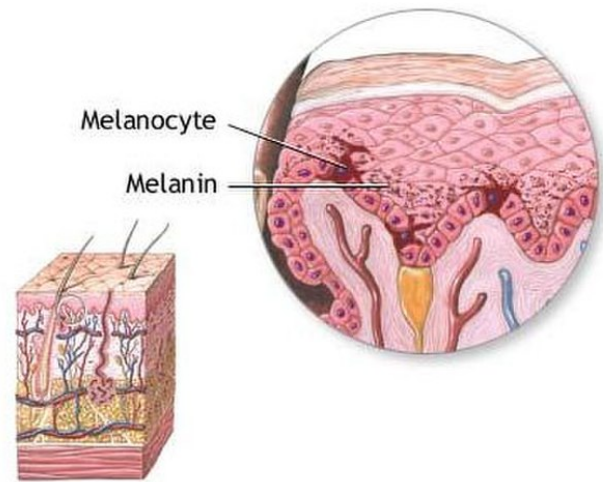
were brought to the United States as slaves, sickle cell anemia is prevalent among African Americans as well. Today, blood tests can determine if someone is a carrier and ascertain the likelihood of transmitting the disease to offspring.



Top Left: Diagram showing two carrier parents (heterozygous) and their three potential type of offspring. Note that the likewise heterozygous offspring (Ss) is actually twice as likely as either homozygous offspring (SS or ss) [Source: Luke Konkol, [CC0](#)]. **Top Right:** A comparison of typical red blood cells (left) and sickle cells (right) [Source: modified from public domain image via [Wikimedia Commons](#)]. **Bottom:** Comparison of malaria distribution (left) and sickle cell trait distribution (right) [Source: Anthony Allison, [CC0](#) via [Wikimedia Commons](#)].

But lactose persistence and the sickle cell trait are largely invisible biological features rarely (if ever) used to culturally distinguish individuals. Race, today's Western student might say, is about skin color. Human variation in skin tone likewise has a *biological* basis *first* better understood in terms of variation by natural selection rather than in the cultural terms it has been applied today.

All primates have ability to produce **melanin**, in part a natural sunscreen, in their skin. Skin color depends on the type of melanin produced in skin cells called melanocytes. Melanin also affects what eye color you have. Blue eyes derive from a mutation in a genetic "switch" for a certain gene. The switch reduces the ability of the gene to produce melanin (brown) in the eye resulting in blue. Melanin also colors hair/fur and bird feathers. But why does human skin color differ?



Closeup cutaway view of the skin showing melanocytes (the cells which produce melanin) and the melanin produced. [Source: [National Cancer Institute](#) via [Wikimedia Commons](#)]

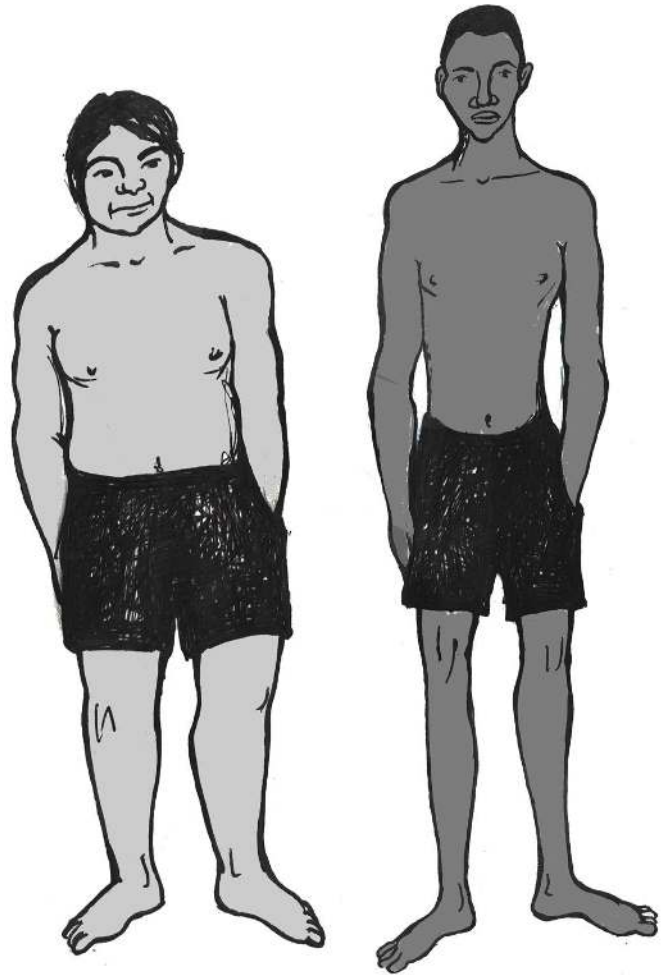
Ultraviolet radiation damages DNA in the skin and disrupts cells' processes. Dark skin protects against ultraviolet radiation and the damage it can cause. Melanin acts as a barrier between the ultraviolet rays and the nucleus of the skin cell, which houses the DNA. As a result, melanin protects DNA and helps prevents skin cancers. Those with dark skin in high UV regions have a selective advantage over lighter skinned people. Dark skin also conserves folate, which is destroyed by ultraviolet-B sunlight (UVB). Folate is essential, because low folate in pregnant women can result in severe birth defects as demand for folate increases during pregnancy. These advantages would quickly make dark skin universal in areas of high UV. Because folate is destroyed by sunlight, pregnant women take folic acid or eat foods high in folate to prevent neural tube defects. In the United States today, many foods like cereals, breads, and pasta, are supplemented with folic acid for this reason.

We can then ask, why do some people have lighter skin? Lighter skin is a liability in the tropics, but those with lighter skin are able to better synthesize vitamin D (a hormone necessary for absorption of calcium) in more northerly climates. Melanin greatly slows the production of vitamin D. A dark-skinned person can take six times as long to produce the same amount of vitamin D as a light-skinned person. Nutritional rickets, a deforming bone disease, can develop in the presence of vitamin D deficiency. Women with rickets have reduced pelvic openings, and have difficulty delivering babies, making the selective factors for light skin stronger in some areas. Some of the first c-sections in the U.S. were on enslaved African American women who suffered from pelvic deformities, likely brought about by vitamin D deficiencies. Similar to folate, foods are now enriched with vitamin D to prevent deficiencies (in the past, kids took cod liver oil). Vitamin D deficiencies are now being recognized as having other effects including a weakened immune system and an association with cancers. Like dark skin in the tropics, light skin is naturally selected for in areas of lower ultraviolet radiation.

There are still other skin phenotypes that are the product of natural selection. The ability to tan is also an adaptive trait based on genetic and environmental interaction. Tanning is the ability to increase

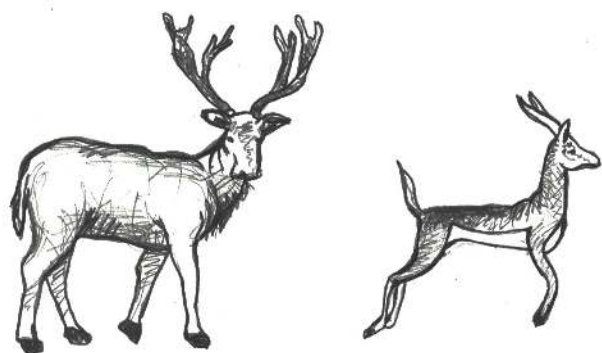
melanin production when needed. In some areas of the world, such as the Mediterranean, the amount of sunlight varies considerably from one season to the next. Local populations have physiological mechanisms to darken their skin during yearly seasons of high sunlight. In other areas of the world, such as the British Isles, cloudy conditions prevail even during summer seasons and very little tanning ability has evolved.

Natural selection plays a significant role in the determination of the shape and size of the human body. The most significant thermodynamic mechanism of heat loss from the body is radiation; however, the efficiency of radiation is correlated to the overall body shape and size of the individual. There is a direct correlation between the ratio of an object's surface area to mass and the amount of heat that may be lost through radiation. In regions where temperatures are consistently cold, the body shape and size of individuals indigenous to the area tend to be more compact. These individuals have a relatively higher body mass to surface area (i.e., skin) than their counterparts from equatorial regions where the average temperatures are considerably warmer. Individuals from hot climates, such as the Fulani of West Africa, have limbs that are considerably longer than those of individuals from cold climates, such as the Inuit of Greenland. Evolutionarily, the longer limbs of individuals from equatorial regions provide a greater surface area (i.e., lower body mass to surface area ratio) for the dissipation of heat through radiative processes. In contrast, the relatively short limbs of Arctic-dwelling people, such as the Inuit, allows for the retention of heat because there is a decreased surface area through which heat may radiate away from the body.

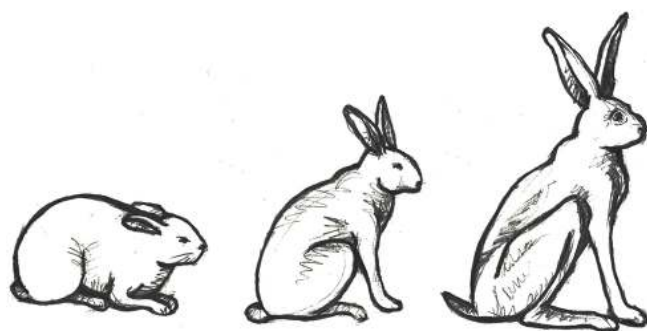


The individual on the left is typical of one adapted to a cold environment where the conservation of heat in the body's core is of critical importance. The individual on the right could be adapted to a tropical environment where the rapid dispersal of heat is necessary to maintain homeostasis. Credit: [Greenland 1999 \(01\)](#) by [Vadeve](#) has been designated to the [public domain \(CC0\)](#).

To better describe the trends related to the general shape and size of human bodies in relation to the thermal conditions, we turn to a couple of general principles that are applicable to a variety of species beyond humans. **Bergmann's Rule** predicts that as average environmental temperature decreases, populations are expected to exhibit an increase in weight and a decrease in surface area. Also, within the same species of homeothermic animals, the relative length of projecting body parts (e.g., nose, ears, and limbs) increases in relation to the average environmental temperature. This principle, referred to as **Allen's Rule**, notes that longer, thinner limbs are advantageous for the radiation of excess heat in hot environments and shorter, stockier limbs assist with the preservation of body heat in cold climates.



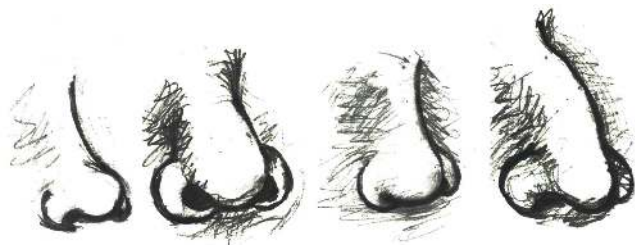
These organisms are representative of Bergmann's rule. The animal on the left depicts an ungulate from a cooler environment with increased body weight and decreased surface area, compared to the slender ungulate on the right. Credit: [Bergmann's Rule \(Figure 14.16a\)](#) original to [Explorations: An Open Invitation to Biological Anthropology](#) by Mary Nelson is under a [CC BY-NC 4.0 License](#).



These animals are representative of Allen's rule. The rabbit on the left comes from a cooler environment and is compact with short limbs and ears. The rabbit on the right comes from a warm environment and has long and lanky limbs and ears. The rabbit in the middle has ears and limbs that are in-between the other two. Rabbits do not sweat like humans; heat is dissipated primarily through their ears. Credit: [Allen's Rule \(Figure 14.16b\)](#) original to [Explorations: An Open Invitation to Biological Anthropology](#) by Mary Nelson is under a [CC BY-NC 4.0 License](#).

Nasal shape and size is another physiological feature affected by our ancestors' environments. The selective role of climate in determining human nasal variation is typically approached by dividing climates into four adaptive zones: hot-dry, hot-wet, cold-dry, and cold-wet. A principal role of the nasal cavity is to warm and humidify ambient air prior to its reaching the lungs. Given this function of the nasal cavity, it is anticipated that different nasal shapes and sizes will be related to varying environments. In cold-dry climates, an individual's nasal cavity must provide humidification and warmth to the dry air when breathing in through the nose, conserve moisture, and minimize heat loss when the individual exhales through the nose. Conversely, in hot-wet environments, there is no need for the nasal cavity to provide additional moisture, nor a need to warm the air or to preserve heat within the nasal cavity. As with most human morphological elements, the shape and size of the nasal cavity occurs along a cline (a gradient). Due to the environmental stressors of cold-dry environments requiring the humidification and warming of air through the nasal cavity, individuals indigenous to such environments tend to have taller (longer) noses with a reduced nasal entrance (nostril opening) size.

Individuals indigenous to hot-wet climates tend to have nasal shapes which are shorter with broader nasal entrances.



Human nasal morphological variation as influenced by four major climate-based adaptive zones: hot-dry, hot-wet, cold-dry, and cold-wet. The four noses in this figure vary in shape in relation to their respective climate-based adaptive zones. Credit: [Human nasal morphological variation \(Figure 14.17\)](#) original to [Explorations: An Open Invitation to Biological Anthropology](#) by Mary Nelson is under a [CC BY-NC 4.0 License](#).

DOES VARIATION MEAN RACE?

So, does variation mean race? The short answer is **no**. Variation only means variation. Race is what we make of it.

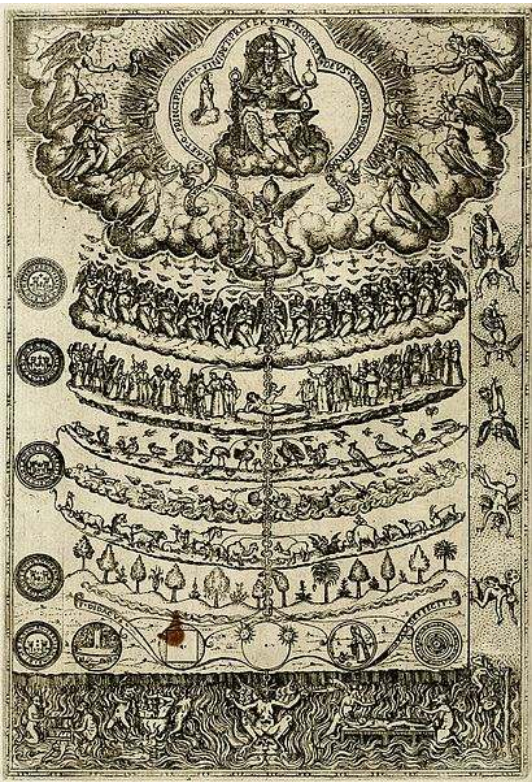
CONCEPTS OF "RACE"

The earliest classification systems used to racially describe human variation are evidenced by ancient manuscripts, scrolls, and stone tablets recovered through archaeological, historical, and literary research. The Ancient Egyptians had the *Book of Gates* (between 1550 BCE and 1077 BCE). In one part of this tome dedicated to depictions of the underworld, scribes used pictures and hieroglyphics to illustrate a division of Egyptian people into the four categories known to them at the time: Asiatics, Nubians, Egyptians, and Libyans. The Ancient Egyptians believed that each of these groups were made of a distinctive category of people, distinguishable by their skin color, place of origin, and even behavioral traits.

The Jewish Bible (the Old Testament of the Christian Bible) writes that all humankind descends from one of three sons of Noah: Shem (the ancestor to all olive-skinned Asians), Japheth (the ancestor to pale-skinned Europeans), and Ham (the ancestor to darker-skinned Africans). Similar to the Ancient Egyptians, these distinctions were based on behavioral traits and skin color. More recent work in historiography and linguistics suggest that the branches of "Hamites," "Japhethites," and "Shemites" may also relate to the formation of three independent language groups some time between 1000 and 3000 BCE. With the continued proliferation of Christianity, this concept of approximately three racial groupings lasted until the Middle Ages and spread as far across Eurasia as crusaders and missionaries ventured at the time.

The "Great Chain of Being," conceived by ancient Greek philosophers like Plato (427–348 BCE) and Aristotle (384–322 BCE) also played a key role in laying early foundations of empirical sciences. Observations of things were made with the aim of creating taxonomic categories. Aristotle describes the Great Chain of Being as a ladder along which all objects, plants, animals, humans, and celestial bodies can be mapped in an overall hierarchy (in the order of existential importance, with humans placed near the top, just beneath divine beings). When he writes about humans, Aristotle

expressed the belief that certain people are inherently more instinctive rulers, while others are more natural fits for the life of a worker or enslaved person.



The Great Chain of Being from the *Rhetorica Christiana* by Fray Diego de Valades (1579). Credit: [Great Chain of Being](#) by Didacus Valades (Diego Valades 1579), print from *Rhetorica Christiana* (via [Getty Research](#)), is in the [public domain](#).

Based on research by biological anthropologists, we currently recognize that these early systems of classification and hierarchization are unhelpful in studying human biological variation. Both behavioral traits and physical traits are coded for by multiple genes each, and how we exhibit those traits based on our genetics can vary significantly even between individuals of the same population. But this style of thinking survived from Aristotle, through the Scientific Revolution, and even, sadly, into the work of early ‘anthropologists.’

The 1400s to 1600s saw the beginnings of the **Scientific Revolution** in Western societies. While by no means the first or only scholars globally to use observation and experimentation to understand the world around them, early scientists living at the end of the medieval period in Europe increasingly employed more experimentation, quantification, and rational thought in their work. This is the main difference between the work of the ancient Egyptians, Romans, and Greeks and that of later scientists such as Isaac Newton and Carl Linnaeus in the 1600s and 1700s.

Linnaeus classified (typified) all plants and animals under the formalized naming system known as **binomial nomenclature** in which all organisms are placed into groups according to how they are similar or different to others under study. What was most anthropologically notable about Linnaeus’s typological system was that he was one of the first to group humans with apes and monkeys, based on the anatomical similarities between humans and nonhuman

primates. However, Linnaeus viewed the world in line with **essentialism**, a problematic concept that dictates that there are a unique set of characteristics that organisms of a specific kind *must* have and that would remove organisms from taxonomic categorizations if they lacked any of the required criteria. As a result, Linnaeus subdivided the human species into four varieties, with overtly racist categories based on skin color and “inherent” behaviors.

Most European scientists during this period were not aware of their own biases skewing their interpretations of biological variation; others deliberately worked to shape public perceptions of human variation in ways that established “**otherness**” and enforced European domination and the subordination of non-European people. During the so-called **Age of Discovery**, the superiority of European cultures over others was a pervasive idea throughout people’s social and political lives. Although much of Eurasia was linked by spice- and silk-trading routes, the European colonial period between the 1400s and 1700s was marked by many new and unfortunately violent encounters overseas. When Europeans arrived by ship on the shores of continents that were already inhabited, the Indigenous peoples looked, spoke, and behaved differently from peoples with whom they were familiar. Building on the idea of species and “subspecies,” ‘natural historians’ of this time invented the term *race*, from the French *rasse* meaning “local strain.”

Between the 1800s and mid-1900s, an increased use of scientific methods to justify racial schemes developed in scholarship. Classification systems after 1800 became more **polygenetic** (all people having separate origins) rather than **monogenetic** (all people having a single origin). There was increased support for the notion that each race was created separately and with different attributes (intelligence, temperament, and appearance).

The 1800s was when the scientific measurement of human physical features (anthropometry) became popularized. However, empirical studies in the 1800s pushed even further the idea that Europeans were culturally and biologically superior to others. Samuel George Morton (1799–1851) was a scholar who had a large role in perpetuating 1800s scientific racism. By measuring cranial size and shape, he calculated that “Caucasians,” on average, have greater cranial volumes than other groups he referred to collectively as “Negros.” Today, we know that cranial size variation depends on such factors as Allen’s and Bergmann’s rules, which give a more likely explanation. The leading figures in craniometry during the 1800s instead were linked heavily with powerful individuals and wealthy sociopolitical institutions and financial bodies. Theories in support of hierarchical racial schemes using “scientific” bases certainly helped continue the exploitative and unethical trafficking and enslavement of Africans between the 1500s and 1800s. Morton went on to write a number of views that fit with a concept called **biological determinism**: that an association exists between people’s physical characteristics and their behavior, intelligence, ability, values, and morals. If the idea is that some groups of people are essentially superior to others in cognitive ability and temperament, then it is easier to justify the unequal treatment of certain groups based on outward appearances.

Another such problematic thinker was Paul Broca (1824–1880) (after whom that region of the frontal lobe related to language use is named). Influenced by Morton, Broca claimed that internal skull capacities could be linked with skin color and cognitive ability. He went on to justify the European colonization of other global territories by purporting it was noble for a biologically more “civilized” population to improve the “humanity” of more “barbaric” populations. Today, these theories of Morton, Broca, and others like them are known to have no scientific basis.

In the early 20th century, we saw a number of new figures coming into the science of human variation and shifting the theoretical focus within. Most notably, these included Aleš Hrdlička and Franz Boas. Hrdlička (1869–1943) was a Czech anthropologist who moved to the United States. As part of his work and the scope of the journal, he differentiated “**physical anthropology**” from other kinds of anthropology. Franz Boas (1858–1942) was a German American anthropologist who established the four-field anthropology system in the United States and founded the American Anthropological Association in 1902. He argued that the scientific method should be used in the study of human cultures and the comparative method for looking at human biology worldwide. One of Boas’s significant contributions to biological anthropology was the study of skull dimensions with respect to race concluding that, “There is no reason to believe that one race is by nature so much more intelligent, endowed with great willpower, or emotionally more stable than another, that the difference would materially influence its culture.” This conclusion directly contrasted with the theories of the past that relied on biological determinism and biological anthropologists today have found evidence that corroborates Boas’s explanations.

But the first half of the 1900s also involved essentialist research focused on proving racial determinism. Anthropologists like Francis Galton (1822–1911) and Earnest A. Hooton (1887–1954) created the field of **eugenics** as a way of “dealing with” criminals, diseased individuals, and “uncivilized” people. Eugenicists recommended prohibiting non-superior portions of the population from being married or sterilizing these members of society so they could no longer procreate. In the 1930s, Nazi Germany used this false idea of there being “pure races” to highly destructive effect. The need to be protected against admixture from “unfit” groups was their justification for their blatant racism and purging of citizens that fell under their subjective criteria.

Eugenicist ideas were popularly discussed around the world. The Immigration Restriction Act of 1924 was passed in the United States, with the explicit aim of reducing the country’s “burden” of people considered inferior. In the early 1900s, Chinese scientists and politicians showed great interest in eugenic ideologies influencing their medicine and laws. In 1950s apartheid South Africa, interracial marriages and sexual relations were banned by law. We still see the continuation of eugenics-based logic today around the world—in exclusionary immigration laws, cases of incarcerated prison inmates being forcibly sterilized, and the persistence of intelligence testing as a form of measuring people’s “fitness” in a society.

Shortly after World War II and the Nazi Holocaust, the full extent of essentialist, eugenicist thinking became clear. Social constructions of

race, and the notion that one can predict psychological or behavioral traits based on external appearance, had become unpopular both within and outside the discipline. It was up to those in the field of physical anthropology at the time to *separate physical anthropology from race concepts that supported unscientific and socially damaging agendas*. This does not mean that there are no physiological or behavioral differences between different members of the human species. However, going forward, several physical anthropologists saw human biological variation as more complicated than simple typologies could describe.

GENETICS AND VARIATION

All traits are genetic. Even if you spend hours at the gym and are totally ripped, that is still a genetic trait because genes produce chemicals that respond to all that work. *But all traits are also environmental.* For example, height has a genetic component, but diet, temperature, and elevation also play roles in how tall you will be by affecting whether genes will be expressed or not. Genes and environment can’t be separated; instead they interact to produce traits. Some traits, however, are more heritable than others, which means that environment plays a lesser role in its expression. Rather than the tired phrase “nature *versus* nurture”, it is more accurate to speak of “nature *through* nurture,” so even the most basic elements of human variation we might think of as ‘purely genetic’ are much more complicated than that.

Across our history, humans have developed the cultural practice of **racial classification**. This involves *assigning humans to categories based on phenotype*, especially traits that are outwardly apparent. Sadly, some of the worst work in this area was done by early ‘physical anthropologists’ who claimed to be classifying humans ‘scientifically.’ In the recent past, American children were taught that there are ‘five great races of the world’—a taxonomy that was hierarchical. This was the essentialist view of race—that there are discrete groups with large gaps between them. Under this view, “Caucasians” were the most ideal form, and everyone was of degenerate form of human. (Note: “Caucasian” or “Caucasoid” referred to the ‘race’ of people named for the Caucasus region in Eurasia from whom fair-skinned individuals were thought to have originated. This view was mistaken. Despite its continued use as synonymous with “white” in U.S. census data and elsewhere, this historical baggage makes it problematic.)

The essentialist view of race runs into immediate problems in light of *the continuous nature of traits*, especially skin, hair, and eye color. Skin color and eye color are not straightforward SNPs like lactose tolerance or sickle cell trait. Rather, they are influenced by several different genes, more than 15 for skin and 16 or more for eye color. Skin color is not an essentialist category, but rather a continuum. If skin color is meant to reflect deeper qualities of a person or a person’s wider genotype, what do we make of siblings, even fraternal twins, who are considered different races based on their skin color? And how does a single individual who shares perceived features of different races—like dark skin and blonde hair — get categorized? For instance, blonde hair arose independently in Europe and Melanesia and from different mutations. Which trait is

considered more important to race, and why? People decide, *culturally*, whether someone belongs to a race or not.

German anthropologist Johann Friedrich Blumenbach developed the notion of the ‘five great races.’ During Blumenbach’s time, nothing was known of genetics. The Augustinian friar Gregor Mendel (1822–1884), who began the study of genetics by working out the inheritance of pea plants, had not even been born. Instead Blumenbach based his categories on his perception of phenotype and his own biases. Many today assume still that racial categories correspond to deep underlying genetic differences. They do not.

With the Human Genome Project results, we know more about the genotypes of human populations. We now know that the genetic variation between any two individuals is about one tenth of one percent. Most genetic variation are found within populations around the world. As writer Malik Kenan in *Why Both Sides are Wrong in the Race Debate* writes, “Imagine that some nuclear nightmare wiped out the entire human race apart from one small population—say, the Masai tribe in East Africa. Almost all the genetic variation that exists in the world today would still be present in that one small group.” The differences between human populations are purely statistical, not essential or absolute. Populations are more likely to contain certain alleles, but not everyone has them. And statistical differences are found between virtually any two populations. If we decided that those categories would be useful and productive for society or science, there would be hundreds or thousands of races based on genetics. If you’re looking for statistical genetic differences between populations, you will find them. Even if there are genetic differences between populations they are influenced by likely hundreds of genes as well as the environment. We always have to decide which criteria, whether phenotypic or genotypic, to base our categories as well as why (and if) these categories are needed.

HUMAN VARIATION: OUR STORY CONTINUES

From the time that the first of our species left Africa, we have had to adjust and adapt to numerous environmental challenges. The remarkable ability of human beings to maintain homeostasis through a combination of both nongenetic (adjustments) and genetic (adaptations) means has allowed us to occupy a remarkable variety of environments, from high-altitude mountainous regions to the tropics near the equator. From adding piquant, pungent spices to our

foods as a means of inhibiting food-borne illnesses due to bacterial growth to donning garments specially suited to local climates, behavioral adjustments have provided us with a nongenetic means of coping with obstacles to our health and well-being. Acclimatory adjustments, such as sweating when we are warm in an attempt to regulate our body temperature or experiencing increased breathing rates as a means of increasing blood oxygen levels in regions where the partial pressure of oxygen is low, have been instrumental in our survival with respect to thermal and altitudinal environmental challenges. For some individuals, developmental adjustments that were acquired during their development and growth phases (e.g., increased heart and lung capacities for individuals from high-altitude regions) provide them with a form of physiological advantage not possible for someone who ventures to such an environmentally challenging region as an adult. Genetically mediated adaptations, such as variations in the pigmentation of our skin, have ensured our evolutionary fitness across all latitudes.

Will the human species continue to adjust and adapt to new environmental challenges in the future? If past performance is any measure of future expectations, then the human story will continue as long as we do not alter our environment to the point that the plasticity of our behavior, physiological, and morphological boundaries is exceeded. In the following chapters, you will explore additional information about our saga as a species. From the concept of race as a sociocultural construct to our epidemiological history, the nuances of evolutionary-based human variation are always present and provide the basis for understanding our history and our future as a species.

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CHAPTER OVERVIEW

3: CULTURAL ANTHROPOLOGY

As you might guess, cultural anthropology is the study of cultures (human societies, beliefs, practices, and ways of life). Of course, *all* of anthropology is keenly interested in 'culture.' As a result, some prefer the term 'social' or 'sociocultural' anthropology instead. These three terms (cultural, social, and sociocultural) are mostly interchangeable for our purposes. At the heart of cultural anthropology is an effort to understand *how people make meaning in their everyday worlds*—through language, symbols, rituals, social relationships, and systems of power. We have seen that humans share certain biological and cognitive capacities, but cultural anthropologists emphasize that people live within diverse frameworks of values, traditions, and knowledge that shape how they see themselves and others.

Remember the four subfields. Archaeology (stones) investigates the material remains of past societies to understand change over time. Biological anthropology (bones) examines human evolution, genetics, and variation, situating humanity within the broader context of primates and the natural world. Linguistic anthropology (tones) explores the structure, history, and social use of language as a uniquely human form of communication. Cultural anthropology (thrones) complements these areas by focusing on the lived experience of communities in the present and recent past, asking how culture shapes human behavior, and how humans in turn create and transform culture.

This chapter introduces cultural anthropology by first addressing two foundational questions: *What is culture?* (we'll revisit what we started with) and *How do anthropologists study it?* These questions lead us to consider the tools of fieldwork—participant observation,

interviews, and so on—that allow anthropologists to engage with the people whose worlds they seek to understand.

From there, we will explore several domains of human life that have been central to cultural anthropology:

- **Myth, Magic, and Ritual** – how belief systems and symbolic practices create meaning and order.
- **Exchange and Social Systems** – the ways humans organize production, subsistence, and reciprocity.
- **Marriage and Kinship** – how families, households, and descent systems structure social life.
- **Insider, Outsider, and Identity** – how gender, sexuality, race, ethnicity, subcultures, and movements of resistance shape belonging and difference.

We will see that cultural anthropology is not simply the study of “other cultures,” but a comparative approach to understanding the full spectrum of human diversity—including our own lives and societies. As we did with biological anthropology, our look at *cultural* anthropology will continue our efforts to define what it means to *be* human.

[3.1: What is Culture?](#)

[3.2: Participant Observation](#)

[3.3: Myth, Magic, and Ritual](#)

[3.4: Exchange and Social Systems](#)

[3.5: Marriage and Kinship](#)

[3.6: Insider, Outsider, and Identity](#)

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3.1: WHAT IS CULTURE?

Remember that culture is:

DEFINITION: CULTURE

The system of shared values, beliefs, behaviors, and artifacts, transmitted from one generation to the next, that the members of a group use to cope with their world and with each another.

Following from this definition, culture is 'inside' people's **minds**, involves **values**, is **automatic** and it is routine, visible in our **behaviors** and **what we make**, and '**embodied**' (never separate from us). We can also regularly see that culture has an odd tendency to be at once static and variable. On one hand, culture helps us make sense of rigid institutions, steadfast traditions, beliefs that have endured from ancient to modern times, and centuries-old practices. On the other hand, culture is about what helps us get by in the world and the world is very different than the world of the past. The concept of culture also helps us make sense of generational differences, adjustments, special circumstances, careful negotiations, and even revolutions at various scales. We can describe this consistency yet variability through several 'paradoxes of culture.'

THE PARADOXES OF CULTURE

Despite forces of change and controversy, there is something durable and shared about culture, some set of common elements that distinguishes the whole way of life of each society. Even as cultures change through innovation and contact, they often hold on to some of their distinctive features. In the 1980s, some scholars thought that increases in global trade, migration, and technology were transforming all the diverse societies of the world into one uniform global monoculture. In the 2020s, we see that the opposite has happened. In many parts of the world, we have seen a resurgence of cultural identities and explicit efforts to maintain, rehabilitate, and reinvent forms of cultural heritage.

So riddled with contradictions is the concept of culture that some anthropologists have suggested ditching the whole notion altogether and finding some other concept to bind together the four fields in their pursuit of knowledge about humanity. Perhaps such an integrated understanding of humanity isn't even possible. More productively, though, *the contradictions of culture are the most illuminating aspects of the culture concept*. Maybe those contradictions are anthropology's most important contribution to our understanding of humanity. Culture is the whole way of life of a people subject to a set of contradictory forces. These forces constitute four central paradoxes of culture.

CULTURE IS CONTINUOUS, BUT IT CHANGES

Cultural materials, practices, and ideas are handed down from older to younger members of a culture, giving some degree of continuity to culture over time. However, many factors can intervene in this process of cultural reproduction to subtly alter or dramatically change the elements and aggregates of culture. In some contexts, younger people either fail to precisely learn the culture of their elders or deliberately reject those cultural lessons. Through travel

and trade, people learn about other ways of doing things, and they take these ideas back to their own cultures, trying them out to see how they might improve their own ways of life. Accidents and deliberate experimentation introduce new possibilities. People may simply get tired of doing things one way over and over and thrill at some refreshing style or craze.

We can identify four main mechanisms of cultural change. These four mechanisms overlap and interact as the history of a culture unfolds over time. **Diffusion** is the movement of an element of culture from one society to another, often through migration or trade. **Friction** occurs when two or more elements of culture come into conflict, resulting in alteration or replacement of those elements. **Innovation** is the slight alteration of an existing element of culture, such as a new style of dress or dance. **Invention** is the independent creation of a new element of culture, such as a new technology, religion, or political form.

Some cultural inventions are so successful that they transform the whole way of life of a people. Consider the information technologies that have reshaped American life since the 1970s, such as computers, the Internet, and cell phones. These tools have changed the ways Americans communicate, work, learn, shop, navigate, and entertain themselves. Diffusing through trade, these inventions have transformed cultures all over the world in diverse ways. In many societies, modes of interacting through communication technologies come into conflict with norms for interacting face-to-face, creating friction between the two realms. Where the movements, behavior, and social relationships of young women are tightly controlled, for instance, mobile phones allow women to secretly make new friends, explore new topics of conversation, and engage in behavior their elders might not sanction.

CULTURE IS BOUNDED BUT MOBILE

Because many elements of culture are shaped by environmental forces, trading opportunities, and local histories of settlement, culture becomes associated with territory. But because of the mobility of people, objects, and ideas, culture rarely stays within the boundaries of any society; rather, it wanders restlessly along lines of travel, communication, conquest, and trade.



Figure 3.14 This fabric shop displays a number of colorful wax print patterns. Although wax print fabrics are now associated with Africa, the wax print technique actually originated in Indonesia. (credit: "National Colors" by Miranda Harple for Yenkassa.com/flickr, CC BY 2.0)

Certain integrated sets of things, practices, and ideas cluster in certain places. Take a look at the cloth in the figure above. This kind of cloth is quintessentially African. It's called wax print, and indeed, clothing made of wax-print cloth is very popular in many parts of Africa. Wax-print cloth is industrially produced cotton cloth with intricate designs and bold colors. In most African countries, a vast selection of designs and brands of wax prints can be found in any market. Rather than buying ready-made clothes in clothing shops, people more often purchase cloth in the market and take it to a seamstress or tailor to be made into the garment of their own choosing. Many wax-print designs are symbolic, serving as a means of nonverbal communication for the people who wear them.

This example and many others like it make it difficult to answer the question "**Whose culture is it?**"

Though iconically associated with African dress, wax print actually originated in Indonesia, derived from local techniques for making batik cloth. Batik is made using wax to draw designs on plain cotton cloth that is then immersed in a dye bath. When the wax is melted off, the design remains against the background of color. When the Dutch colonized Indonesia in the 1700s, Dutch merchants were impressed with the beauty of local batik and sought to use their own methods of mass-produced block printing to imitate the vibrant colors and elaborate designs of Indonesian cloth.

In the 1880s, Dutch and British merchants introduced their own mass-produced wax prints to people in their African colonies, particularly along the west coast of Africa. Dutch wax cloth was enthusiastically embraced by Africans, who began to infuse certain patterns with social meanings. With independence in the mid-20th century, many African countries developed their own wax-print textile industries using designs developed by local artists.

Exemplifying the cultural paradox of locality and mobility, wax-print cloth is culturally embedded in African culture while carrying a complex history of global trade, appropriation, and colonial domination. In the context of global power relations, the mobility of culture poses questions about who has the right to claim or use elements of culture diffused from elsewhere. As part of the process of cultural immersion and participant observation, many cultural

anthropologists adopt the dress, diet, gestures, and language of the peoples they study while they are conducting fieldwork. Often, anthropologists bring their love of these cultural elements back to their home societies and continue to use and practice them to show their appreciation for the cultures they have studied. However, some people may find it unsettling to see a white Euro-American anthropologist wearing an African wax-print dress—or a silk sari from India, or an ornately woven lliclla cape from Peru.

If someone is using cultural items as a way of honoring that culture, many people would think it's perfectly fine. If someone is wearing items from another culture as a form of humorous costume, such as a sports mascot or Halloween costume, most people would find that offensive. An even more serious problem emerges when a person uses or claims cultural elements from another society in order to make a profit. What if, for instance, someone from the American fashion industry copied a wax print motif such as *Sika wo antaban*, using the design for American clothing, housewares, or art? The elements of culture, both material and nonmaterial, constitute the **intellectual property** of the people of that culture. Claiming or using the elements of another culture inappropriately is called **cultural appropriation**.

CULTURE IS CONSENSUAL BUT CONTESTED

In any society, people interact using a set of assumptions about the sorts of behavior and speech considered appropriate to certain people in certain situations. That is to say, culture is consensual; through their words and actions, people agree to a certain way of doing things. Culture includes conventionalized roles, behavioral norms, and shared ideas for framing situations.

For example, imagine that someone in the United States has just graduated from college and is looking for a job. What should that person do? In the United States, it is common to spend time crafting an impressive résumé, using a specific form of technical language that accentuates the quality of a person's skills and experiences while demonstrating their educational background. A recent graduate would likely post this linguistic masterpiece to a job search website.

For many people in China, such a strategy would seem very rudimentary and even grossly inadequate. Seeking opportunities for education, employment, and business, people in China frequently rely on a cultural system known as *guanxi*. Informed by Confucianism, *guanxi* refers to gifts and favors exchanged among people in wide social networks based on mutual benefit. *Guanxi* is based on family ties but also includes relationships formed in schools, in workplaces, and even among strangers who meet at parties or through mutual friends.

Personal connections can be just as important as, if not more important than, the language or qualifications of a person's résumé. While Americans emphasize the importance of job-search techniques, personal connections also play a role in securing employment in the American context, particularly in highly paid, competitive industries such as software development and finance. In many societies, people prefer to work with people they trust. Rather than hiring a random stranger, many prefer to hire someone recommended by a trusted friend or business partner. In *guanxi*

relationships, relations of trust are established through the exchange of gifts and favors over time.

But what if the people who are hired in competitive industries are the ones who deployed their strategic social connections and not necessarily the ones who are most skilled, talented, or otherwise best suited to the work? What if people use their *guanxi* networks to obtain special privileges, such as government licenses or social services? Does *guanxi* facilitate and rationalize bribery and other acts of corruption? In 2012, the Chinese government launched an ambitious campaign against corruption among government officials. More than 100,000 people have been investigated and charged with corruption, including many high-ranking government officials, military officers, and senior executives of state-owned companies. *Guanxi* illustrates how culture can be generally taken for granted but also highly controversial. Many other cultural norms are also widely accepted but challenged and resisted by certain groups who are disadvantaged or limited by those norms. Gender roles are a good example, as are norms of sexuality and marriage.

CULTURE IS SHARED, BUT IT VARIES

Culture is widely yet unevenly shared among members of a group. Different members in a society have different perspectives on their shared culture. Among elites, the use of Chinese *guanxi* (or American “networking”) might seem to be a more personal and trustworthy process for making things happen. But for people who lack access to elite networks, these cultural norms may seem to be an exclusive and unfair tool of class oppression.

Consider the many versions of “home.” People in different subgroups and regions who otherwise belong to the same ‘culture’ can live in structures of different shapes and sizes that are made of different materials. And yet, the members of a culture do share a common set of assumptions about home. Home is where we live, where we sleep, and most often where our family lives as well. Even with such diversity, people in a society have a common image or ideal of home.

The four paradoxes all illustrate how culture operates as **a force of stability** in a society while **also generating forms of constant alteration, adaptation, and change**. As culture is mobile, controversial, and variable, some elements are always in the process of transformation even as other elements are maintained and reinforced. Over time, people reinterpret their cultural norms and practices and sometimes even reject them altogether in favor of some other way of thinking or doing things.

This paradoxical view of culture points to the dynamic tensions of people living in groups. Societies are collectivities of individuals, families, regional groups, ethnic groups, socioeconomic classes, political groups, and so on. Culture provides a way for people to live and work together while also allowing for the expression and performance of distinctive differences. Rather than breaking down, **culture responds to pressures for change with adaptation to new conditions**. (This sounds positively evolutionary!) The paradoxes that make culture seem impossible also make culture flexible and durable. In an era that combines increasing polarization with an urgent need for cooperative change, perhaps we need culture now more than ever.

HISTORICAL CONTEXT FOR STUDYING CULTURE

To see how these paradoxes are actually helpful to anthropologists, it is useful to have some historical context for how the discipline has approached different versions of these paradoxes since the beginning. From the early days, anthropologists have focused more or less on ‘structures’ and/or the ‘everyday’ lives and practices of the people they studied.

People throughout recorded history have relied on storytelling as a way to share cultural details. When early anthropologists studied people from other civilizations, they relied on the written accounts and opinions of others; they presented facts and developed their “stories,” about other cultures based solely on information gathered by others. These scholars did not have any direct contact with the people they were studying. This approach has come to be known as **armchair anthropology**. Simply put, if a culture is viewed from a distance (as from an armchair), the anthropologist tends to measure that culture from his or her own vantage point and to draw comparisons that place the anthropologist’s culture as superior to the one being studied. As we have seen, this point of view is also called **ethnocentrism**. **Ethnocentrism** is an attitude based on the idea that one’s own group or culture is better than any other.

Early anthropological studies often presented a biased ethnocentric interpretation of the human condition. For example, ideas about racial superiority emerged as a result of studying the cultures that were encountered during the colonial era. During the colonial era from the sixteenth century to the mid-twentieth century, European countries asserted control over land (Asia, Africa, the Americas) and people. European ideas of wrong and right were used as a measuring stick to judge the way that people in different cultures lived. These other cultures were considered ‘primitive,’ which was an ethnocentric term for people who were non-European. It is also a negative term suggesting that indigenous cultures had a lack of technological advancement. Colonizers thought that they were superior to the Other in every way.

An example of anthropological writing without the use of fieldwork is Sir E. B. Tylor’s 1871 work *Primitive Culture*. Tylor, who went on to become the first professor of anthropology at Oxford University in 1896, was an important influence in the development of sociocultural anthropology as a separate discipline. Tylor defined **culture** as “that complex whole which includes knowledge, belief, art, law, morals, custom, and any other capabilities and habits acquired by man as a member of society.” His definition of culture is still used frequently today and remains the foundation to the culture concept in anthropology. Despite the accuracy of this sort of definition, many nineteenth-century anthropologists still believed that cultures evolved through distinct stages. They labeled these stages with terms such as savagery, barbarism, and civilization. These theories of **cultural evolutionism** would later be successfully refuted, but conflicting views about cultural evolutionism in the nineteenth century highlight an ongoing nature versus nurture debate about whether biology shapes behavior more than culture.

Elaborating on Tylor’s scheme, American anthropologist Lewis Henry Morgan subdivided each of these three stages into an even

more elaborate model and proposed a mechanism for moving from stage to stage. Morgan focused on technology as the primary driver of cultural evolution. New and better ways of making things, according to Morgan, resulted in new patterns of social practice and thought. Advanced technology was associated with advanced civilization.

Armchair anthropologists were important in the development of anthropology as a discipline in the late nineteenth century because their work *did ask important questions*. Their problems came in from where they got their answers. These scholars were not directly experiencing the cultures they were studying. Their questions could ultimately only be answered by going into 'the field.'

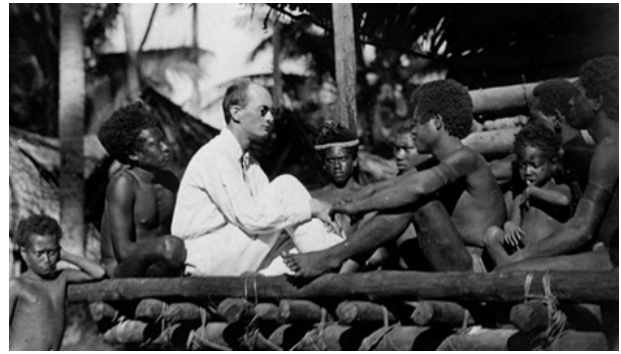
Disagreeing with the way of thinking of Tylor and Morgan, anthropologists such as Franz Boas argued that there is no single line of cultural evolution but that each culture changes according to its own unique historical trajectory. Moreover, cultures evolve not in isolation but in constant interaction with one another. Rather than focusing on technological changes within a culture, Boas highlighted the **diffusion** of material objects, practices, and ideas among cultures in complex relations of trade, migration, and conquest.

Common among all of these early anthropological ideas of 'culture,' however, is the recognition that cultures *did* change over time—and yet there were observable 'snapshots' which could be studied as culture. For the latter group (Boas etc.), in some sense, the history of a culture was as much a part of its present description and this would lead to the concept of **holism** we looked at in the beginning. Further, to best understand a present culture, one needed to rely on one's own observational data and understanding; given the paradoxes of culture, any culture was simply too complex to fully understand from second-hand narratives.

The armchair approach changed when scholars such as Bronislaw Malinowski, Alfred Radcliffe-Brown, Franz Boas, and Margaret Mead took to 'the field' and studied by being **participants and observers**. As they did, *fieldwork became the most important tool anthropologists used to understand the "complex whole" of culture.*

Once it came about, **participant observation fieldwork** became the most important tool anthropologists used to understand the "complex whole" of culture.

Bronislaw Malinowski, a Polish anthropologist, was greatly influenced by armchair anthropology but used more innovative ethnographic techniques, and his fieldwork took him "off the veranda" to study different cultures. The **off the veranda** approach is different from armchair anthropology because it includes active **participant-observation**: traveling to a location, living among people, and observing their day-to-day lives.



Bronislaw Malinowski in the Trobriand Islands, 1915–1918

Malinowski's *The Argonauts of the Western Pacific* (1922) was considered the first modern **ethnography** and redefined the approach to fieldwork. Malinowski lived with Trobriand Islanders and observed life in their villages. By living among "islanders," Malinowski was able to learn about their social life, food and shelter, sexual behaviors, community economics, patterns of kinship, and family.

Malinowski "went native" to some extent during his fieldwork with the Trobriand Islanders. **Going native** means to become fully integrated into a cultural group: taking leadership positions and assuming key roles in society; entering into a marriage or spousal contract; exploring sexuality or fully participating in rituals. When an anthropologist goes native, the anthropologist is personally involved with locals. In *The Argonauts of the Western Pacific*, Malinowski suggested that other anthropologists should "grasp the native's point of view, his relations to life, to realize his vision of his world." As you can likely imagine, the practice of going native presented problems from an ethical point of view. Participant-observation is a method to gather ethnographic data, but going native places both the anthropologist and the culture group at risk by blurring the lines on both sides of the relationship.

The discipline of cultural anthropology developed somewhat differently in Europe and the United States. Many European anthropologists were particularly interested in questions about how societies were structured and how they remained stable over time. This highlighted emerging recognition that culture and society are not the same.

European anthropologists developed theories of **functionalism** to explain how social institutions contribute to the organization of society and the maintenance of social order. Bronislaw Malinowski believed that cultural traditions were developed as a response to specific human needs such as food, comfort, safety, knowledge, reproduction, and economic livelihood. One *function* of educational institutions like schools, for instance, is to provide knowledge that prepares people to obtain jobs and make contributions to society. Although he preferred the term **structural-functionalism**, the British anthropologist A.R. Radcliffe-Brown was also interested in the way that social structures functioned to maintain social stability in a society over time. He suggested that in many societies it was the family that served as the most important social structure because family relationships determined much about an individual's social, political, and economic relationships and these patterns were repeated from one generation to the next. In a family unit in which

the father is the breadwinner and the mother stays home to raise the children, the social and economic roles of both the husband and the wife will be largely defined by their specific responsibilities within the family. If their children grow up to follow the same arrangement, these social roles will be continued in the next generation.

Structural functionalism focused more on how the various structures in society reinforce one another. Culture is not a random assortment of structural features but a set of structures that fit together into a coherent whole. Common norms and values are threaded through the family structure, the economy, the political system, and the religion of a culture. Structural functionalists conceptualized culture as a kind of machine with many small parts all working in tandem to keep the machine operating properly. While recognizing the value of this approach, contemporary anthropologists have complicated the mechanistic model of culture by pointing out that the various elements of culture come into conflict just as often as they reinforce one another. The holistic approach to culture as an integrated system is derived from this important theoretical foundation.



Claude Lévi-Strauss [Source: UNESCO/Michel Ravassard via [Wikimedia Commons](#)]

In a different sense, the term "structure" can refer to patterns of thought embedded in the culture of a people—that is, *conceptual structure*. French anthropologist **Claude Lévi-Strauss** (1908-2009) pioneered this approach, sometimes called **French structuralism**. Lévi-Strauss considered culture to be a system of symbols that could be analyzed in the various realms of culture, including myths, religion, and kinship. In these realms of culture, objects and people are organized into *symbolic systems of classification*, often structured around binary oppositions. Binary oppositions are pairs of terms that are opposite in meaning, such as light/dark, female/male, and good/evil. For example, kinship systems are varied and complex, but they are fundamentally structured by oppositions such as male versus female, older versus younger, relation by blood versus relation by marriage, and one of us and not one of us. Lévi-Strauss examined myths as well, showing how the characters and plots emphasize binary oppositions. Consider the many European folktales featuring an evil stepmother (Cinderella, Sleeping Beauty), a character that combines the opposition of good versus evil with the opposition of blood relation versus relation by marriage. Lévi-Strauss argued that myths operate as public arenas for conceptually pondering and processing the fundamental categories and relations of a culture.

In the twentieth century, functionalist approaches also became popular in North American anthropology, but eventually fell out of favor. One of the biggest critiques of functionalism is that it views cultures as stable and orderly and ignores or cannot explain social change. Functionalism also struggles to explain why a society develops one particular kind of social institution instead of another. Functionalist perspectives did contribute to the development of more sophisticated concepts of culture by establishing the importance of social institutions in holding societies together. During the development of anthropology in North America (Canada, United States, and Mexico), the significant contribution made by the American School of Anthropology in the nineteenth and twentieth centuries was the concept of **cultural relativism**. As a reminder, this is the idea that cultures cannot be objectively understood since all humans see the world through the lens of their own culture.

The participant-observation method of fieldwork was a revolutionary change to the practice of anthropology, but at the same time it presented problems that needed to be overcome. The challenge was to move away from ethnocentrism, race stereotypes, and colonial attitudes, and to move forward by encouraging anthropologists to maintain high ethical standards and open minds.



Franz Boas, One of the Founders of American Anthropology, 1915

Recall that Franz Boas, an German-American anthropologist, is acknowledged for redirecting American anthropologists away from cultural evolutionism and toward cultural relativism. Because he was a trained scientist, he was familiar with using empirical methods as a way to study a subject. Empirical methods are based on evidence that can be tested using observation and experiment. Boas is often considered the originator of American anthropology because he trained the first generation of American anthropologists including Ruth Benedict, Margaret Mead, and Alfred Kroeber. Using a commitment to cultural relativism as a starting point, these students continued to refine the concept of culture.

Benedict's *Patterns of Culture* (1934) emphasized that culture gives people coherent patterns for thinking and behaving. She argued that culture affects individuals psychologically. Benedict was a professor at Columbia University and in turn greatly influenced her student Margaret Mead, who went on to become one of the most well-known female American cultural anthropologists. Mead was a pioneer in conducting ethnographic research at a time when the discipline was predominately male. Her 1925 research on adolescent girls on the island of Ta'ū in the Samoan Islands, published as *Coming of Age in Samoa* (1928), revealed that teenagers in Samoa

did not experience the same stress and emotional difficulties as those in the United States. The book was an important contribution to the nature versus nurture debate, providing an argument that learned cultural roles were more important than biology. The book also reinforced the idea that individual emotions and personality traits are products of culture.



Ruth Benedict (1936)



Margaret Mead (1954)

Alfred Louis Kroeber, also shared the commitment to field research and cultural relativism, but Kroeber was particularly interested in how cultures *change over time* and influence one another. In *The Nature of Culture* (1952), Kroeber examined the historical processes that led cultures to emerge as distinct configurations as well as the way cultures could become more similar through the spread or diffusion of cultural traits. Kroeber was also interested in language and the role it plays in transmitting culture. He devoted much of his career to studying Native American languages in an attempt to document these languages before they disappeared.

Boas and his students added to definitions of culture by emphasizing the importance of **enculturation**, the process of learning culture. Benedict, Mead, and others established that culture shapes individual identity, self-awareness, and emotions in fundamental ways. They emphasized the need for **holism**, approaches to research that considered the entire context of a society including its history.

Though theories of unilineal cultural evolution have been largely abandoned, some anthropologists are still interested in discovering regular patterns that might govern how human cultures change over long periods of time. In the 1950s, American anthropologist Julian Steward developed an approach called **cultural ecology**, recognizing the importance of environmental factors by focusing on how humans adapt to various environments. Steward's approach

showed how humans in each environmental zone develop a set of core cultural features that enable them to make a living. Central to each cultural core are ways of getting or making all the resources necessary for human survival—in particular, food, clothing, and shelter. Similarly, anthropologist Marvin Harris developed a theory called **cultural materialism**, arguing that technology and economic factors are fundamental to culture, molding other features such as family life, religion, and politics.

By the late twentieth century, new approaches to "symbolic anthropology" put language at the center of analysis. Later on, Clifford Geertz, the founding member of "postmodernist anthropology," noted in his book *The Interpretation of Cultures* (1973) that culture should not be seen as something that was "locked inside people's heads." Instead, culture is publicly communicated through speech and behavior. **Culture**, he concluded, is "an historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate, and develop their knowledge about and their attitudes toward life." This definition, which continues to be influential today, reflects the influence of many earlier efforts to refine the concept of culture in American anthropology.

DEFINITION: CULTURE (ACCORDING TO CLIFFORD GEERTZ)

An historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which [humans] communicate, perpetuate, and develop their knowledge about and their attitudes toward life.

What is common among these many approaches to the culture concept is that they are each a way to make analytical sense of the paradoxes it seems to contain. In the next section, we will look more closely at **participant observation** as an approach. For now, it is worth noting that given the complexities and sometimes delicate topics a 'culture' often entails (violence, death, sex, struggles for power, and so on), studying people and, ultimately, telling stories about them—regardless of if you are interested in their static forms and shared ideas, changing practices and new perspectives, or both—comes with its own set of ethical challenges.

ETHICAL ISSUES IN TRUTH TELLING

As anthropologists developed more sophisticated concepts of culture, they also gained a greater understanding of the ethical challenges associated with anthropological research. Because participant-observation fieldwork brings anthropologists into close relationships with the people they study, many complicated issues can arise. Cultural relativism is a perspective that encourages anthropologists to show respect to members of other cultures, but it was not until after World War II that the profession of anthropology recognized a need to develop formal standards of professional conduct.

The Nuremberg trials, which began in 1945 in Nuremberg, Germany and were conducted under the direction of the France, the Soviet

Union, the United Kingdom, and the United States, prosecuted members of the Nazi regime for war crimes. In addition to military and political figures, physicians and scientists were also prosecuted for unethical human experimentation and mass murder. The trials demonstrated that physicians and other scientists could be dangerous if they used their skills for abusive or exploitative goals. The Nuremberg Code that emerged from the trials is considered a landmark document in medical and research ethics. It established principles for the ethical treatment of the human subjects involved in any medical or scientific research.

Many schools adopted principles from the Nuremberg Code to write ethical guidelines for the treatment of human subjects. Anthropologists and students who work in colleges and universities where these guidelines exist are obliged to follow these rules. The [American Anthropological Association](#) (AAA), along with many anthropology organizations in other countries, developed codes of ethics describing specific expectations for anthropologists engaged in research in a variety of settings. The principles in the AAA code of ethics include: do no harm; be open and honest regarding your work; obtain informed consent and necessary permissions; ensure the vulnerable populations in every study are protected from competing ethical obligations; make your results accessible; protect and preserve your records; and maintain respectful and ethical professional relationships. These principles sound simple, but can be complicated in practice.

A serious and complicated incident illustrating ethical concerns in anthropology is research conducted among the Yanomami, an indigenous group living in the Amazon rainforest in Brazil and Venezuela. Starting in the 1960s, the anthropologist Napoleon Chagnon and James Neel, a geneticist, carried out research among the Yanomami. Chagnon was investigating theories about the role of violence in Yanomami society. In 2000, an American journalist, Patrick Tierney, published a book about Chagnon and Neel's research which contained numerous stunning allegations, including a claim that the pair had deliberately infected the Yanomami with measles, conducted medical experiments without the consent of the Yanomami, and that Chagnon had deliberately created conflicts between Yanomami groups so he could study the resulting violence. These allegations were brought to the attention of the American

Anthropological Association, and a number of inquiries were eventually conducted. Chagnon steadfastly denied the allegations. In 2002, the AAA judged him to have misrepresented the violent nature of Yanomami culture and caused them harm. In 2005, the AAA rescinded its own conclusion, citing problems with the investigation process. Chagnon was never definitively pronounced guilty nor exonerated. Years later, debate over this episode continues. The controversy demonstrates the extent to which truth can be elusive in anthropological inquiry. Although anthropologists should not be storytellers in the sense that they deliberately create fictions, differences in perspective and theoretical orientation create unavoidable differences in the way anthropologists interpret the same situation. Anthropologists must try to use their toolkit of theory and methods to ensure that the stories they tell are truthful and represent the voice of the people being studied using an ethical approach.



Yanomami Woman and Child, 1997

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3.2: PARTICIPANT OBSERVATION

FIELDWORK / ETHNOGRAPHY

Fieldwork is the most important method by which cultural anthropologists gather data to answer their research questions. While interacting on a daily basis with a group of people, cultural anthropologists document their observations and perceptions and adjust the focus of their research as needed. They typically spend a few months to a few years living among the people they are studying. The “field” can be anywhere the people are—a village in highland Papua New Guinea or a supermarket in downtown Minneapolis. Just as marine biologists spend time in the ocean to learn about the behavior of marine animals and geologists travel to a mountain range to observe rock formations, anthropologists go to places where people are.

Both the work done by anthropologists to study cultures as well as the written accounts of that work are referred to as ‘ethnography.’ The word **ethnography** comes from the Greek for ‘people’ (or culture) and ‘writing’ (or description). Just as ‘geography’ is writing about or descriptions of ‘earth’ as well as the work done by geographers, *ethnography* is writing about or descriptions of cultures as well as the work done by ethnographers—a title anthropologists like to claim for themselves but which can just as well apply to sociologists, educators, and others in social science or humanities fields.

Ethnography is cultural anthropology’s distinctive research strategy. It was originally developed by anthropologists to study small-scale, relatively isolated cultural groups. Typically, those groups had relatively simple economies and technologies and limited access to larger, more technologically advanced societies. Early ethnographers sought to understand the entirety of a particular culture. They spent months to years living in the community, and in that time, they documented in great detail every dimension of people’s lives, including their language, subsistence strategies, political systems, formation of families and marriages, and religious beliefs. This was important because it helped researchers appreciate the interconnectedness of all dimensions of social life. The key to the success of this ethnographic approach was not only to spend considerable time observing people in their home settings engaged in day-to-day activities but also to participate in those activities. Participation informed an ‘insider’ perspective of the culture, something that had been missing in earlier social science research.

SOURCES OF ETHNOGRAPHIC DATA

Working in the field often places anthropologists in settings very different from what they are familiar with. Upon first arriving at an unfamiliar field location, it is common for anthropologists to feel out of place and uncomfortable as they adjust to a new culture and environment. Many anthropologists keep a daily log of their feeling and impressions in their new environment. Researchers studying other cultures practice a method called **participant observation**, which entails directly participating in the activities and events of a host culture and keeping records of observations about these activities.

Of the various techniques and tools used to conduct ethnographic research, observation in general and participant observation in particular are among the most important. Ethnographers are trained to pay attention to everything happening around them when in the field—from routine daily activities such as cooking dinner to major events such as an annual religious celebration. They observe how people interact with each other, how the environment affects people, and how people affect the environment. To conduct participant observation, ethnographers must live with or spend considerable time with their informants to establish a strong rapport with them. Rapport is a sense of trust and a comfortable working relationship in which the informant and the ethnographer are at ease with each other and agreeable to working together. It is essential for anthropologists to rigorously document their observations, usually by writing field notes and recording their feelings and perceptions in a personal journal or diary.

Researchers may create various types of records of their interactions as participants and their observations about the host culture and environment. These might take the form of field notebooks, computer files, digital recordings, photographs, or film. Researchers working in the field may also collect objects that will remind them of the culture they are studying, often memorabilia such as maps, tourism brochures, books, or crafts made by the people they are observing.

Some researchers regularly record impressions of activities while they are occurring so that they do not forget to make note of important aspects of the culture. But many researchers will wait to take photos, draw images, or write in their notebooks until after an activity is over so that they do not disturb the culture through their efforts at documentation. This type of ‘field notes’ is described in greater detail below. In any case, it is important that researchers be respectful and responsible and always ask for permission from subjects before taking photos or recordings. Many researchers will have gathered signed permission from their subjects before beginning their research and will work with a documented plan that has been approved by their institution before going into the field.

Another primary technique for gathering ethnographic data is simply talking with people—from casual, unstructured conversations about ordinary topics to formal scheduled interviews about a particular topic. An important element for successful **conversations and interviews** is establishing rapport with informants. Sometimes, engaging in conversation is part of establishing that rapport. Ethnographers frequently use multiple forms of conversation and interviewing for a single research project based on their particular needs. They sometimes record the conversations and interviews with an audio recording device but more often they simply engage in the conversation and then later write down everything they recall about it. Conversations and interviews are an essential part of most ethnographic research designs because spoken communication is central to humans’ experiences.

Interviews can be uncomfortable for people, and it is important that researchers do all they can to help subjects feel at ease. Researchers

will normally conduct an interview in a familiar space for the informant, such as the informant's home. They will help the subject ease into the interview by participating in introductory and hosting protocols followed in that culture when a visitor comes to someone's home. The researcher will start off the interview with the exchange of pleasant comments and will introduce themselves by explaining who they are, where they come from, and why they are doing this research. Then the interview may commence.

Collecting a personal narrative of someone's life is a valuable ethnographic technique and is often combined with other techniques. **Life histories** provide the context in which culture is experienced and created by individuals and describe how individuals have reacted, responded, and contributed to changes that occurred during their lives. They also help anthropologists be more aware of what makes life meaningful to an individual and to focus on the particulars of individual lives, on the tenor of their experiences and the patterns that are important to them. Researchers often include life histories in their ethnographic texts as a way of intimately connecting the reader to the lives of the informants.

Within any culture or subculture, there are always particular individuals who may have more-detailed or privileged knowledge. Anthropologists conducting ethnographic research in the field often seek out such cultural specialists to gain a greater understanding of certain issues and to answer questions they otherwise could not answer. When an anthropologist establishes a rapport with these individuals and begins to rely more on them for information than on others, the cultural specialists are referred to as **key informants**. These individuals can allow the ethnographer to uncover the meanings of behaviors and practices the researcher cannot otherwise understand. Key informants can also help researchers by directly observing others and reporting those observations to the researchers, especially in situations in which the researcher is not allowed to be present or when the researcher's presence could alter the participants' behavior. In addition, ethnographers can check information they obtained from other informants, contextualize it, and review it for accuracy. Having a key informant in the field is like having a research ally. The relationship can grow and become enormously fruitful.

The use of participant observation, interviews, and life histories are the bread and butter of today's anthropological fieldwork because they ultimately work to reveal the paradoxes of culture. These methods and a few other related techniques are part of anthropology's wholistic approach because they are based on the principle that *humans are the foremost experts about themselves*. The resolutions to the paradoxes of culture can only be understood from the perspective of the culture itself. This is contrary to the old style of anthropology based on outsider description alone.

ETHICAL CONSIDERATIONS

Contemporary sociocultural researchers and anthropologists must follow protocols established by an **institutional review board (IRB)** and any research protocols specific to the culture being researched. IRBs are committees under scholarly organizations (usually universities) that review and approve research plans before any research begins. The proposed research is normally fully planned

first, with specific information about the type of research, examples of questions to be asked, potential risk factors to subjects, plans for emotional support for subjects, means of protecting the identity of subjects, language used to fully disclose the intent of the project to subjects, and the final plan for archiving the research data. IRB 'informed consent' protocols ensure informants can freely choose their participation or withdraw, safeguarding against harm.

Additionally, many Indigenous nations and foreign countries have their own research protocols and processes for securing permission to conduct research. Researchers must often gain written consent for interviews, be transparent about their goals, protect anonymity, and specify how data will be archived or destroyed. Content may appear in publications, but collaborators often retain rights to review, correct, or even own the material, and many researchers now establish long-term, trust-based relationships with subject communities, returning regularly, involving them in project design, and seeking to address their needs. This open-ended, applied research has grown in response to critiques by scholars such as Vine Deloria Jr., who questioned the benefits of earlier anthropology for those it studied; in such projects, communities help decide what should be published, sometimes requiring manuscripts to be reviewed by tribal councils or committees. Increasingly, researchers assign ultimate ownership or even authorship to the communities themselves.

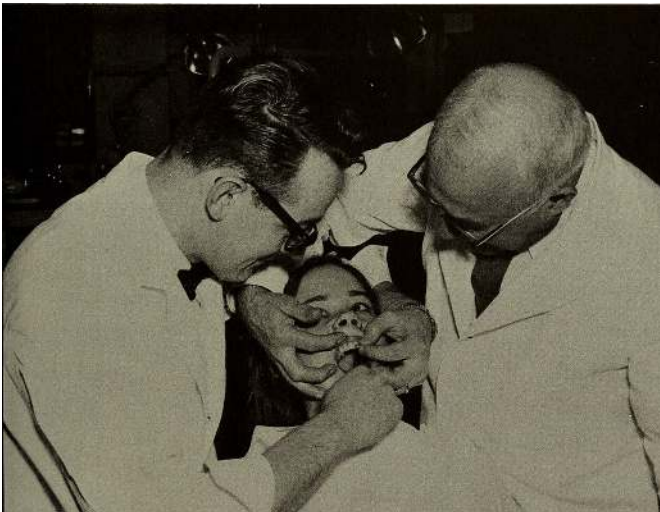
Anthropologists must be especially careful about the ethical aspects of their fieldwork. For one, we have seen that 'culture' has a great deal to do with sometimes sensitive topics—including the ultimate values (and *internal* ethics) of a group. Furthermore, some anthropologists argue that truly 'informed consent' pollutes their data. Having subjects sign a document acknowledging that you are watching them impacts the behavior the anthropologist gets to see. Part of the work of IRBs is to work with researchers to strike this balance between method and protecting those being studied. For example, in some cases, an IRB will approve research without directly informed consent in writing so long as it is based on *public* behavior and no individually identifiable information is included in the final publication. In the case of interviews, researchers must often share the degree to which a person will be anonymized in the resulting work.

MAKING THE STRANGE FAMILIAR AND THE FAMILIAR STRANGE

The cultural anthropologist's goal during fieldwork is to describe a group of people to others in a way that *makes strange or unusual features of the culture seem familiar and familiar traits seem extraordinary*. The point is to help people think in new ways about aspects of their own culture by comparing them with other cultures. Recall that Margaret Mead (a student of Franz Boas) studied young women in villages in Samoa and found that the stress, anxiety, and turmoil of American adolescence were not found among Samoan youth. Rather, young women in Samoa experienced a smooth transition to adulthood with relatively little stress or difficulty. Boas described what he saw as the key insight of Margaret Mead's research to be that "her painstaking investigation confirm the suspicion long held by anthropologists that much of what we ascribe

to human nature is no more than a reaction to the restraints put upon us by our civilization.”

Another classic example of a style of anthropological writing that attempted to make the familiar strange and encouraged readers to consider their own cultures in a different way is Horace Miner’s *Body Ritual among the Nacirema* (1956). The essay described hygiene practices of the Nacirema in a way that, to cultural insiders, sounded extreme, exaggerated, and out of context. He presented the Nacirema as a little-known cultural group with strange, exotic practices. The twist was that he was describing what was then modern American culture: Nacirema is “American” spelled backwards. Miner wrote the essay during an era in which anthropologists were just beginning to expand their focus beyond small-scale traditional societies far from home to large-scale post-industrial societies such as the United States. He wrote the essay primarily as a satire of how anthropologists often wrote about “the Other” in ways that made other cultures seem exotic and glossed over features that the Other had in common with the anthropologist’s culture. The essay also challenged U.S. readers in general and anthropologists in particular to think differently about their own cultures and re-examine their cultural assumptions about what is “normal.”



Miner detailed the seemingly barbaric practices of ‘holy mouth men’ and the Nacirema obsession with oral cleanliness. [Source Harvard School of Dental Medicine via [Wikimedia Commons](#)]

When anthropologists conduct fieldwork, they gather data. An important tool for gathering anthropological data is another subtly different sense of the word ‘ethnography’—the in-depth study of everyday practices and lives of a people. Ethnography produces a detailed description of the studied group at a particular time and location, also known as a “**thick description**,” a term coined by anthropologist Clifford Geertz in his 1973 book *The Interpretation of Cultures* to describe this type of research and writing. A thick description explains not only the behavior or cultural event in question but also the context in which it occurs and anthropological interpretations of it. Such descriptions help readers better understand the internal logic of why people in a culture behave as they do and why the behaviors are meaningful to them. This is important because understanding the attitudes, perspectives, and motivations of cultural insiders is at the heart of anthropology.

EMIC AND ETIC PERSPECTIVES

Different types of data produce different kinds of ethnographic descriptions, which also vary in terms of perspective—from *the perspective of the studied culture* (**emic**) or *from the perspective of the observer* (**etic**). Emic perspectives refer to descriptions of behaviors and beliefs in terms that are meaningful to people who belong to a specific culture, e.g., how people perceive and categorize their culture and experiences, why people believe they do what they do, how they imagine and explain things. To uncover emic perspectives, ethnographers talk to people, observe what they do, and participate in their daily activities with them. Emic perspectives are essential for anthropologists’ efforts to obtain a detailed understanding of a culture and to avoid interpreting others through their own cultural beliefs.

Etic perspectives refer to explanations for behavior by an outside observer in ways that are meaningful to the observer. For an anthropologist, etic descriptions typically arise from conversations between the ethnographer and the anthropological community. These explanations tend to be based in science and are informed by historical, political, and economic studies and other types of research. The etic approach acknowledges that members of a culture are unlikely to view the things they do as noteworthy or unusual. They cannot easily stand back and view their own behavior objectively or from another perspective. For example, you may have never thought twice about the way you brush your teeth and the practice of going to the dentist or how you experienced your teenage years. For you, these parts of your culture are so normal and “natural” you probably would never consider questioning them. An emic lens gives us an alternative perspective that is essential when constructing a comprehensive view of a people.

Most often, ethnographers include both emic and etic perspectives in their research and writing. They first uncover a studied people’s understanding of what they do and why and then develop additional explanations for the behavior based on anthropological theory and analysis. Both perspectives are important, and it can be challenging to move back and forth between the two. Nevertheless, that is exactly what good ethnographers must do.

Because of how useful the ethnographic research strategy is in developing an emic perspective, it has been adopted by many other disciplines including sociology, education, psychology, and political science. Education researchers, for example, use ethnography to study children in classrooms to identify their learning strategies and how they understand and make sense of learning experiences. Sociologists use ethnography to study emerging social movements and how participants in such movements stay motivated and connected despite their sometimes-conflicting goals.

THE IMPORTANCE OF FIELD NOTES

Field notes are indispensable when conducting ethnographic research. Although making such notes is time-consuming, they form the primary record of one’s observations. Generally speaking, ethnographers write two kinds of notes: field notes and personal reflections. Field notes are detailed descriptions of everything the ethnographer observes and experiences. They include specific details about what happened at the field site, the ethnographer’s

sensory impressions, and specific words and phrases used by the people observed. They also frequently include the content of conversations the ethnographer had and things the ethnographer overheard others say. Ethnographers also sometimes include their personal reflections on the experience of writing field notes. Often, brief notes are jotted down in a notebook while the anthropologist is observing and participating in activities. Later, they expand on those quick notes to make more formal field notes (or thick descriptions), which may be organized and typed into a report. It is common for ethnographers to spend several hours a day writing and organizing field notes.

Ethnographers often also keep a personal journal or diary that may include information about their emotions and personal experiences while conducting research. These personal reflections can be as important as the field notes. Ethnography is not an objective science. Everything researchers do and experience in the field is filtered through their personal life experiences. Two ethnographers may experience a situation in the field in different ways and understand the experience differently. For this reason, it is important for researchers to be aware of their reactions to situations and be mindful of how their life experiences affect their perceptions. In fact, this sort of reflexive insight can turn out to be a useful data source and analytical tool that improves the researcher's understanding.

The work of anthropologist Renato Rosaldo provides a useful example of how anthropologists can use their emotional responses to fieldwork situations to advance their research. In 1981, Rosaldo and his wife, Michelle, were conducting research among the Ilongots of Northern Luzon in the Philippines. Rosaldo was studying men in the community who engaged in emotional rampages in which they violently murdered others by cutting off their heads. Although the practice had been banned by the time Rosaldo arrived, a longing to continue headhunting remained in the cultural psyche of the community.

Whenever Rosaldo asked a man why he engaged in headhunting, the answer was that rage and grief caused him to kill others. At the beginning of his fieldwork, Rosaldo felt that the response was overly simplistic and assumed that there had to be more to it than that. He was frustrated because he could not uncover a deeper understanding of the phenomenon. Then, on October 11, 1981, Rosaldo's wife was walking along a ravine when she tripped, lost her footing, and fell 65 feet to her death, leaving Rosaldo a grieving single father. In his essay "Grief and a Headhunter's Rage," Rosaldo later wrote that it was his own struggle with rage as he grieved for his wife that helped him truly grasp what the Ilongot men meant when they described their grief and rage. Only through the very personal and emotionally devastating experience of losing his wife was Rosaldo able to understand the emic perspective of the headhunters. The result was an influential and insightful ethnographic account.

METHODS TO FIT THE SITUATION

Like the cultures and peoples studied, anthropology and ethnography are evolving. Field sites for ethnographic research are no longer exclusively located in far-flung, isolated, non-industrialized societies. Increasingly, anthropologists are conducting ethnographic

research in complex, technologically advanced societies such as the United States and in urban environments elsewhere in the world. Often, anthropologists who study certain topics must conduct research in multiple locations. This is known as multi-sited ethnography.

Anthropologists use ethnography to study people wherever they are and however they interact with others. New technological "sites" of human interaction (such as 'virtual worlds') are fascinating to many ethnographers and have expanded the definition of fieldwork.

In the early years, ethnographers were interested in exploring the entirety of a culture. Taking an **inductive** approach, they generally were not concerned about arriving with a relatively narrow predefined research topic. Instead, the goal was to explore the people, their culture, and their homelands and what had previously been written about them. The focus of the study was allowed to emerge gradually during their time in the field. Often, this approach to ethnography resulted in rather *general ethnographic descriptions*.

Today, anthropologists are increasingly taking a more **deductive** approach to ethnographic research. Rather than arriving at the field site with only general ideas about the goals of the study, they tend to select *a particular problem before arriving and then let that problem guide their research*. Following a research "problem" orients and guides a study from beginning to end focusing on the things most closely related to the research problem rather than every dimension of informants' lives.

Increasingly, cultural anthropologists are also using **quantitative research methods** to complement **qualitative approaches**. Qualitative research in anthropology aims to comprehensively describe human behavior and the contexts in which it occurs while quantitative research seeks patterns in numerical data that can explain aspects of human behavior. Quantitative patterns can be gleaned from statistical analyses, maps, charts, graphs, and textual descriptions. Surveys are a common quantitative technique that usually involves closed-ended questions. While surveys usually lack the sort of contextual detail associated with qualitative research, they tend to be relatively easy to code numerically and, as a result, can be easier to analyze than qualitative data. Surveys are also useful for gathering specific data points within a large population, something that is challenging to do with many qualitative techniques.

In recent years, anthropologists have begun to combine ethnography with other types of research methods. These **mixed-method approaches** integrate qualitative and quantitative evidence to provide a *more comprehensive analysis*. For instance, anthropologists can combine ethnographic data with questionnaires, statistical data, and a media analysis. Mixed methods can be particularly useful when conducting problem-oriented research on complex, technologically advanced societies such as the United States. Detailed statistical and quantitative data are often available for those types of societies. Additionally, the general population is usually literate and somewhat comfortable with the idea of filling out a questionnaire.

Remember that the guiding philosophy of modern anthropology is **cultural relativism**—the idea that we should seek to understand another person's beliefs and behaviors from the perspective of their

culture rather than our own. Anthropologists do not judge other cultures based on their values nor view other cultural ways of doing things as inferior. Instead, anthropologists seek to understand people's beliefs within the system they have for explaining things.

As a result, anthropologists reject **ethnocentrism**—the tendency to view one's own culture as most important and correct and as a stick by which to measure all other cultures. People who are ethnocentric view their own cultures as central and normal and reject all other cultures as inferior and morally suspect. All people and cultures are ethnocentric to some degree. Often the answer to the most complex cultural questions is simply “because that is how it is done.” We believe what we believe and doing things any other way seems wrong. *Compare this to definitions of culture itself!*

Ethnocentrism is not a useful perspective in contexts in which people from different cultural backgrounds come into close contact with one another, as is the case in many cities and communities throughout the world. People increasingly find that they must adopt culturally relativistic perspectives in governing communities and as a guide for their interactions with members of the community. For anthropologists in the field, cultural relativism is especially important. We must set aside our innate ethnocentrisms and let cultural relativism guide our inquiries and interactions with others so that our observations are not biased. Cultural relativism is at the core of the discipline of anthropology.

REVISITING ANTHROPOLOGY AS A SCIENCE

Anthropologists have described their field as *the most humanistic of the sciences and the most scientific of the humanities*. Early anthropologists fought to legitimize anthropology as a robust scientific field of study. To do so, they borrowed methods and techniques from the physical sciences and applied them to anthropological inquiry. Indeed, anthropology today is categorized

as a **social science** in most academic institutions in the United States alongside sociology, psychology, economics, and political science. However, in recent decades, many cultural anthropologists have distanced themselves from science-oriented research and embraced more-**humanistic** approaches, including symbolic and interpretive perspectives. Interpretive anthropology treats culture as a body of “texts” rather than attempting to test a hypothesis based on deductive or inductive reasoning. The texts present a particular picture from a particular subjective point of view. **Interpretive anthropologists** believe that it is not necessary (or even possible) to objectively interrogate a text. Rather, they study the texts to untangle the various webs of meaning embedded in them. Consequently, interpretive anthropologists include the context of their interpretations, their own perspectives and, importantly, how the research participants view themselves and the meanings they attribute to their lives.

Anthropologists are unlikely to conclude that a single approach is best. Instead, anthropologists can apply *any and all of the approaches that best suit their particular problem*. Anthropology is unique among academic disciplines for the diversity of approaches used to conduct research and for the broad range of orientations that fall under its umbrella.

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3.3: MYTH, MAGIC, AND RITUAL

The concepts of myth, magic, and ritual work together in anthropology under the bigger umbrella of "religion." An anthropological inquiry into religion can easily become muddled and hazy because **religion** (like culture) encompasses intangible things such as values, ideas, beliefs, and norms. Frequently, anthropologists bookend their understanding of religion by citing two well-known definitions:

French sociologist **Émile Durkheim** (1858–1917) used an anthropological approach to religion in his study of totemism among Indigenous Australian peoples in the early 20th century. In his work *The Elementary Forms of the Religious Life* (1915), he argues that social scientists should begin with what he calls "simple religions" in their attempts to understand the structure and function of belief systems in general. His definition of religion takes an empirical approach and identifies key elements of a religion.

DEFINITION: RELIGION (DURKHEIM)

A unified system of beliefs and practices relative to sacred things, that is to say, things set apart and forbidden—beliefs and practices which unite into one single moral community called a church, all those who adhere to them.

This definition breaks down religion into the components of beliefs, practices, and a **social organization**—what a shared group of people believe and do.



An outdoor Christian worship service timed to coincide with the sunrise on Easter morning. Religion includes a great variety of human constructs and experiences. (credit: "Easter Sunrise Service 2017" by James S. Laughlin/Presidio of Monterey Public Affairs/flickr, Public Domain)

The other signpost used within anthropology to make sense of religion was crafted by American anthropologist **Clifford Geertz** (1926–2006) in his work *The Interpretation of Cultures* (1973). Geertz's definition takes a very different approach.

DEFINITION: RELIGION (GEERTZ)

(1) a system of symbols which acts to (2) establish powerful, pervasive, and long-lasting moods and motivations in [humans] by (3) formulating conceptions of a general order of existence

and (4) clothing these conceptions with such an aura of factuality that (5) the moods and motivations seem uniquely realistic.

Geertz's definition, which is complex, holistic, and addresses intangibles such as emotions and feelings, presents religion as a different overall model for how we see systems of belief. Geertz views religion as an impetus to view and act upon the world in a certain manner. While still acknowledging that religion is a shared endeavor, Geertz focuses on religion's role as a potent cultural symbol. Elusive, ambiguous, and hard to define, religion in Geertz's conception is primarily a **feeling** that motivates and unites groups of people with shared beliefs.

When anthropologists study religion, it can be helpful to consider both of these definitions because religion includes such varied human constructs and experiences as social structures, sets of beliefs, a feeling of awe, and an aura of mystery. While different religious groups and practices sometimes extend beyond what can be covered by a simple definition, we can broadly define **religion** as a shared system of beliefs and practices regarding the interaction of natural and supernatural phenomena. And yet as soon as we ascribe a meaning to religion, we must distinguish some related concepts, such as spirituality and worldview.

DEFINITION: RELIGION (SIMPLIFIED)

A shared system of beliefs and practices regarding the interaction of natural and supernatural phenomena.

Over the last few years, a growing number of Americans have been choosing to define themselves as *spiritual* rather than religious. A 2017 Pew Research Center study found that 27 percent of Americans identify as "spiritual but not religious." There are different factors that can distinguish religion and spirituality, and individuals will define and use these terms in specific ways; however, in general, while religion usually refers to shared affiliation with a particular structure or organization, **spirituality** normally refers to loosely structured beliefs and feelings about relationships between the natural and supernatural worlds. Spirituality can be very adaptable to changing circumstances and is often built upon an individual's perception of the surrounding environment. While 'religion' better fits Durkheim's definition, 'spirituality' still fits Geertz's.

Many Americans with religious affiliation also use the term *spirituality* and distinguish it from their religion. Pew found in 2017 that 48 percent of respondents said they were both religious *and* spiritual. Pew also found that 27 percent of people say religion is very important to them (Lipka and Gecewicz 2017). Another trend pertaining to religion in the United States is the growth of those defining themselves as **nones**, or people with no religious affiliation. The percentage of adults assigning themselves to the "none" category has grown substantially, from 16 percent in 2007 to 23 percent in 2014; among millennials, the percentage of nones was even higher, at 35 percent (Lipka 2015). In a follow-up survey, participants were asked to identify their major reasons for choosing

to be nonaffiliated; the most common responses pointed to the growing politicization of American churches and a more critical and questioning stance toward the institutional structure of all religions (Pew Research Center 2018).

It is important, however, to point out that nones are not the same as agnostics or atheists. Nones may hold traditional and/or nontraditional religious beliefs outside of membership in a religious institution. **Agnosticism** is the belief that God or the divine is unknowable and therefore skepticism of belief is appropriate, and **atheism** is a stance that denies the existence of a god or collection of gods. Nones, agnostics, and atheists can hold spiritual beliefs, however.

When anthropologists study religion, it is very important for them to define the terms they are using because these terms can have different meanings when used outside of academic studies. For example, it is important to note that 'atheism' refers specifically to belief in no gods and does not refer to non-religion; traditional Buddhism, for example, is an *atheistic religion*. In addition, the meaning of terms may change. As the social and political landscape in a society changes, it affects all social institutions, including religion.

Even those who consider themselves neither spiritual nor religious hold **secular, or nonreligious, beliefs that structure how they view themselves and the world they live in**. The term **worldview** refers to a person's outlook or orientation; it is a learned perspective, which has both individual and collective components, on the nature of life itself. Individuals frequently conflate and intermingle their religious and spiritual beliefs and their worldviews as they experience change within their lives. When studying religion, anthropologists need to remain aware of these various dimensions of belief. The word *religion* is not always adequate to identify an individual's belief systems.

Like all social institutions, religion evolves within and across time and cultures—even across early human species! Adapting to changes in population size and the reality of people's daily lives, religions and religious/spiritual practices reflect life *on the ground*. Interestingly, though, while some institutions (such as economics) tend to change radically from one era to another, often because of technological changes, religion tends to be more *viscous*, meaning it tends to change at a much slower pace and mix together various beliefs and practices. While religion can be a factor in promoting rapid social change, it more commonly changes slowly and retains older features while adding new ones. In effect, religion contains within it many of its earlier iterations and can thus be quite complex.

WITCHCRAFT, SORCERY, AND MAGIC

People in Western cultures too often think of religion as a belief system associated with a religious institution but religion is much more diverse. In the 1960s, anthropologists typically used an evolutionary model for religion that associated less structured religious systems with simple societies and more complex forms of religion with more complex political systems. Anthropologists

noticed that as populations grew, all forms of organization—political, economic, social, and religious—became more complex as well. For example, with the emergence of tribal societies, religion expanded to become not only a system of healing and connection with both animate and inanimate things in the environment but also a mechanism for addressing desire and conflict. Witchcraft and sorcery, both forms of magic, are more visible in larger-scale, more complex societies.

The terms *witchcraft* and *sorcery* are variously defined across disciplines and from one researcher to another, yet there is some agreement about common elements associated with each. **Witchcraft** involves the use of intangible (*not material*) means to cause a change in circumstances to another person. It is normally associated with practices such as incantations, spells, blessings, and other types of formulaic language that, when pronounced, causes a transformation. **Sorcery** is similar to witchcraft but involves the use of *material elements* to cause a change in circumstances to another person. It is normally associated with such practices as magical bundles, love potions, and any specific action that uses another person's personal belongings (such as their hair, nails, or even excreta).

DEFINITION: WITCHCRAFT

The use of intangible (*not material*) means to cause a change (positive or negative) in circumstances to another person.

DEFINITION: SORCERY

The use of *material elements* (object, potions, belongings) to cause a change in circumstances (positive or negative) to another person.

While some scholars apply the terms witchcraft and sorcery only to “dark,” negative, antisocial actions that seek to punish others, ethnographic research is filled with examples of more ambiguous or even positive uses as well. Cultural anthropologist Alma Gottlieb, who did fieldwork among the Beng people of Côte d’Ivoire in Africa, describes how the king that the Beng choose as their leader must always be a witch himself, not because of his ability to harm others but because his mystical powers allow him to protect the Beng people that he rules (2008). His knowledge and abilities allow him to be a capable ruler.

While many people think of witchcraft and sorcery as “primitive” practices, scholars argue that witchcraft and sorcery may be *later* developments in religion and not part of the earliest rituals because they can be used to *express social conflict*. What is the relationship between conflict, religion, and political organization? As a society's population rises, individuals within that society have less familiarity and personal experience with each other and must instead rely on family reputation or rank as the basis for establishing trust. Also, as social diversity increases, people find themselves interacting with those who have different behaviors and beliefs from their own. Frequently, we trust those who are most like ourselves, and diversity can create a sense of mistrust. This

sense of not knowing or understanding the people one lives, works, and trades with creates social stress and forces people to put themselves into what can feel like risky situations when interacting with one another. In such a setting, witchcraft and sorcery provide a feeling of security and control over other people. Historically, as populations increased and sociocultural institutions became larger and more complex, religion evolved to provide mechanisms such as witchcraft and sorcery that helped individuals establish *a sense of social control over their lives*.

Magic is essential to both witchcraft and sorcery, and the principles of magic are *part of every religion*. The anthropological study of magic is considered to have begun in the late 19th century with the 1890 publication of *The Golden Bough*, by Scottish social anthropologist **Sir James G. Frazer**. This work, published in several volumes, details the rituals and beliefs of a diverse range of societies, all collected by Frazer from the accounts of missionaries and travelers. Frazer was an armchair anthropologist. In his work, he provided one of the earliest definitions of magic, describing it as “a spurious system of natural law as well as a fallacious guide of conduct” (Frazer [1922] 1925, 11). A more precise and neutral definition depicts magic as a supposed system of natural law whose practice causes a transformation to occur. In the natural world—the world of our senses and the things we hear, see, smell, taste, and touch—we operate with evidence of observable cause and effect. Magic is a system in which the actions or causes are not always empirical. Speaking a spell or other magical formula does not provide observable (empirical) effects. For practitioners of magic, however, this abstract cause and effect is just as consequential and just as true.

Frazer refers to magic as “sympathetic magic” because it is based on the idea of sympathy, or common feeling, and he argued that there are two principles of sympathetic magic: the law of **similarity** and the law of **contagion**. The law of similarity is the belief that a magician can *create a desired change by imitating that change*. This is associated with actions or charms that mimic or look like the effects one desires, such as the use of an effigy that looks like another person or even the Venus figurine associated with the Upper Paleolithic period, whose voluptuous female body parts may have been used as part of a fertility ritual. By taking actions on the stand-in figure, the magician is able to cause an effect on the person believed to be represented by this figure. As a contemporary example, think of a golfer or bowler swinging their hips to the side imagining this action will influence the ball’s movements. The **law of contagion** is the belief that things that have once been in contact with each other remain connected always, such as a piece of jewelry owned by someone you love, a locket of hair or baby tooth kept as a keepsake, or personal belongings to be used in acts of sorcery.



The Venus figurine was a genre of art most frequently associated with the late Upper Paleolithic period, 25,000–12,000 BCE. It is considered a form of magic because the exaggerated female body parts are believed to be related to ideas of female fertility and reproduction. (credit: “Venus von Willendorf” by Anagoria/Wikimedia Commons, CC BY 3.0)

This classification of magic broadens our understanding of how magic can be used and how common it is across *all* religions. Prayers and special mortuary artifacts (grave goods) indicate that the concept of magic is an innately human practice and not associated solely with tribal societies. In most cultures and across religious traditions, people bury or cremate loved ones with meaningful clothing, jewelry, or even a photo. These practices and sentimental acts are magical bonds and connections among acts, artifacts, and people. Even prayers and shamanic journeying (a form of metaphysical travel) to spirits and deities, practiced in almost all religious traditions, are magical contracts within people’s belief systems that strengthen practitioners’ faith. Instead of seeing magic as something outside of religion that diminishes seriousness, anthropologists see magic as a profound human act of faith.

Practices that we might define as “witchcraft” today have been performed for many thousands of years all over the world without being labeled in those exact terms. For most of human history, these practices were not seen or defined as witchcraft, but were simply the religious and spiritual practices of people.

Imagine living in a hunter-gatherer (or early agricultural) world, not knowing exactly what caused illnesses, whether there was going to be a harsh winter, or whether there would be plenty of game to satisfy the needs of the community. People created ways to seek out

answers and interpret signs that could explain events or foretell the future. Like all religious traditions, these practices have and continue to give people a sense of security, a way to alleviate anxiety about unknown events, ensure a livelihood, or even bring retribution to those who have wronged them.

Cross-culturally and in anthropological terms, "witches" are believed to be individuals who can manipulate the natural world through magical means (imitative and contagious). Witchcraft also includes the practice of divination—which is closely connected to both forms of magic. **Divination** is a magical procedure designed to find out what is not knowable by ordinary means; such as the foretelling of the future by interpreting omens. Types of divination that we might find familiar in society are Tarot cards, tea leaf reading, and bibliomancy (use of books to answer a question). The entrails of animals or random casting of stones (runes), as well as interpreting the movements and actions of animals or other natural events may also be used in divinatory rituals.

The contemporary usage of the term "witchcraft" has many connotations from the New Age/Earth-Based/Goddess-worshipping perspective to the perspective of witchcraft as something evil and dark. Remember, however, that both of these perspectives are **Eurocentric** (grounded in European thought and belief). The modern/Western Wicca religion is based on pre-Christian Celtic religious beliefs (i.e. European), while the view of witchcraft as dark and dangerous stems from a medieval European Christian perspective. Even the Eurocentric term "witchcraft" is based on the Celtic word "Wicca" meaning 'wise one'. None of these understandings of witchcraft take into consideration the rest of human history or and a Non-European worldview, where people engage in what we define as witchcraft. For billions of people, these practices are considered beloved religious traditions that connect them to the spirit world and give people a sense of hope and faith.

Let's explore this further. When we use the term "witchcraft," we must be careful to clarify the exact context within which we are using the word. Consider the following:

- **Witchcraft in pop culture** : Witches are presented in popular culture as evil-doers who cause harm by harnessing dark, magical forces. This representation does not actually reflect any major religious or spiritual belief or practice and is used as a story-telling device.
- **Witchcraft as a spirituality**: There does, however, exist a myriad of religions and spiritualities that believe in every person's inherent power and in the divine elements of nature. Some of these groups engage in rituals that rely on magical beliefs. These practitioners may call themselves, "witches". These groups are firmly against using magic to harm others and do *not* resemble horror-based witches from movies and television.
- **The witchcraft accusation**: Across many human cultures and across generations, humans have utilized what anthropologists call "**witchcraft accusations**." The witchcraft accusation is a cultural tool that is used to punish individuals who do not conform to society's expectations. For example, if a woman in a religious society refuses to embody her culture's values of

feminine docility, she might be publicly accused of being a "witch" so that her community can exercise power to more strictly control her behavior and regulate her life. While many are familiar with the way witchcraft accusations were applied throughout the Salem Witch Trials, these accusations were and are still used in other places around the globe, too.

Specifically, within Christian society, the witchcraft accusation takes on a unique set of characteristics. While some cultures view witchcraft as a natural or neutral force, Christian cultures are more likely to equate witchcraft to negative forms of **sorcery**.

Witchcraft accusations exist outside of Europe, and the most famous anthropological examination of this took place in Central Africa. **E.E. Evans-Pritchard** was a British anthropologist who lived among the **Azande** people in central Africa (in the North-Eastern area). People within Azande communities build tall granaries on wooden stilts to hold their food and supplies so that no animals are able to get it. And since the region is very hot and offers little sources of shade, people often meet under the granaries to talk and share the news of the day. Unfortunately, sometimes the termites of the region will chew through the granary stilts, causing the granary to collapse and tragically injure or kill everyone underneath. In the worldview of the Azande, a person who dies in this type of accident has been killed by an act of witchcraft. This situation was particularly interesting to Evans-Pritchard and led to his publication on the matter.

Evans Pritchard tried to explain to the local people that, actually, it was termites that were causing the tragedy. The local people turned to him and explained that they understood termites *caused* the collapse, but the *odds* that a person was standing underneath the granary at that exact moment was an unfortunate event and *misfortune that needed to be explained*. In Azande society, misfortune and suffering is typically thought to be caused by witchcraft (Evans-Pritchard 1935, 19).

This is not an entirely unique worldview; actually, all cultures have beliefs like this to some degree. The idea that a person's feelings or thoughts can lead to negative outcomes serves two functions in society. First, this belief prevents **antisocial behavior**. We define antisocial behavior as any behavior that does not conform with society's expectations. So, for example, if you get into a fight with a person in public and then learn that they fell and broke their leg afterward, you might be accused of hurting them with your anger. In Azande society, a person who is accused of witchcraft is often kicked out of the community or sometimes killed. So, many of the Azande will make an effort to maintain composure and to not behave with great jealousy because they don't want to be accused of being witches if the person they fought with has some bad luck (Evans-Pritchard 1935, 419). Second, these beliefs explain misfortune or suffering. To many human beings, life can feel exceptionally illogical and out of our control. All cultures find a way to explain why bad things happen. Witchcraft beliefs explain misfortune by tying the misfortune to people's intentions (Evans-Pritchard 1935, 30).

In the Azande worldview, a person is born with a physical ability to curse another with witchcraft powers. Witches can be both men and women and the ability is passed down genetically (from mother to daughter and father to son). The substance that gives the person powers is called *mangu* and it's believed that it can be seen at night. A person does not necessarily know that they were born with *mangu* though, and they can harm an enemy accidentally.

By practicing **cultural relativism**, we can understand the cultural logic of this belief system. By taking a cross-cultural perspective, we can understand that we have similar beliefs in our own culture, and by examining the function we can see the role that this belief system plays in society. Witchcraft explains unfortunate events and is an explanation for suffering. We ask ourselves: "Why has someone died?" Or perhaps, "why are we not able to kill the wild pigs that are destroying the crops?" *Nothing bad happens by chance alone*. When there are unfortunate events in society that are not explainable, witchcraft accusations are hurled at antisocial persons or those who otherwise do not fit the social mould. It is typically part and parcel to a worldview that supports the pre-established moral order of that particular culture.

Anthropologist **James Brain** argues that witchcraft accusations are more prominent in societies with little or no social mobility. Social scientists refer to "**social mobility**" as the ability for families or individuals to move between class and social levels. In other words, a culture that allows people to advance their social status through different careers may have high social mobility. On the other hand, a society that strictly ties class and social status to race or gender will have less social mobility. In Brain's view, societies with little or no social mobility are more likely to strive to change their own social status and/or to reinforce the pre-existing social order through witchcraft accusations (Brain 1989, 15-27).

? EXERCISE

Consider the following. Re-read the points regarding witchcraft accusations as expressions of *social conflict* and *lack of social mobility* in a society. How do these apply to today's politics, media, and rhetoric around the "immigration crisis" in the United States?

SUPERNATURAL FORCES AND BEINGS (PANTHEON)

As stated earlier, religion typically regards the interaction of natural and supernatural phenomena. A supernatural force is a figure or energy that does not follow natural law. It is non-empirical and cannot be measured or observed by normal means. Religious practices rely on contact and interaction with a wide range of supernatural forces of varying degrees of complexity and specificity. In many religious traditions, there are both supernatural **deities** (gods) who are named and have the ability to change human fortunes, and **spirits**, who are less powerful and not always identified by name. Spirit or spirits can be diffuse and perceived as a field of energy or an unnamed force.

Practitioners of witchcraft and sorcery manipulate a supposed supernatural force that is often referred to by the term **mana**, first identified in Polynesia among the Maori of New Zealand (*mana* is a Maori word). Anthropologists see a similar supposed sacred energy in many different religious traditions and now use this word to refer to that energy force. Mana is an impersonal (unnamed and unidentified) force that can adhere for varying periods of time to people or animate and inanimate objects to make them sacred. One example is in the biblical story that appears in the Christian Bible (Mark 5:25–30) in which a woman suffering an illness simply touches Jesus's cloak and is healed. Jesus asks, "Who touched my clothes?" because he recognizes that some of this force has passed from him to the woman who was ill in order to heal her. Many Christians see the person of Jesus as sacred and holy from the time of his baptism by the Holy Spirit. Christian baptism in many traditions is meant as a duplication or repetition of Christ's baptism. In the Jewish Bible (the Christian Old Testament), the 'bread' or 'food' from Heaven (a sort of life-force) given to the Jewish people is sometimes also translated as "mana."

Some version of 'mana' or spiritual feeling is common among all religious experiences. How can that be? When we begin to think deeply about it, it doesn't make a lot of intuitive logical sense that individuals should carry a common feeling of force or power—even if they are members of the same culture. But the answer is possibly elegant. Émile Durkheim concluded that the feeling we feel and ascribe to other spirits we believe in is ultimately the *feeling of society itself*! This is an excellent answer to this question because it doesn't foreclose the reality of the spiritual world; in fact, it supports it—the spiritual world of a society is responsible for the goings on of the society itself. This approach to 'mana' helps to explain feelings of awe, guilt, connection, fear, and compassion often associated with both societies moral fabrics *and* their religious traditions.

There are also named and known supernatural deities. A **deity** is a god or goddess. Most often conceived as humanlike, **gods** (male) and **goddesses** (female) are typically named beings with individual personalities and interests. **Monotheistic religions** focus on a single named god or goddess, and **polytheistic religions** are built around a broader pantheon, or group, of gods and/or goddesses, each usually specializing in a specific sort of behavior or action. And there are **spirits**, which tend to be associated with very specific (and narrower) activities, such as earth spirits or guardian spirits (or angels). Some spirits emanate from or are connected directly to humans, such as ghosts and ancestor spirits, which may be attached to specific individuals, families, or places. In some patrilineal societies, ancestor spirits require a great deal of sacrifice from the living. This veneration of the dead can consume large quantities of resources. In the Philippines, the practice of venerating the ancestor spirits involves elaborate house shrines, altars, and food offerings. In central Madagascar, the Merino people practice a regular "turning of the bones," called *famidihana*. Every five to seven years, a family will disinter some of their deceased family members and replace their burial clothing with new, expensive silk garments as a form of

remembrance and to honor all of their ancestors. In both of these cases, ancestor spirits are believed to continue to have an effect on their living relatives, and failure to carry out these rituals is believed to put the living at risk of harm from the dead.

RELIGIOUS SPECIALISTS

Religious groups typically have some type of leadership, whether formal or informal. Some religious leaders occupy a specific role or status within a larger organization, representing the rules and regulations of the institution, including norms of behavior. In anthropology, these individuals are called **priests**, even though they may have other titles within their religious groups. Anthropology defines priests as *full-time practitioners*, meaning they occupy a religious rank at all times, whether or not they are officiating at rituals or ceremonies, and they have leadership over groups of people. They serve as mediators or guides between individuals or groups of people and the deity or deities. In religion-specific terms, anthropological priests may be called by various names, including titles such as priest, pastor, preacher, teacher, imam (Islam), and rabbi (Judaism).

Another category of specialists is **prophets**. These individuals are associated with religious change and transformation, calling for a renewal of beliefs or a restructuring of the status quo. Their leadership is usually temporary or indirect, and sometimes the prophet is on the margins of a larger religious organization. German sociologist Max Weber (1947) identified prophets as having charisma, a personality trait that conveys authority: "Charisma is a certain quality of an individual personality by virtue of which he is set apart from ordinary men and treated as endowed with supernatural, superhuman, or at least specifically exceptional powers or qualities. These as such are not accessible to the ordinary person, but are regarded as of divine origin or as exemplary, and on the basis of them the individual concerned is treated as a leader." (358–359)

A third type of specialist is **shamans**. Shamans are religious specialists who work with clients to address very specific and individual needs by making *direct contact with deities or supernatural forces*. While priests will officiate at recurring ritual events, a shaman addresses each individual need. One exception to this is the shaman's role in subsistence, usually hunting. In societies where the shaman is responsible for "calling up the animals" so that hunters will have success, the ritual may be calendrical, or occurring on a cyclical basis. While shamans are medical and religious specialists within shamanic societies, there are other religions that practice forms of shamanism as part of their own belief systems. Sometimes, these shamanic practitioners will be known by terms such as *pastor* or *preacher*, or even *layperson*. And some religious specialists serve as both part-time priests and part-time shamans, occupying more than one role as needed within a group of practitioners.

Shamanism is a practice of divination and healing that involves soul travel, also called shamanic journeying, to connect natural and supernatural realms in nonlinear time. Associated initially with small-scale societies, shamanic practices are now known to be embedded in many of the world's religions. In some cultures, shamans are part-time specialists, usually drawn into the practice by

a "calling" and trained in the necessary skills and rituals through apprenticeship. In other cultures, all individuals are believed to be capable of shamanic journeying if properly trained. By journeying—an act frequently initiated by dance, trance, drumbeat, song, or hallucinogenic substances—the shaman is able to consult with a spiritual world populated by supernatural figures and deceased ancestors. The term itself, *šamán*, meaning "one who knows," is an Evenki word, originating among the Evenk people of northern Siberia. Shamanism, found all over the world, was first studied by anthropologists in Siberia.

While shamanism is a healing practice, it conforms to the anthropological definition of religion as a shared set of beliefs and practices pertaining to the natural and supernatural. Cultures and societies that publicly affirm shamanism as a predominant and generally accepted practice often are referred to as *shamanic cultures*. Shamanism and shamanic activity, however, are found within most religions. The world's two dominant mainstream religions both contain a type of shamanistic practice: the laying on of hands in Christianity, in which a mystical healing and blessing is passed from one person to another, and the mystical Islamic practice of Sufism, in which the practitioner, called a dervish, dances by whirling faster and faster in order to reach a trance state of communing with the divine. There are numerous other shared religious beliefs and practices among different religions besides shamanism. Given the physical and social evolution of our species, it is likely that we all share aspects of a fundamental religious orientation and that religious changes are added on to, rather than used to replace, earlier practices such as shamanism.



Whirling dervishes enter a trance state during a ceremony in Turkey by practicing a rhythmic, spinning dance. In this state, they are able to commune with the deity. (credit: "Whirling Dervishes 2" by Richard Ha/flickr, CC BY 2.0)

Indigenous shamanism continues to be a significant force for healing and prophecy today and is the predominant religious mode in small-scale, subsistence-based societies, such as bands of gatherers and hunters. Shamanism is valued by hunters as an intuitive way to locate wild animals, often depicted as "getting into the mind of the animal." Shamanism is also valued as a means of healing, allowing individuals to discern and address sources of physical and social illness that may be affecting their health. One of the best-studied shamanic healing practices is that of the !Kung San in Central Africa. When individuals in that society suffer physical or

socioemotional distress, they practice *n/um tchai*, a medicine dance, to draw up spiritual forces within themselves that can be used for shamanic self-healing (Marshall [1969] 2009).



Shamanism is an early form of religion. It is based on perceived contact between natural and supernatural realms. Here, a Kwakiutl shaman from the Pacific Northwest coast of the United States makes contact with supernatural forces. (credit: “Hamatsa emerging from the woods—Koskimo” by Edward S. Curtis/Library of Congress Prints & Photographs Online Catalog, Public Domain)

Shamanistic practices remain an important part of the culture of modern Inuit people in the Canadian Arctic, particularly their practices pertaining to whale hunting. Although these traditional hunts were prohibited for a time, Inuit people were able to legally resume them in 1994. In a recent study of Inuit whaling communities in the Canadian territory of Nunavut, cultural anthropologists Frédéric Laugrand and Jarich Oosten (2013) found that although hunting technology has changed—whaling spears now include a grenade that, when aimed properly, allows for a quick and more humane death—many shamanistic beliefs and social practices pertaining to the hunt endure. The sharing of *maktak* or *muktuk* (whale skin and blubber) with elders is believed to lift their spirits and prolong their lives by connecting them to their ancestors and memories of their youth, the communal sharing of whale meat connects families to each other, and the relationship between hunter and hunted mystically sustains the populations of both. Inuit hunters believe that the whale “gives itself” to the hunter in order to establish this relationship, and when the hunter and community gratefully and humbly consume the catch, this ties the whales to the people and preserves them both. While Laugrand and Oosten found that most Inuit communities practice modern-day Christianity, the

shamanistic values of their ancestors continue to play a major role in their understanding of both the whale hunt and what it means to be Inuit today. Their practice and understanding of religion incorporate both the church and their ancestral beliefs.



Contemporary Inuit still use shamanistic practices when they hunt and fish. Here, an Inuit fisherman in Greenland goes out seeking fish. (credit: Renate Haase/Pixabay, CC0)

Above all, shamanism reflects the principles and practice of mutuality and balance, the belief that all living things are connected to each other and can have an effect on each other. This is a value that reverberates through almost all other religious systems as well. Concepts such as stewardship (caring for and nurturing resources), charity (providing for the needs of others), and justice (concern and respect for others and their rights) are all valued in shamanism.

THE INSTITUTIONALIZATION OF RELIGION

Shamanism is classified as **animism**, a worldview in which *spiritual agency is assigned to all things*, including natural elements such as rocks and trees. Sometimes associated with the idea of dual souls—a day soul and a night soul, the latter of which can wander in dreams—and sometimes with unnamed and disembodied spirits believed to be associated with living and nonliving things, animism was at first understood by anthropologists as a primitive step toward more complex religions. Today, we know it is not quite so simple. Animism is just one ‘worldview’ among many equally valid approaches to religious life.

Part of the reason early anthropologists believed religions followed linear evolution is because, particularly among state societies, religion becomes ‘institutionalized.’ As population densities increased and urban areas emerged, the structure and function of religion shifted into a bureaucracy, known as a **state religion**. State religions are formal institutions with full-time administrators (e.g.,

priests, pastors, rabbis, imams), a set doctrine of beliefs and regulations, and often a policy of growth by seeking new practitioners through conversion. While state religions continued to exhibit characteristics of earlier forms, they were now structured as organizations with a hierarchy, including functionaries at different levels with different specializations. Religion was now *administered* as well as practiced. Similar to the use of mercenaries as paid soldiers in a state army, bureaucratic religions include paid positions that may not require subscribing to the belief system itself. Examples of early state religions include the pantheons of Egypt and Greece. Today, the most common state religions are Christianity, Islam, Judaism, Buddhism, and Hinduism.

Rather than part-time shamans, tribal and state religions are often headed by full-time religious leaders who administer higher levels within the religious bureaucracy. With institutionalization, religion began to develop formalized **doctrines**, or sets of specific and usually rigid principles or teachings, that would be applied through the codification of a formal system of laws. And, unlike earlier religious forms, state religions are usually defined not by birthright but by conversion. Using **proselytization**, a recruitment practice in which members actively seek converts to the group, state religions are powerful institutions in society. They bring diverse groups of people together and establish common value systems.

There are two common arrangements between political states and state religions. In some instances, such as contemporary Iran, the religious institution and the state are one, and religious leaders head the political structure. In other societies, there is an explicit separation between religion and state. The separation has been handled differently across nation-states. In some states, the political government supports a state religion (or several) as the official religion(s). In some of these cases, the religious institution will play a role in political decision-making from local to national levels. In other state societies with a separation between religion and state, religious institutions will receive favors, such as subsidies, from state governments.

SYMBOLS

Religions and rituals often employ symbols to succeed. A **symbol** is, of course, not always religious. A symbol is any object, image, gesture, vocalization, or event conventionally associated with a particular meaning. Colors, shapes, gestures, animals, plants—all of these commonly acquire specific cultural meaning. For a Hindu wedding, a bride typically wears a bright red sari, as red is an auspicious color associated with change, passion, and prosperity. White, on the other hand, is typically worn to Indian funerals. Compare this to the symbols of white and black respectively in contemporary United States culture. Symbols are useful cultural aggregates because they provide a kind of shorthand for expressing complex ideas—including religion!



This popular American bumper sticker incorporates a variety of religious and social symbols. (credit: "Coexistence" by Rusty Clark/flickr, CC BY 2.0)

Combining symbols from Islam, Judaism, Taoism, Christianity, paganism, women, men, and the peace movement, this sticker aims to promote multicultural diversity. Rather than listing the various religions, identities, and ideologies and describing the conflicts among them, the message simply incorporates their symbols into a word (another type of complex symbol) urging mutual tolerance. Although symbols have conventional meanings, they can mean different things in different contexts or to different people. Although the intended meaning of the above bumper sticker is diversity, some people interpret it as an emblem of radical atheism. In the wake of the 2016 presidential election, some Americans started wearing safety pins to show their solidarity with LGBTQIA+ people, people of color, and others who had become targets of post-election harassment. For some, however, the safety pin symbolized pretentiousness and hypocrisy.

Symbolism plays a vital role in religion. A **symbol** stands for something else, is arbitrary, and has no inherent connection to its reference. There are two main types of symbols. A symbol can be a **metaphor**, meaning that it is completely disconnected from what it represents, such as the Islamic symbol of the crescent and star, which represents enlightenment brought about through God. Or a symbol might be a **metonym**, in which the part stands for the whole, such as the cross, which is an artifact of a specific portion of Christian history that is now used to stand for Christianity as a whole. Symbols are **multivocal** by nature, which means they can have more than one meaning. Their meaning derives from both how the symbol is used and how the audience views it. The more common and widespread a symbol, the more conflicting references and meanings may coexist. As an example, think of the U.S. flag; when draped over a veteran's casket, the flag has a different meaning from when it is waved at a rally or burned in protest. One symbol, multiple meanings.



Left: In the first image, fog represents the collision of warm and cold air over San Francisco Bay; it is a natural effect. **Right:** In the second image, the fog/smoke is artificially created onstage at a Rolling Stones concert to establish a particular mood and association. It is symbolic. (Credits: Left "Above the fog" by Cucombrelibre/flickr, CC BY 2.0, Right "StonesLondon220518-82" by Raph_PH/Wikimedia Commons, CC BY 2.0)

The prevalence of symbolism in religion indicates that religions are learned and shared systems of belief. While there are empirical aspects to religion, especially in regard to religious practices such as dance, trance, and prayer, the meaning behind the practices is entirely learned. Symbolism is attached not only to supernatural deities and spirits but also to religious places, myths, and rituals.



The tools used for working magic displayed on this traditional Wiccan altar include an athame, a ritual knife that is used in many rituals, among them the ritual of casting a circle (creating a sacred place). Also shown are a boline, sword, wand, pentacle, chalice, and censer. (credit: "Wiccan Altar" by Fer Doirich/Wikimedia Commons, CC0)

DEFINITION: SYMBOL

An object, image, gesture, vocalization, or event conventionally and arbitrarily associated with a particular meaning.

MYTHS AND STORIES

Taken to their extreme, large clusters of symbols produce **art**. While this section is not about a theory of art, anthropologists define "art" rather simply as as: symbolic representations of thought, feeling and ideas. Art is central to the foundation, establishment, and maintenance of all human societies. Human societies created visual and verbal arts before the invention of writing (which only occurred around 5,000 years ago). As a result, societies across time have used

(and continue to use) art to give meaningful expression to almost every part of their culture. This includes ideas about religion, kinship, and ethnic identity. Therefore, the verbal arts: myths, stories, and folklore, became a form of cultural reinforcement (a way to enculturate the next generation into a religion and dispense morals and values central to cultural survival).

The **verbal arts** include myths, folklore, narratives, dramas, poetry, incantations, proverbs riddles, word-games, even things like naming procedures, compliments and insults! As you know, the United States has historically been a society made up from people originating in many different lands, all with their unique set of myths and traditions.

The word **myth** is often used often in popular culture to mean something that is false or deceptive, a made-up story that is not true. In anthropology, however, **myth** is defined as a well-known story that explains primary principles, beliefs, and values outside of chronological time. Pieces of a myth may or may not be true. Its veracity is not what matters; it is most important for what it teaches. Many times, the characters within myths are culture heroes, semidivine persons whose experiences and lives serve as a teaching tool, allowing those within the culture to identify with them and learn from their challenges. Myths shape a society's worldview, explain its origins, and also teach and affirm social norms.

DEFINITION: MYTH

A well-known story that explains primary principles, beliefs, and values outside of chronological time; a sacred or sacred-like story that reflects and reinforces a community's worldview

The word **myth** is derived from the Greek word: *mythos*, meaning speech or story. A myth is a *sacred story* that reflects and reinforces a community's worldview. Myths explain the fundamentals of human existence, explain where everything we know comes from, why we are here, where we are going, and even our existential purpose. It's important to understand that when the term "myth" is used, it is not to imply that the narrative is false, but rather to indicate that the narrative is sacred.

Myths provide the rationale for religious beliefs and practices and sets cultural standards for appropriate behavior. Traditional myths, as long as they are believed, are accepted and perpetuated in a culture and then expressed as part of a people's worldview. They also sanction certain attitudes and behaviors. They are a product of creative imagination and works of art, as well as potentially religious or ideological statements.

Malinowski wrote the following about myths: "Myth fulfills...an indispensable function; it expresses, enhances, and codifies belief; it safeguards and enforces morality; it vouches for the efficacy of ritual and contains practical rules for the guidance of [humanity]. Myth is thus a vital ingredient of human civilization; it is not an idle tale, but a hard-worked active force." What Malinowski is saying is that we turn to our sacred stories as a moral compass for behavior. Please note that not all myths are religious. There are a variety of sacred, cultural stories that we tell. For example, we like to say that George Washington chopped down his father's cherry tree but that

he was such an honest young man that he immediately confessed to his crime. It's unlikely that this actually happened, but we tell the story because we like to steep our nation's founding in the inherent value of genuine honesty. "Honesty" is a sacred element in U.S. collective consciousness.

Anthropologists like to study myths because they reveal a great deal about a culture. Myths provide insight into: cultural practices, values and ethical codes, humanity's relationship with the gods, relationships between humans and nature, and so on.

THE POWER OF STORY-TELLING

American Anthropologist **Keith Basso** specifically examined a particular style of myth called "Placemaking" whereby the story-telling connects their cultural stories to a physical location that can be visited. Basso explained, "Place-making involves multiple acts of remembering and imagining which inform each other in complex ways" (Basso 2010, 5).

Let's pause for a moment here to recognize the universality of Basso's claim. Human memory is not perfect. If you were asked to recall exactly what happened to you yesterday, you would likely be able to recall about 50% of what happened in your day. If you were asked to recall what happened to you 2 weeks ago, maybe you could only recall about 20% of the day. If you were asked to recall what happened to you five years ago, you would likely be able to recall less than 1% of your day with any kind of accuracy. Recall the last time that you had an argument with a loved one; it's likely that you both recalled the conflict differently. So, what happens when the human mind cannot remember what "actually happened"? We fill in the gaps of our memory with imagination. Perhaps we remember ourselves as better than we actually were, and we remember our enemies as worse than they actually were.

Life does not have an inherent plot structure; the traditional plot structure that we use for storytelling was constructed by the human mind. Rather, we are all imagining our life story as if it is following a plot structure that does not inherently exist. For example: you are certainly the protagonist in your story although you are certainly the antagonist and at least one person's story. We often tell ourselves things like, "If that person hadn't broken my heart, I never would have met this better person, or I never would have had this new job." *We make sense of misfortune, and confusing events by assigning a traditional plot structure and logic to our imagined life.*

Myths among some Apache groups are excellent examples of "**placemaking**." The Apache are a Native American group in the Southwest United States and, since the Apache people have lived in this part of the world for a long time, their origin stories, sacred myths, and histories literally happened in the land that surrounds them. This is unlike those Americans who believe in Biblical stories because the majority of Christianity happened in the Middle East. If you are a Christian, imagine how it would feel to be able to look outside your kitchen window and literally see the Mount of Olives. Every time you saw this place you would remember the important Christian themes that are taught through that site (including the Garden of Gethsemane associated with the Passion narrative). If you saw this place every single day, it's possible that the story surrounding it would have even greater power in your life.

Many of the Apache stories literally happened in the physical environment within which they live today. The result is that they can tell sacred stories in times of crisis *and* they can look around their physical environment to remember their cultural values. Placemaking stories recall history, build community, explore ethical questions, recall the Earth's original and ever-changing appearance, and remind listeners that change is inevitable

Basso lived for a long time among the Apache of Cibecue, Arizona. (The words that we now use to refer to native American groups do not necessarily reflect the way the native American groups identified themselves historically. The word "Apache" is a broad brush used to refer to a group of people who share the similar Athabascan language. All people who identify as Apache are not the same, they are a diverse group like any other. Keith Basso specifically studied one group of Apache people who live in Cibecue, Arizona.) During his time living with this community, he mapped 296 important cultural locations and worked to record information about their importance. Specifically, Basso discussed the way that this community connected storytelling to the land and to behavior. This particular community uses their culturally specific stories to help reinforce behavioral norms from generation to generation. Basso describes storytelling in the following way, "For what people make of their places is closely connected to what they make of themselves as members of society and inhabitants of the Earth, and while the two activities may be separable in principle, they are deeply joined in practice." Here, Basso is explaining that our very logic is largely connected to our physical environments.

Comparatively, British Anthropologist **Mary Douglas** argued that human beings strive to control our environments and physical spaces in order to create a sense of the world that we prefer. So we, on the one hand are deeply influenced by our physical spaces and we also strive to reflect our cultural values upon our physical spaces. This is what Basso studied among the Apache.

Bronislaw Malinowski wrote, "... we are confronted by a vast apparatus, partly material, partly human, and partly spiritual, by which [humanity] is able to cope with the concrete, specific problems..." (Malinowski 1944, 36)

Anthropologist **Claude Lévi-Strauss** saw myths as containing both universal messages about shared human experiences and concerns and particular messages about the cultures with which they are associated. His approach to understanding myth is part of the theory of **French structuralism** we have read about. It separates myth into its component parts in order to understand the underlying form—the structure. Lévi-Strauss believed that mythic structure was the same across all cultures. He argued that the concerns of all cultures, expressed within their myths, are very similar. Structural analysis can be very complicated. At each step, as the myth is gradually "stripped down," the information it reveals is more enlightening. There are approaches to structuralism that can be applied more quickly, however, allowing a more penetrating look at the "real story" within the myth.

A brief version of a structural analysis will have at least three major components: **binary oppositions**, which are two contrasting concepts; **mythemes**, which are the stripped-down minimal units, or

story components, that form the structure of the myth; and the **primary messages** of the myth, which are universal.

Many myths and legends involve taking journeys. We call this the “**Hero Myth**” or “**Hero’s Journey**”. It involves a regular person leaving home, encountering something or someone who unlocks or teaches them a secret power, that “hero” fighting and triumphing over evil, and then returning home to be welcomed as the hero. Think of some of these and compare and contrast the central ideas with the Hopi Origin story.

As mentioned before, traditional myths, as long as they are believed, are accepted and perpetuated in a culture and then expressed a part of a peoples’ traditional worldview. But what if you don’t believe the myth to be factual? What if you don’t believe that a boy named Luke Skywalker who came from a planet called Tatooine really grew up to be a Jedi Knight to fight with the resistance, only to realize that his archenemy was really his father? What happens if you don’t believe that any of that *really happened*? Is it still a myth? Can it really still influence a culture? Are we still being enculturated by the stories that permeate our culture? Yes—they are **folktales**.

Folktales are stories *considered and taken to be fictional*. They tend to exist outside of time and space and usually begin by indicating this feature. Many stories begin with, “Once upon a time...” or “A long, long time ago...” An important feature of folktales is that they *contain moral lessons but are presented as entertainment for the reader*. The characters are purposefully created to warn of dangers for the hero. Many of these characters tend to be anthropomorphic animals, illustrating the supernatural elements of folktales even though the stories are not fully sacred. Folktales exist in multiple versions and no text is the ‘correct’ one. However, they all tend to have very specific features present in most versions. One important feature is the poorly developed two-dimensional characters that represent opposites. In the story of *Little Red Riding Hood*, these characters are Little Red Riding Hood, representing innocence, goodness, and kindness, who is contrasted with the big bad wolf, representing evil, manipulation and cunning. Another important feature in folktales is the simple and repetitive actions within the storyline. Often times in Indo-European folktales these actions tend to occur in threes—consider *The Three Little Pigs* or *Goldilocks and the Three Bears*. In both these stories there is simple repetitive action that occurs three times. Other cultures use other numbers with significant meaning to them.

The narratives of folktales reflect the worldview of various real-life relationships. One only needs to look at Disney stories to observe this process. The stories in Disney are designed to construct gender and gender roles. Of course, the construction of gender norms has changed in Disney over time and a comparison of the older stories with the more recent ones demonstrates the significant differences. Older Disney stories tend to have princesses who are docile, abused, persecuted, patient, obedient and quiet. Newer Disney princesses are often brave, at times rebellious, and independent. This reflects the shift in American culture’s worldview surrounding gender norms.

It is hypothesized that humans employ verbal arts as an approach to confront the specific problems that face us. Native Americans refer to myths and stories as ‘medicine’ – intended to teach us, comfort

us, console us, and guide us. How else can we explain the human need to re-read a sacred text on a weekly basis, or watch the Star Wars marathon for the millionth time?

Myths serve to enculturate us and they serve a basic tenet of instructing us on the code of conduct that would enable our survival. They provide a foundation for our worldview and remind us of our purpose.

The hero myth is such a common theme in the most beloved books and movies of our society because it also serves the function to provide hope to all us everyday people. In reality, we do not have superpowers or magic, but if an ordinary person can overcome obstacles and become the hero of the story, then maybe we can overcome the hurdles in our lives and become the heroes of our own stories.

Religious Places

Anthropologists distinguish between **space**, an unmarked physical field on which imagination or action can occur, and **place**, a location that has sociocultural meaning(s) attached. Many religions and religious practices are defined by sacred places that serve as settings for **hierophany**: the manifestation of the sacred or divine. Commonly, the sense of the sacred derives from the prior history and the use of a place. A place is its own kind of symbol, and in most religions, sacred places are marked by other symbols.

A Jewish home, for example, is identified as a special religious place. One way of marking this sacred place is by attaching mezuzahs, small casings containing a tiny parchment with a verse from the Torah to external and internal doorposts. Placings mezuzahs at the points of entry mark the place inside as holy, sacred, and set apart. Like most religious places, the Jewish home is a densely symbolic place.

Religious places are part of the built environment, or places that people create as representations of their beliefs. Religious scholar Mircea Eliade identifies three characteristics associated with sacred places. He suggests every sacred place:

- Is marked by a **threshold** which separates the two spaces, the sacred inside and the profane outside. It marks a passageway and a new mode of being.
- Memorializes **hierophany**, or sacred events, by including an area within the sacred place that is most holy—usually where something sacred has occurred in the past. connects practitioners with deity and/or spirit, memorializing the occurrence of something special that happened (or happens) here. In many religious places, there will be an altar or some sort of commemoration in this spot.
- Represents an **image** or microcosm of the world as seen from the religious perspective. In some religious traditions, sacred places will be decorated with reminders of what is most valued by that tradition, using various types of artworks. In Catholic churches, for example, paintings of the events associated with the crucifixion of Christ, known as the stations of the cross, remind believers of Christ’s sacrifice.

Eliade’s characteristics of sacred places can be useful tools for beginning to understand the role of a place in a religion or a

religious practice that is unfamiliar to us. They prompt us to look at the place through a believer's eyes: What happens here? What are the meanings associated with the different parts of this place? What are the proper ways to enter and exit and show respect? Because religion is heavily symbolic, we must strive to understand these places from *inside the religious belief system*.



Notre-Dame Cathedral in Paris is a sacred place marked by numerous symbols. Note that elaborate stained glass, Gothic arches, candles, and incredibly high ceiling. It is shown here before a 2019 fire that caused considerable damage. (credit: "Inside Notre Dame" by Kosala Bandara/Wikimedia Commons, CC BY 2.0)

RITUALS

Combining objects, actions, meanings, and places, **ritual** is a special kind of *repeated, patterned action conventionally associated with a particular meaning*. Rituals incorporate symbols and roles along with *routinized activities* such as gestures, music, and movement. Many rituals are performed by specialists in group settings to accomplish specific group or individual goals. Rituals bring together symbols, practices, and worldviews.

Rituals, also called *rites*, are performative acts by which we carry out our religious beliefs, public and private. As sociologist Émile Durkheim noted, they follow a formal order or sequence, are performed in a place that is set apart and sacred (at least during the time of the performance), and are inherently social. Rituals are learned and shared. They foster social solidarity and identity within a community of believers (this is a focus of Durkheim's). Even when performing a religious ritual alone, such as walking a labyrinth during meditation, the ritual itself, because it is learned as part of a larger body of religious practices, connects the individual to the larger community.



Walking a labyrinth, such as this one in Grace Cathedral in San Francisco, California, is experienced by many people as a meditative or prayerful ritual. (credit: "Grace Cathedral Labyrinth" by Jay Galvin/flickr, CC BY 2.0)

Rituals tend to have a common structure even though ritual and ritual performance can be quite variable. Even when rituals are scripted and parts are carefully read and followed, individual participation and collaboration will subtly change a ritual each time it is enacted or performed. Rituals are never exactly duplicated, and not all rituals serve the same purpose. Some are primarily performed to affirm, strengthen, and maintain solidarity within the group; some are social markers of life transformations for individuals, families, or groups; and others address healing and the need for renewal. There are many categories of ritual: commemoration feasts or rituals (e.g., Christmas or Hannukah), which are usually held over a calendrical cycle, usually a year; divinatory rites to find the causes of illness, ask for healing, or prophesy about the future, which usually occur on an as-needed basis; and rites of rebellion, in which social rules and norms may be inverted to emphasize their value within a society. Among the most common broad types of *religious* ritual are rites of intensification, rites of passage, and rites of affliction.

RITES OF INTENSIFICATION

Called by various names, such as rites of affirmation and **calendrical rites**, **rites of intensification** are performed to *affirm, strengthen, and maintain bonds of solidarity*. These are some of the most familiar rituals to modern Westerners. Most of the repetitive religious services that are offered through churches, synagogues, and mosques are rites of intensification. These rituals tend to have a rather stable and repetitive structure that allows practitioners to

follow along easily. If you attend or participate in any kind of repetitive daily, weekly, or monthly religious ritual, it is likely a rite of intensification. These rites define and indoctrinate individuals so that they identify as a religious community, even though there may be other ritual acts accompanying it. It is not unusual in state religions for these rites to create unity among believers across cultures and nation-states. A good example is the daily practice of Islamic prayer, or *salat*. *Salat* involves praying in the direction of the holy city of Mecca at dawn, noon, midafternoon, sunset, and evening every day, regardless of where the believer is located or even what they are doing. *Salat* establishes a direct relationship between the believer and God and affirms one's membership in a global community of Muslims.



An Islamic congregation practices a rite of intensification called *salat*, or ritual prayer. (credit: "Istanbul" by FaceMePLS/Wikimedia Commons, CC BY 2.0)

rites of passage

First identified by anthropologist Arnold van Gennep in 1909, **rites of passage** mark *social transformations* in people's lives and establish a change in social status within their communities. As a result, these tend to be the most anthropologically interesting—as they reveal things about broader social structures and beliefs. Associated most commonly with birth, puberty, marriage, and death, these rituals can be brief or prolonged ceremonies during which individuals receive instruction and preparation for this change in their lives. Gennep noted that there are three stages in a rite of passage—separation, transition, and incorporation—and that during the transition stage, the individual must traverse a threshold (*limen* in Latin) from their old social position or status to a new one.

The **separation** (or pre-limen) phase is marked by detachment from one's previous status. While the person or people involved may be physically separated and held in a special place, the separation normally occurs within daily life over a period of time and is always marked symbolically. Some examples of separation are the formal engagement of a couple with rings and a period of preparation for the upcoming marriage; the process of catechesis, or formal religious instruction, for young people planning to be baptized or confirmed in a Catholic or other Christian church; and wearing special clothing or colors while mourning the death of a family member.

The **transition** (liminal) phase is marked by an ambiguity of status and associated with instruction and teaching. This phase is usually restricted to the period in which an active and public ritual transformation is taking place. The person or people involved, already separated from their previous status and identity, are now transformed into a new status. This is the most active phase of a rite of passage. It is highly scripted and almost always involves teachers, guides, or mentors who usher the individuals through the proper steps to a new social status. Some examples of transition are the marriage ceremony itself, the actual baptism or confirmation ritual in the church, and the funeral service for a loved one.

The **reincorporation** (post-limen) phase is marked by a formal public presentation of the person or people who have gone through the ritual. During incorporation, different symbols are used to express a new social status and identity. In this last stage, those going through the transformation begin to assume the rights, privileges, and responsibilities of their new social status. This might include changing their names, moving to a new location, or wearing different clothing. In many rites of passage, this is an extended period that can last from months to years.

Anthropologist Victor Turner (1969) discusses in detail the significance of **liminality** in rites of passage. During liminality, an individual is what Turner calls "betwixt and between" (95), without social status or standing, outside of the structure, and in transition from one social stage to another. It is a form of social death. Often, the individual will be dressed in uniform, unmarked clothing and follow behaviors associated with humility and anonymity in their culture. There is also an expectation of total obedience during the change of status, as the individual depends on ritual leaders (gatekeepers) to teach, coach, and mentor them through the passage. If there is a cohort of individuals participating in the rite of passage, such as an age grade going through puberty rites, the participants will share a strong sense of equality and social bonding among themselves, referred to as **communitas**. Through Turner's research on the Ndembu of Zambia, anthropologists were better able to understand these common mechanisms of social change.

One example of a rite of passage among the Navajo of the southwestern United States is the Kinaaldá. The Kinaaldá is a traditional coming-of-age ceremony (a puberty rite) for young Navajo women that occurs shortly after a girl's first menstrual cycle and involves her extended family and community (Carey 2010; Meza 2019). Typically, the ceremony lasts four days and occurs both inside a traditional Navajo house, called a hogan, and in the surrounding area, where the girl will periodically run to ensure that she has a strong and healthy life. At the beginning of the ceremony, as separation begins, the girl lies down and her family straightens her limbs and helps dress her and prepare her for the transition. During the days of seclusion, there are many different tasks as the girl is initiated into womanhood. On the third day, she and her mother will bake a corn cake called an *alkaan*, and then, led by a Navajo medicine man or woman, they will sing prayer songs all night until the sunrise. During the final stage of the Kinaaldá, in the morning of the fourth day, the mother washes her daughter's hair and dries it with cornmeal (corn is a Navajo deity). The young woman will then take her last run toward the east, now followed by

many young children, so that she might eventually become a loving mother whom her children will always follow. After the ceremony, she is reintroduced to her community as a woman and not a child; she is now considered a young adult.

Not all rites of passage are religious. There are also secular rites of passage, such as **graduation** or quinceañera, a celebratory birthday for 15-year-old girls in many Latin American communities. Sometimes the religious and the secular are intermingled, as in a marriage ceremony that is both civil and religious. Societies use both secular and religious rites of passage to mark changes in the life cycle of their members.

rites of affliction

Unlike rites of intensification and many rites of passage, **rites of affliction** are usually non-calendrical and unplanned. Normally classified as *healing rituals or petitions for supernatural intervention*, these rites seek remedy or compensation for the affliction. Whether directly through a shamanic journey or through the mediation of a religious leader, communities petition the spirits or deity for healing or a blessing. While illness and health in most Western societies are understood to be biomedical phenomena based on empirical evidence, in non-Western societies and in localized religious traditions across cultures, well-being is viewed as a relationship between body and soul and thus is believed to have a religious component.

While nonbelievers might refer to rites of affliction as **superstition**, a belief or practice that has no credible evidence for its efficacy, for believers, these religious rites allow them to plead for help and sometimes control the outcome of threatening life events. Rites of affliction, first described by vary greatly depending on the need. People may perform witchcraft and sorcery to determine the source of affliction, **exorcism** to remove the presence of an adverse spirit, or divination to identify the source of harm. **Divination** is a practice or test intended to gain understanding, guidance, or advice about an event or situation. There are literally hundreds of different methods of divination. Some examples include scapulimancy (burning the shoulder blade of a cow or antelope and reading a message in the burn pattern), tasseomancy (reading tea leaves at the bottom of a cup), oomancy (rubbing an egg over an area of illness or pain and then breaking it open to read a pattern), bibliomancy (randomly opening the Bible or another book and seeking a message in whatever passage is on that page), reading tarot cards, and checking astrological signs.

Pilgrimages are a common form of rites of affliction. A pilgrimage is a spiritual journey *to a sacred site* undertaken to address or appease supernatural forces. Appeasing these forces can either stave off or remedy illness, misfortune, or other suffering in a person's life. A famous contemporary example is that many Muslims continue to complete a pilgrimage known as the hajj to Mecca. Historically, pilgrims arrived by walking, using the travel time and its accompanying struggles to focus on growing in their faith. Some individuals continue these traditional means while other devotees arrive by boat, bus, or plane, dedicating themselves to contemplation once they arrive. Many Muslims complete a pilgrimage known as the hajj to Mecca, an important symbolic place for Muslims because

it was the birthplace of the Prophet Muhammad. During the hajj ritual, the pilgrims will perform many faith acts, including circling the Ka'aba, a building at the center of the mosque representing the most sacred place, seven times clockwise to open the ritual; praying; running between the nearby hills of Safa and Marwah; clipping their hair; going east of Mecca to confess their sins and seek atonement; gathering pebbles to perform a symbolic stoning of the devil; buying sacrifice vouchers so that an animal will be sacrificed on their behalf; and then again circling the Ka'aba seven times, this time counterclockwise, to close the hajj.

rites of rebellion

A "rite of rebellion" is a periodic, ritualized event during which a society's norms and hierarchies are temporarily inverted or transgressed. The concept, developed primarily by anthropologist Max Gluckman, suggests that these rituals serve as a controlled "safety valve" to release social tensions without threatening the underlying power structure. Instead of sparking an actual revolution, these brief, cathartic expressions of rebellion ultimately reinforce the very social order they appear to challenge. A rite of rebellion involves a limited and brief suspension of social rules, which may include role-reversals between different groups, such as men and women or rulers and subjects. Although the ritual is rebellious on the surface, its temporary nature and prescribed format ultimately reinforce the importance of the normal social order. The participants reinstituted the norms once the ritual is over.

Incwala, a ritual found among the Swazi, a group in southern Africa, is a national holiday during which many social rules are suspended or inverted, allowing women to take on men's public roles and men to take on women's household duties in a public farce. Among the Swazi, this ritual is understood to illustrate the value of different gender roles in society as well as the importance of social norms in reducing social disorder. In the United States, Halloween is also a rite of rebellion, one in which children go out at night to beg for candy from neighbors.

conclusion

The way a society is formally organized is called **social structure**. Typically, a society organizes a set of routine activities and objects in space and time to accomplish a particular function, such as community decision-making, the production and circulation of goods, or religious observance. Social structure is the framework for those realms, designating when, where, how, and by whom these functions are accomplished. Social structures combine material culture (such as buildings) with practices (such as meetings) and ideas (such as the rules and procedures of those meetings). Consider the social structure of community decision-making, or the political realm. In some societies, community decisions are routinely made under the authority of a person inhabiting an inherited political office, called a chief or king. Chiefs often have a council of community elders, the heads of local extended families. A chief is expected to consult with this council in all community matters. Other groups in society may represent the interests of youth, women, farmers, or traders. Each group will have its own leader who communicates directly with the local chief. Regular procedures

govern how issues are raised and discussed and how decisions are taken. Together, the groups, roles, relationships, and procedures all constitute the social structure of the political system. Rather than seeing social structure as fixed and immobile, some anthropologists emphasize that people continually make and alter their social structures through everyday forms of interpretation, participation, and resistance. These processes mean that social structures are always subject to a variety of forces in a constant state of change.

Myth, religion, and ritual are fundamental components of human cultural life, shaping how communities respond to uncertainty, misfortune, and change—they help us to provide structures where 'real life' lacks it. These cultural features provide ways to interpret events that might otherwise appear arbitrary or threatening. Myths offer shared narratives that explain the origins of the world, the nature of human existence, and causes of misfortune. Stories are not simply fanciful tales; they are cultural blueprints that encode moral lessons, social values, and collective histories. They provide moral guidance and reinforcing the efficacy of ritual practices. They teach communities how to behave, how to interpret challenges, and how to locate themselves within a broader cosmological order.

Religions create shared frameworks of belief and practice that unify individuals into cohesive communities. Durkheim emphasized that religion is a social institution that binds people together around sacred beliefs and practices, transforming individual experiences into collective ones. Geertz's definition highlights how religion establishes "powerful, pervasive, and long-lasting moods and motivations" by presenting symbolic models of existence that people experience as uniquely real.

Rituals give physical and social form to these beliefs and narratives. They are patterned, symbolic actions that mark significant transitions, reaffirm group identity, and address misfortune or uncertainty. Rituals are inherently social—even when performed alone, they connect individuals to a larger community of adherents. Through ritual, abstract beliefs are embodied, experienced, and transmitted across iterations and generations, ensuring their durability.

Taken together, myth, religion, and ritual form deeply interconnected systems through which human communities confront the

unpredictability of life and maintain social cohesion. Myths provide shared explanations and moral frameworks; religion unites people through common worldviews and moral commitments; and rituals translate these shared ideas into practices. Even in societies (like our own!) where traditional religious affiliation is declining, mythic narratives, symbolic worldviews, and ritualized practices persist in new secular or hybrid forms.

Ultimately, these cultural systems help people make sense of the world, manage fear and uncertainty, and forge durable social bonds. They are essential not only for explaining misfortune but also for sustaining the moral, emotional, and social fabric of communities. Recalling that culture is a way of dealing with the world and with each other, by examining myth, religion, and ritual through an anthropological lens, we gain insight into both the diversity of human belief systems and the shared strategies through which societies navigate the challenges of existence.

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3.4: EXCHANGE AND SOCIAL SYSTEMS

This chapter covers two aspects of 'the economy' that interest anthropologists in particular. The first is *modes of production* or 'making a living.' This aspect of economics is all about subsistence, materials, and 'getting by' under various systems and social structures (be that hunting and gathering or complex market economies). The second is systems of *exchange*. This aspect of economics is all about how we construct value from a cultural perspective. Again, this covers a range of practices from feeling like you 'owe someone' when they do you a favor to the creation of wealth through charging interest. (For the purposes of this course, we will be much more interested in the everyday owing version of things!)

Someone has probably asked you the question, "So, what you want to do after you graduate?" When people ask about your plans post-graduation, they are asking about **work**. After you graduate, you will be faced with a similar question: "What do you do in life?" or "What do you do for a living?" It is one of the first things people ask when they meet someone new in our culture.

What do people mean when they ask what someone does for a living? Certainly, they are wondering what kind of work that person does in order to meet basic needs for food, clothing, and shelter. But they are wondering more than just that. In some cases, the question of what a person does for a living is not just an individual matter but one for the whole society. In some societies, most people meet their basic needs by doing roughly the same thing (mechanical solidarity). And even in societies where different people play different roles (organic solidarity), there is a fundamental process for making and distributing things that people need and want. Economists and anthropologists agree that this is the most basic definition of an economy: the central way in which societies meet basic material needs and wants. More specifically, an economy is a system for making, circulating, and using things, including material goods, services, and information. Economic systems are shaped by ideas about the meaning and value of objects, actions, and people. In many economic systems, some groups gain control over the work and leisure of others, structuring relations of inequality that operate through techniques of discipline (in the realm of work) and persuasion (in the realm of consumption).



DEFINITION: ECONOMY

The central way in which societies meet basic material needs and wants; a system for making, circulating, and using things, including material goods, services, and information.

Like strangers at a cocktail party, anthropologists always want to know what people do for a living. Archaeologists are curious about how people in the past developed strategies for making a living in response to different environmental conditions and sociocultural pressures. Physical anthropologists are interested in how human biology evolved alongside ways of using the environment to meet basic needs. Cultural anthropologists study the social and cultural implications of different ways of making a living. And linguistic

anthropologists focus on the roles of language, classification, and metaphor in shaping different strategies for making a living.

Economists tend toward **universalism**, which assumes that economic processes operate in much the same way all over the world. In fact, a central concern of economics is to discover the universal principles that govern economies anywhere and everywhere. Implicit in most economic analysis is the idea that most realms of society work like markets, responding to universal forces of supply and demand. Moreover, economists view people as self-interested, rational actors situated within the various market-driven realms of society. Economists use statistics rather than fieldwork to evaluate these market-driven activities, sometimes searching for best policies to encourage economic growth or discourage inequality. In contrast, economic anthropology is often about *differences* in how economies function in different cultures or societies. Further, anthropologists are often more interested in the 'messiness' of economies or economic behaviors—the situations when we do something because of our *culture* despite its seeming lack of rationality or serving our best interest. A good example is spending lavishly to carry out a ritual practice.

MODES OF SUBSISTENCE

Anthropologists have a term for the way that people interact with their environments in order to make a living: **mode of subsistence**. There are four main modes of subsistence that have been used throughout human history: **gathering-hunting**, **pastoralism**, **plant cultivation** (often broken down into 'horticulture' at the smaller/gardening scale and 'agriculture' at the large/farming and distribution scale), and **industrialism/post-industrialism**. Each of these modes incorporates distinctive strategies for producing, exchanging, and consuming the things that people need to survive. At the most fundamental level are the basic necessities of food, shelter, and health. Modes of subsistence provide solutions to meet these needs by *generating materials from the environment and developing techniques of labor and forms of technology to process those materials*. Beyond these very important functions, modes of subsistence also *organize society to get the necessary work done*. Societies develop roles, groups, and institutions to divide up the workload of producing things. Modes of subsistence also entail *specific ways of trading and circulating things* within and beyond local groups. And finally, modes of subsistence emphasize certain ideals and values.



DEFINITION: MODES OF PRODUCTION

Solutions to meet human wants and needs by generating materials from the environment, developing techniques of labor and forms of technology to process those materials, organize society to get the necessary work done, and ways of trading and circulating things.

GATHERING AND HUNTING

Imagine that you were stripped of all possessions and transported to a grassland environment along with 30 or so other people. How would you begin to make a living? How would you find food and shelter? How would you keep your body comfortable and healthy? Throughout the millions of years of hominin evolution, those living in such environments practiced a strategy known as **gathering-hunting**. Some peoples still practice this flexible and congenial way of life. In gathering and hunting societies, people rely on the natural resources readily available in their environment. They gather fruits, nuts, berries, and roots and collect honey from wild bees. They hunt and trap wild animals, and they fish in rivers and lakes. Many gathering-hunting groups also engage in limited ways in other modes of subsistence.

You might be surprised to see the word *gathering* appear before *hunting* in describing this subsistence strategy. The word order reflects a key debate about this subsistence strategy. Some researchers object to *hunting and gathering* because it privileges hunting as the most important activity of such groups. Early interest in these groups focused on the hunting activities of men as the most prestigious and valuable subsistence practices. In fact, gathering—done by both women and men—provides the vast majority of calories in the diets of such groups. This chapter will refer to this subsistence strategy as *gathering-hunting* and the people who practice it as *gatherer-hunters*.

THE HADZA: GATHERING-HUNTING AS A SUBSISTENCE STRATEGY

The Hadza of northern Tanzania are a resilient example of the way of life of gathering-hunting peoples as well as the contemporary challenges facing such groups. Like most gathering-hunting peoples, the Hadza traditionally lived in **semi-nomadic** groups of 20 to 30 people, called **bands**. About one-third of contemporary Hadza still practice this way of life. Hadza bands settle temporarily to gather and hunt the resources of a particular area, then move on to other areas in seasonal migrations. Sometimes, groups agglomerate into camps of several hundred to take advantage of seasonal foods such as berries. On most days, both men and women venture out into the savanna to gather food. Men seek out meat, honey, and baobab fruit, while women gather tubers, berries, and greens. When work is assigned based on a person's sex, anthropologists call this a **sexual division of labor**. In Hadza society, men and women do specialize in obtaining different foods, but the division is not hard and fast; sometimes men pick berries, and sometimes women gather honey.



Women of the Hadza cooking and socializing. The Hadza practice a traditional gathering-hunting lifestyle. (credit: "Day 5 - Time with the Hadza tribe" by sueomstead/flickr, CC BY 2.0)

Like most gathering-hunting peoples, the Hadza are highly **egalitarian**, meaning that all people are considered equal and all resources are shared equally. Gathered foods brought back to the camp, including meat, are shared among all members of the band. Gathering-hunting groups deplore stinginess as the worst human fault, and people who refuse to share are met with gossip, ridicule, and even ostracism. Decisions are made through public discussions leading to group consensus. No person has any sort of leadership role. Rather, people with experience in certain areas of social knowledge provide their expertise as needed. In-group fighting is not common, but it does occur, sometimes leading to personal violence and even a split in the band if the conflict cannot be resolved. Violent conflict between groups is very rare among gatherer-hunters.

THE SOCIOCULTURAL COMPLEX OF GATHERING AND HUNTING

Anthropologists have identified features of Hadza society as distinctive to gathering-hunting groups found all over the world. Groups such as the Martu and Pintupi in Australia, the Cuiva and Pumé in South America, the Paliyan and Kattunayakan in Asia, and the Inuit and Shoshone in North America have all constructed similar lifeways based on gathering and hunting. The social features of this way of life include mobility, sexual division of labor, egalitarianism, and vast knowledge of their environments.

The most common feature of gatherer-hunters is **mobility**. Such groups typically move in seasonal cycles over broad territories, regularly meeting up with other groups at specific spots such as water sources and patches of ripe vegetation. Bands tend to confine their subsistence activities to their own territories, but if faced with a scarcity of resources, they will commonly ask other groups for permission to gather and hunt in neighboring territories. These requests are facilitated by cross-band friendships and marriages that develop when bands camp together at certain times of the year. As a result, such requests are nearly always approved.

The second feature common to gatherer-hunter societies is the **sexual division of labor**. Often, men do most or all of the hunting, though recent archaeological evidence suggests that some women

also hunted in the past. Both women and men gather, but they often gather different things, and women bring home the majority of gathered foods. The relative equality of women in gatherer-hunter societies is linked to their primary role in supplying calories to the gatherer-hunter diet. Hunting is a prestige activity, however, giving prominence to men who are particularly successful hunters.



A Hadza man returns from a successful hunt. Like other gatherer-hunter societies, the Hadza utilize a sexual division of labor, with women doing the bulk of the gathering and men doing most of the hunting. (credit: "Success" by Anja Pietsch/flickr, CC BY 2.0)

The third feature of gatherer-hunters is a **strong tendency toward egalitarianism**. As they are so often on the move, gatherer-hunters do not typically own many material possessions, and those they have are circulated through the band on the basis of need. All gathered and hunted foods are shared among all members of the band. Generosity is praised and admired. People are considered equal and are actively discouraged from valuing themselves above others. Greed and excessive pride are stigmatized and punished with gossip and criticism. People who fight or refuse to share can be ostracized from the band.

These are broad generalities. The gatherer-hunter mode of subsistence commonly coordinates with these sociocultural features, but some groups do provide exceptions. In particularly productive environments, gatherer-hunters can settle down in one place for periods of time. The year-round availability of fish allows gatherer-hunter groups in coastal or riverine areas to form permanent or semipermanent settlements. Diet and labor patterns also vary. Closer to the equator, gatherer-hunter groups rely more on gathering because plants are plentiful year-round. Farther from the equator, in cooler climates, vegetation is scarce in winter, and gatherer-hunters rely more on hunting. Degrees of inequality and conflict also vary somewhat, often in association with the availability of resources. Situations of scarcity often generate social conflict. While one can describe a general mode of subsistence, it is important to acknowledge the diversity of strategies and features within this mode.

All gatherer-hunters, however, absolutely must possess deep knowledge of the plants, animals, and sources of water in their environments. Many gatherer-hunters can identify over a hundred sources of plant and animal foods in their environments, along with

detailed information about where and when they can find each type. Often, they rely on a few staple foods that are readily available year-round. When the Dobe Ju/'hoansi of the Kalahari Desert cannot find other foods, they count on mongongo nuts, a highly nutritious, drought-resistant food. Eating 300 mongongo nuts (a hefty serving) supplies 1,200 calories and 56 grams of protein. At certain times of the year, mongongo nuts constitute nearly half of the diet of the Dobe Ju/'hoansi.

All contemporary gathering and hunting groups face **economic and political pressures that threaten their way of life**. Herders and farmers encroach on their territories, leasing or purchasing their lands and then forcibly evicting the original inhabitants. Local and national governments attempt to settle such groups in permanent villages in order to establish their own rule of law, collect taxes, provide education and medical care, and assimilate them as citizens. Often, gathering-hunting groups agree to settle and then, after a while, abandon the villages established for them and escape to their lands to resume a gathering-hunting lifestyle. Many remaining gatherer-hunter groups say they love living close to nature, making their own material culture, and working and resting at will, always on the move.

THE ORIGINAL AFFLUENT SOCIETY: COMPARING ANCIENT AND CONTEMPORARY FORAGERS

In agricultural and industrial societies, people often assume that gathering-hunting peoples must live a hard life, oppressed by the struggle to find enough food and plagued by malnutrition and poor health. Archaeologists and cultural anthropologists who have studied gathering and hunting groups have found otherwise. Researchers have discovered that gatherer-hunters have stronger bones, lower blood pressure, and less heart disease than neighboring farmers. In his ethnographic work among the Dobe Ju/'hoansi, anthropologist **Richard Lee** found that they worked on average three to four days a week obtaining food and spent the rest of their time socializing and enjoying life. He described the Dobe Ju/'hoansi as fit, healthy, and free of nutritional deficits (1993). Indeed, some Hadza have remarked that the notion of famine is unknown to their culture. While Harvard economist John Kenneth Galbraith has referred to the wealthy industrial economy of the United States as "the affluent society," anthropologist **Marshall Sahlins** describes the gathering and hunting lifestyle as "**the original affluent society**."

For some 95 percent of evolutionary history, humans and human ancestors relied on gathering and hunting to make a living. In evolutionary terms, it is only very recently that humans have established other modes of subsistence. Farming was invented around 12,000 years ago, far too recently to have shaped humans' biological evolution very much. By contrast, hominins were practicing gathering and hunting for more than two million years. If humans have evolved to practice any lifestyle, it would be gathering-hunting. This suggests that humans' brains and bodies might be best suited to the lifestyle described by ethnographers who study gathering-hunting groups: long walks in nature; a diet of mostly fruits, nuts, and vegetables; and plenty of leisure time to relax and talk. Maybe humanity's ancestors were as robust and happy in their way of life as many contemporary foragers. Maybe.

The problem with this sort of thinking is that people today really don't know what life was like for humanity's gathering-hunting ancestors. The archaeological record of fossils and artifacts can reveal much about the diet and diseases of early hominins, but they tell very little about early social structures and cultural values. Some anthropologists have looked to contemporary gathering and hunting groups to understand the way of life of humanity's ancestors. Maybe they, like contemporary gatherer-hunter peoples, lived in egalitarian bands with group decision-making and a flexible division of labor based on gender, valuing sharing and deploring stinginess. Certainly, they must have had impressive knowledge of the resources and dangers in their environments.

And yet it is a mistake to view the way of life of contemporary gathering-hunting societies as examples of the way of life of humans' evolutionary ancestors. Groups such as the Hadza are not frozen in time, practicing a static lifeway of the deep past, but rather constantly changing and innovating, blending new ideas and practices with older ones just as farmers, herders, and industrialists do. Most contemporary gathering-hunting groups have lived side by side with farming and herding groups for centuries, often trading with those groups and even experimenting with their subsistence methods from time to time. Most gatherer-hunters have been forced to relocate to less advantageous lands due to the encroachment of these herders and farmers. The culture of many gatherer-hunter groups has been shaped by their incorporation as marginalized minorities in larger nation-states such as Tanzania. As the way of life of contemporary gatherer-hunters has changed so dramatically just in the past century, it's difficult to draw firm conclusions about human evolutionary history based on their example.

PASTORALISM

In many gathering and hunting societies, bands follow herds of wild game as they move in seasonal migrations. Researchers speculate that such hunting practices may have led to the development of a new subsistence pattern around 10,000 to 12,000 years ago. Relying on their expert knowledge of the behavior and biology of game animals, hunters might have begun to control the movement of wild herds, steering the animals to territories that might be especially rich in grazing resources or conducive to certain hunting strategies. These new practices may have been a response to the diminishing of key game species due to overhunting, prompting hunters to devise strategies to enhance the animals' diet and reproduction.

This human-animal relationship may have deepened over time as people discovered the nutritional resources available from live animals, such as milk and blood. Rather than killing an animal for meat, early herders figured out how to benefit from live animals and guide their reproduction to enlarge the herds. They began to selectively breed the healthiest and heartiest animals in their herds. They learned how to process animal products such as milk, hides, and hooves for use as food, textiles, and tools, and some used dung to fuel their fires. This process is called **animal domestication**. Humans in different environments domesticated a wide range of prey animals, including sheep, goats, cattle, water buffalo, yaks, pigs, reindeer, llamas, and alpacas.

Pastoralism is the mode of subsistence associated with the care and use of domesticated herd animals. Pastoralism shares many features with gathering-hunting, in particular the practice of ranging over a broad territory in seasonal cycles. Indeed, as they move with their herds to optimal grazing lands, many pastoral peoples gather fruits and nuts or occasionally hunt small game. Unlike gathering and hunting, however, herding promotes a *sense of ownership over resources*, as families develop close relationships with specific herds. Rather than sharing resources as foragers do, pastoralists consider their herds to be family property. Herds associated with a family are passed down to subsequent generations, most frequently from fathers to sons.

Archaeologists believe that pastoralism was developed around the same time as farming. In many regions, the two subsistence strategies are practiced by neighboring groups in symbiotic relations of trade. Often, a group will combine pastoralism with farming. Where rain is plentiful and soils are rich for cultivation, farming is used to take advantage of these resources. Pastoralism is utilized in areas with more marginal soils or unpredictable rainfall, conditions not optimal for farming but able to support herd animals if they are moved regularly to newly grown pastures and freshwater sources. Pastoralists who don't farm usually trade meat, milk, and other animal products for the grains and vegetables grown by neighboring farmers. Most contemporary pastoralists find it necessary to supplement their diet of animal products with the vitamins and carbohydrates in cultivated plant foods and are able to do so through small farming and trade.

THE BEDOUIN: FLEXIBLE PASTORALISM

Across the dry grasslands of Arabia and northern Africa live about three million Arab peoples collectively known as the Bedouin. Before the 20th century, Bedouin peoples made their living primarily by herding camels, sheep, goats, and cattle. Many still do, although they often cultivate crops or work as wage laborers as well. Among those Bedouin still devoted to herding, most specialize in one or two herd animals particularly suited to the climate and available pastures in their environment. In areas around Jordan, Syria, and Iraq, sheep and goats are preferred, while cattle are kept by Bedouin groups in southern Arabia and Sudan. In very dry regions such as the Sahara and the Arabian Deserts, Bedouin groups herd camels, hardy animals with scant need for water. Camels are valued as transport but also for their high-quality milk and tasty meat. Camel herding, though a prized tradition, is becoming increasingly rare among Bedouin. Bedouin supplement their camels' diet with feed, and many have been forced to sell off their camels as the price of feed rises. Since the 1960s, trucks and cars have replaced camels as a means of transportation for the Bedouin, sometimes used to bring food and water to herds in arid regions.



A herd of goats relaxes at a Bedouin camp near Jericho, in what is now the West Bank. Bedouin peoples rely on herding animals – such as camels, sheep, cattle, and goats – for meat, milk, and fiber. (credit: “Bedouin Goats 1557” by James Emery/flickr, CC BY 2.0)

Bedouin pastoralists have traditionally lived in small camps that are moved as frequently as needed to find fresh pastures for their herds, sometimes as often as every few days. This form of herding is called **nomadism**. Each camp consists of several tents, each one housing an extended family. Typically, a tent might house a married couple with their children and one or two siblings of the husband. Within the camp, several tents might house people who are related to each other, as sons marry and establish their own tents. For instance, a camp could comprise 70 to 100 people, including the families of several brothers, each tent housing the family of a brother, a son, or an elder. Often, the families of the camp move together during the summer months, then converge with other groups in larger camps during the winter months. Camps usually consist of 3 to 15 tents.



Bedouin tent in Jordan. Tents can be quickly constructed and easily transported, making them the perfect home for those practicing a lifestyle that requires frequent movement. (credit: “Bedouin Camp” by young shanahan/flickr, CC BY 2.0)

Instead of ranging freely, other Bedouin have traditionally moved their herds between two permanent settlements, one for the summer months and the other for winter. This pattern of pastoralism is known as **transhumance**. In societies that practice this form of subsistence today, young children and the elderly often remain in permanent camps year-round, benefiting from government health care and schools. Some Bedouin use transhumance to combine herding with small farming. For instance, some Egyptian Bedouin

plant barley in the fall and then move with their herds into the desert, leaving behind a few people to tend to the crops. In the summer, the mobile group returns to harvest the crops, and the entire group spends the summer together.

Stone houses have replaced tents in many permanent camps. Both tents and houses are rectangular, divided into two or three rooms. One area is for women, with a kitchen and storeroom. One area is primarily for men, where guests and relatives are entertained. Sometimes, a third area is devoted to the care of sick or young animals.

Like gatherer-hunters, pastoralists divide work according to a **sexual division of labor**. For the Bedouin, that division is determined by the types of animals herded by the group. When both large and small animals are kept, men take responsibility for larger animals, such as camels and cattle. Women herd, feed, and milk smaller animals, such as goats and sheep. But when only small animals are herded by a group, men usually do the herding, while women do the feeding and milking. Where sheep are kept, women spin the wool into yarn, then weave it into strips used to make tents.



A Bedouin woman working at a loom. Spinning and weaving are tasks typically assigned to women in Bedouin societies. (credit: “Weaving Demonstration” by Alan Kotok/flickr, CC BY 2.0)

Unlike foragers, pastoralists **strongly value private property**, primarily in the form of their herds. The wealth of a family is judged by the size of their herds. Bedouin sons and daughters both inherit herd animals from their fathers, though sons receive more than daughters. Because women are barred from caring for large animals, if a woman inherits camels, she usually entrusts them to a brother or cousin. All property is shared among members of the family.

THE SOCIOCULTURAL COMPLEX OF PASTORALISM

Pastoralism as a subsistence mode is characterized by four interconnected features that shape these societies. First, culture revolves around herd animals, which serve as measures of wealth and social status, provide essential resources like meat, milk, and leather, cement social relationships through gifting and sacrifice, establish family continuity through inheritance, and inspire rich traditions of music and oral poetry. Second, pastoralists are mobile because herding requires constantly moving large herds to fresh pastures in seasonal cycles over marginal rangelands, a lifestyle that discourages accumulating property beyond animals and thereby reinforces their central value. Third, these societies depend on

gender- and age-based divisions of labor to manage the heavy workload: boys handle daily herding, older men manage water access, predator control, herd optimization, and family decisions, while women milk animals, process and sell dairy products, construct and maintain camps, gather resources, cook, and preserve medical knowledge about plants. Fourth, pastoralists possess extensive environmental and zoological knowledge, including intimate understanding of vegetation, water sources, medicinal and edible plants across their rangelands, animal anatomy and behavior, and strategic herd composition by species, sex, and age—knowledge that enables them to rotate herds sustainably across rangelands, contradicting earlier scholarly assumptions that pastoralism was environmentally destructive through overgrazing.

CONTEMPORARY CHALLENGES TO PASTORALISM

Like many pastoralists, the Bedouin require large territories for grazing their herds, with families associated with defined lands they rarely exceed, yet the nation-states encompassing these territories deny Bedouin ownership rights, considering the land state-owned and implementing policies to settle them through schools and health clinics. Governments have seized Bedouin lands for development—Egypt's government, for example, bulldozed a Bedouin tourist camp in 1999 to build hotels, claiming Bedouin lacked rights to coastal areas, while Israel regularly demolishes Bedouin camps and villages for settlements and military zones, with tens of thousands displaced by such actions in the occupied West Bank and elsewhere. Pressured by regulations and military interventions, many Bedouin now live settled lives in villages and cities across North Africa and the Middle East, combining sedentary herding with small farming or working as taxi drivers, café managers, or campground operators, with some becoming wealthy through tourism investments while speaking nostalgically of their nomadic past.



A Bedouin Palestinian woman in front of the remains of her home, which was destroyed by Israeli law enforcement. Tens of thousands of Bedouin have been displaced by the nation-states that now encompass Bedouin territory. (credit: Eman/Wikimedia Commons, Public Domain)

The Bedouin's predicament reflects broader challenges facing contemporary pastoralists: climate change has made rainfall unpredictable, threatening the sustainability of herding on marginal lands, while governments and global investors seek control over

land for crop cultivation, tourist attractions, and conservation zones, with some governments formalizing land ownership that creates competition for collective rangelands and enables elite herders to seize control at small herders' expense. Some nomadic pastoral groups like the Wodaabe of West Africa have cultivated their distinctive cultural practices as protected heritage or tourist attractions, welcoming researchers and filmmakers who have produced over 17 documentaries and featured their elaborate geerewol and yaake dances—where young men compete for recognition as the most beautiful dancers by young women judges—in publications like National Geographic and performances for European tourists, though many anthropologists worry about cultural commodification and exploitation of marginal groups for Western audiences. While some question pastoralism's future viability and suggest transitioning to sedentary ranching, such transitions would require massive investments in fencing, feed supplements, veterinary care, permanent wells, trucks, mobile phones, and even airplanes, suggesting that if practiced in environmental harmony without these costly inputs, pastoralism may continue providing a sustainable way of life.

CULTIVATION: HORTICULTURE & AGRICULTURE

Many thousands of years ago, one of humanity's ancestors might have spied a sprout emerging from a refuse pile of pits, nuts, and seeds. Perhaps it was a lightbulb moment: "Hmm, I wonder if I could do that on purpose...." Or maybe it was somebody who dug up a plant and moved it closer to camp: "Genius! Now I don't have to walk so far!" Somehow, people discovered that they need not rely on the whims of nature to provide them with plants; rather, they could grow the plants they wanted in places more convenient to them. This basic manipulation of nature is called **cultivation**, and gather-hunters were experimenting with it for thousands of years before the development of farming.

The real revolution happened when people began to design their whole way of life around the sowing, tending, and harvesting of plant crops, depending primarily on those crops as sources of food. By planting the seeds of the most desirable plants, humans began to alter the features of those plants over generations of sowing and harvesting. This process of **plant domestication** first took hold around 10,000 to 12,000 years ago, possibly spurred by the warming climate after the last ice age. As plants became bigger, tastier, more nutritious, and easier to grow, larger groups of people could be supported by permanent gardens with no need to migrate. Eventually, some people didn't have to farm at all and could specialize in crafts such as pottery, metalwork, basketry, and textiles. Markets emerged as farmers, herders, and craftspeople became entwined in symbiotic relations of trade. Villages grew into towns and cities and, eventually, regional empires. This might all seem like a great leap forward in human development, and indeed it was a big transformation, but farming came with its share of drawbacks as well.

Archaeologists used to believe that **agriculture was separately invented** in three primary regions of the world: the Fertile Crescent of the Middle East (11,000 years ago), northern China (9,000 years ago), and Mesoamerica (8,000 years ago). Each of these regions

featured the domestication of grains as carbohydrate sources. These grains were combined with lentils and beans as sources of protein, along with meat obtained through trade with neighboring pastoral groups. In the Middle East, wheat, barley, peas, and lentils were cultivated. In China, millet, rice, and beans were grown. It is now known that farming was independently invented in many other regions as well (Bellwood 2019). In addition to the three already mentioned, plants were domesticated in sub-Saharan Africa, India, New Guinea, South America, and the eastern woodlands of North America.

EXTENSIVE HORTICULTURE AND INTENSIVE AGRICULTURE

The first form of farming that humans developed is known as **extensive horticulture**. Before a plot of land can be cultivated for the first time, the trees and vegetation must be cleared away, an arduous task usually done by men. Sometimes, a strategy called **slash and burn** is used, which involves cutting down the trees and shrubs and burning the rest to the ground, then tilling the ash into the soil as fertilizer. Using digging sticks and hoes, horticultural farmers cultivate the top layer of soil before they sow. As seedlings sprout, they water them and feed them with natural fertilizers such as animal dung, and they weed the gardens regularly.

Horticultural societies plant not just one crop but many. They have learned that certain plants are “friends”—that is, they enhance one another’s growth—and so they plant these crops side by side. This practice is known as **intercropping**. For instance, in Mesoamerica, squash, corn, and beans were planted closely together in flat-topped mounds, a combination known as the “three sisters.” Several corn plants were planted first, in the center of the mound. Once the corn seedlings were well established, squash and beans were planted at their base. As they grew, the corn plants provided stalks for the vining bean plants to climb. The bean plants contributed nitrogen to the soil, fertilizing the other two plants. The squash plants spread across the ground, blocking weeds and protecting the root systems of all three. Typically, societies practicing extensive horticulture have vast knowledge of such sustainable farming methods. These techniques are natural ways to optimize the health and yield of each plant while providing a variable and balanced diet throughout the year.



In a “three sisters” plot, corn, squash and beans are grown together. Each plant benefits the other. (credit: “Three Sisters” by GreenHouse17/flickr, CC BY 2.0)

Incorporating organic methods of fertilization and pest control, horticulture is a sustainable form of farming. Over time, however, this method does deplete the nutrients in the top layer of soil. After a certain number of seasons growing crops on a particular plot, it becomes necessary to let that plot lie **fallow**. When horticultural farmers let a plot lie fallow, they stop cultivating it and let the grasses and brush grow in naturally, which promotes the accumulation of fresh nutrients in the soil. Plots can be left to lie fallow for as little as one season or as many as 20. While one plot regenerates, the farmer moves on to clear, till, and sow another plot for cultivation. Horticulturalists often have several plots of land in various stages of fallow and cultivation. This method of rotating crops over various plots of land is called **extensive** or **shifting cultivation**, as it involves multiple plots over large areas. Horticulture farmers usually have a variety of plots with distinctive soils and climate features, and they tailor specific farming strategies, including crop species, fertilizers, watering methods, and farming-fallow cycles, for each one.

Often in horticultural societies, land is not owned as private property but held in trust by family heads or village leaders who allocate plots of land to individuals. People have the right to use the land assigned to them but not to own or sell it, a practice known as **usufruct rights**. These rights to use certain plots are passed down through families, via either the father or the mother. When newcomers move into an area, they may approach the leader to ask for plots of land to farm. In many African societies, it is also common for people to loan out their plots to one another in gestures of friendship and mutual aid.

Extensive horticulture typically provides enough resources to support extended-family households, perhaps with a bit left over to sell in local markets. This amount left over after the needs of the family are met is called **surplus**. The modest surplus of horticulturalists is sometimes accumulated by families or village leaders in silos or other structures, held in safekeeping for community use in the lean months before the next crops can be harvested. Horticulture does not usually generate enough surplus to support groups of people who do not farm. Craftspeople, religious

specialists, and group leaders must all carry on farming alongside these other important activities.

Extensive horticulture provides a good way to cultivate crops on land that is not particularly rich with nutrients. Tropical climates tend to have such soils due to the lack of winter dormancy. In temperate zones (23 to 66 degrees latitude), vegetation dies off in the autumn, depositing dead matter into the soil, which then decomposes into a rich substance called **humus** (hyoo-mus). Humus is essentially built-in fertilizer, feeding new plants as they grow in spring and summer. Because vegetation does not ever die off in tropical areas, tropical soils do not accumulate humus to the extent that temperate soils do. With less humus, it is more advantageous to use a plot of land a few times, then let the natural vegetation grow back. Slashing and burning regrowth is a way for tropical farmers to mimic the natural die-off of vegetation in temperate climates.

In climates with warm and cold seasons, the layer of humus-rich soil is much denser and thicker than in tropical regions. In these areas, it is advantageous to dig deeper to prepare soils for sowing, distributing the layer of humus into a thicker layer of soil to serve as a reservoir of nutrients for the new plants.

The seasonal deposit of nutrients in the soil also happens in areas surrounding large rivers that flood and recede in a yearly cycle. Along the Nile in North Africa and between the Tigris and Euphrates in the Middle East, ancient farmers were able to use the same soils over and over again as the rivers helpfully dumped organic matter onto their farmlands every year. Riverine farmers learned to control flows of water, creating systems of irrigation to continually water their crops. Sumerian farmers in the Mesopotamian crescent between the Tigris and Euphrates were the first to use the plow, using oxen to pull large blades through their garden plots. Plowing makes the soil even richer for planting.



A Sumerian plow. Sumerian farmers were the first to use the plow, making possible greater yields. (credit: "John Deere Plow" by Public.Resource.Org/flickr, CC BY 2.0)

The use of a plow, the development of irrigation systems, and the continuous cultivation of the same plots are part of a way of farming called **intensive agriculture**. A good way to remember the difference between extensive and intensive cultivation is to think about how extensive farming involves farming multiple plots over *extensive* territory, while intensive farming involves applying

intensive methods to the same plots over and over again. Intensive agriculture generates much greater yields than horticulture, supporting far larger populations. Greater yields mean greater surplus, which means that societies practicing intensive agriculture generate groups of people who don't need to farm, such as specialists in craft production, trade, religion, and government.

Farmers who practice intensive agriculture focus on a small number of crops, frequently grains or legumes. They use the surplus generated from intensive methods to trade for other foods, tools, and material goods to meet the needs of their households.

Most people use the word *agriculture* to mean plant cultivation of any kind. For anthropologists, however, agriculture is just one form of plant cultivation—the kind involving intensive methods such as plows, draft animals, irrigation systems, and repeated use of plots. This chapter uses the term *plant cultivation* to refer to both extensive horticulture and intensive agriculture. References to specific types of cultivation use the terms *extensive horticulture* and *intensive agriculture*.

THE KAYAPÓ: FLEXIBLE HORTICULTURE

In the eastern Amazonian rainforest beside the Xingu River, the Kayapó people have created a flexible way of life that carefully cultivates rainforest, savanna, and intermediate zone resources by mixing slash-and-burn horticulture with gathering, hunting, and some animal domestication. Like most farming societies, the Kayapó rely on staple carbohydrate crops including sweet potato, manioc, maize, and taro, clearing new garden plots every three to five years while actively managing fallow plots by planting fruit trees, medicinal plants, and other desirable vegetation to maintain productivity, and transplanting edible and medicinal plants along transit paths used for gathering-and-hunting expeditions that supplement farming during part of the year—women gather fruits, nuts, and berries while men hunt armadillos, deer, anteaters, and wild pigs, with both groups regularly harvesting honey and fishing with bows, arrows, nets, and plant-based poison, and occasionally slaughtering large numbers of tortoises for special festivals. Because they farm, the Kayapó live in villages most of the year, with extended-family houses arranged in a circle surrounding a central public space containing a men's house, and social activities coordinated by groups based on gender, age, and extended family through two men's societies (each associated with a women's society), where boys joining manhood choose a society (usually their intended father-in-law's), their future wives join the corresponding women's society, and each society has its own leader and meeting place.



A multiethnic celebration attended by the Kayapo and eight other ethnic groups. The celebration promotes the interaction of indigenous groups with each other and the public. (credit: "VI Aldeia Multiétnica no XV Meeting of Encontro de Culturas Tradicionais da Chapada dos Veadeiros" by Oliver Kornblihtt/Secretaria Especial da Cultura do Ministério da Cidadania/flickr, CC BY 2.0)

Kayapó life is organized seasonally, with planting during the "low water" season followed by farming until harvest, then a "high water" hunting season when wild fruits ripen and attract game, followed by a leisure period of family activities and increased fishing before the new year begins, with a calendar of ceremonies and festivals marking these seasons and promoting subsistence success. The Kayapó possess deep environmental knowledge and work diligently to cultivate flora and fauna diversity across ecological zones, with village experts in soils, plants, animals, and medicines who identify numerous micro-zones between forest and savanna (each associated with distinct interrelated plants, animals, and soil types), attract game species by sowing specific plants, adjust soil moisture, shade, and temperature using ground cover materials, fertilize crops with ash from specific cleared vegetation, design gardens in concentric circles for optimal light and water distribution, and practice complex intercropping of mutually beneficial plants like "banana neighbors" including "child-want-not" (used by women to regulate fertility). In open areas, the Kayapó create *apêê* or "forest islands" by spreading organic matter like termite nests, sowing useful trees and plant seeds in the nutrient-rich mounds, cutting center trees for better light distribution, and cultivating medicinal and edible plants that create shady rest areas, sometimes including vines producing potable water as traveling drinking fountains.

The nurturing of plant biodiversity is crucial to Kayapó medicine, as they identify and cultivate hundreds of plants for treating specific ailments (diarrhea, scorpion stings, snakebites) organized in complex classificatory schemes that distinguish 50 separate diarrhea types, each treated with a specific plant medicine. The Kayapó are also zoology masters who study animal anatomy and behavior for hunting and farming—deliberately planting smelly ant nests around gardens infested with leaf-cutting ants because the pheromones scare away the destructive ants, while crushed smelly ants can be inhaled as sinus medicine—and they keep many pets including birds, snakes, spiders, and various mammals (one village survey found over 60 pet species), encouraging children to observe pet behavior to maximize learning.



An aerial view of the land of the Kayapó. The Kayapo are deeply knowledgeable about the ecology of their environment and have developed a number of horticultural practices designed to preserve and enhance the natural abundance around them. (credit: NASA/Wikimedia Commons, Public Domain)

The Kayapó have developed a vast store of knowledge about their surroundings, and they use that knowledge to promote plant and animal biodiversity and nurture their environment. Some anthropologists suggest that industrialized societies could learn much about environmental management and ecological sustainability from horticultural groups such as the Kayapó.

THE SOCIOCULTURAL COMPLEX OF PLANT CULTIVATION

Horticulture is often combined with gathering, hunting, and even pastoralism to form flexible, sustainable subsistence strategies, and as societies rely more on crops, they settle into permanent villages—frequently consisting of extended-family houses with central public areas, like the Kayapó—where several extended families each have their own leaders or elders, and as agricultural methods intensify, **families cooperate** in developing irrigation schemes, trade networks, and land allocation and protection, necessitating community leadership and group decision-making forms. Plant cultivation requires substantially more work than gathering-hunting, including the backbreaking tasks of clearing land, tilling, sowing, watering, weeding, controlling pests, harvesting, processing crops for market or meals, and making and maintaining tools like hoes, scythes, and plows, with draft animals requiring daily care, so agricultural societies rely on **extended-family labor** divided by gender and age: typically men clear land and tend tools and draft animals while women sow, weed, water daily, and process materials for home consumption (making pottery, baskets, clothing, and shoes until craftspeople take over), children help with chores like carrying water and scaring away scavengers, girls babysit younger children, and men usually assume public leadership positions while women often represent their interests in their own groups with their own leadership. The gendered arrangement of work varies—in some societies men market crops while in others women do, and frequently as cultivation intensifies with large cash crops like wheat and rice, men market cash crops while women sell garden vegetables—and cultivation work is structured by seasonal cycles, with social life organized into annual calendars featuring festivals, ceremonies, and rituals marking cultivation stages, such as "garden magic" spells

to encourage good weather and manage anxieties of crop-dependent communities, and large harvest festivals with feasting, special songs and dances, and commemoration of gods and ancestors.

Successful plant cultivation requires **extensive knowledge** about plant and animal biology, soil composition, geology, and weather patterns, with many cultivators possessing deep understanding of soil-seed relationships—Sukuma farmers in Tanzania identify six soil types (five specific to rice, corn, sorghum, and two groundnut kinds, one for grazing), while Peruvian potato farmers know 35 potato varieties and match each to optimal soil and environmental conditions—and cultivators rely on environmental indicators like wild plant flowering and fruiting, bird migrations, and changing star patterns to determine planting and harvesting times, such as Indian farmers watching laburnum trees' yellow blossoms or the pied crested cuckoo's arrival to predict monsoons. Farming societies have various techniques for managing weeds and pests: some weeds provide food and craft materials, crop-attracted animals are hunted for protein (grasshoppers and locusts fried into treats, rodents trapped for meat), and specific plants repel weeds and pests (traditional Chinese farmers used thunder god vine root bark against caterpillars and aphids, while neem and mint protect harvested produce from insects). This vast natural knowledge is undergirded by value systems emphasizing environmental conservation and protection, with environmental knowledge often entwined with supernatural beliefs and cultural values preserved in songs, stories, legends, and rituals—ancient religious texts like India's Vedas functioned as records of environmental knowledge commanding humans to live in harmony with nature, revering valuable trees and plants associated with supernatural beings, protecting them with penalties for cutting them down, and typically plant cultivator cultures promote nature reverence and compel sustainable farming practices that protect soil and preserve biodiversity.

Intensive agriculture produces a much larger surplus than horticultural methods. As agricultural surpluses and human populations both grew, villages expanded into towns, which evolved into cities. Emerging about 7,000 ago, the city of Uruk, located in what is now Iraq, was the first large urban center in Mesopotamia and possibly the world (Nardo 2007; Wallenfels and Sasson 2000). At its peak population, it housed 50,000 to 80,000 people, with more living in the surrounding metropolitan area. Surrounding peoples practiced agriculture and herding and traded their surplus in the city markets. Within the city, a class of craftspeople supported themselves without doing any farming, prominent among them cloth makers and metalworkers. Uruk peoples traded widely with groups throughout Mesopotamia and what is now western Iran. The accumulation of wealth in the city supported the building of great temples and city walls by a class of construction workers (Pittman 2019). Such public buildings are called **monumental architecture**. Cuneiform writing was invented as a method of accounting, used to keep track of trade and inventory. Coordinating this complex economy was a centralized government headed by a king.

Like Uruk in Mesopotamia, the early cities of Abydos in Egypt, Harappa in the Indus Valley, and Anyang in China all emerged close to waterways, locations where intensive agriculture stimulated increases in population (Rizvi 2007). **Cities** provided sites for craft

specialization, the organization of regional trade, the building of monumental architecture, the development of writing, and the centralization of power. With its large stone plaza, pyramids, and ball courts, the Zapotec city of Monte Albán emerged as an administrative capital in Mesoamerica around 4,000 years ago. With its own plaza and pyramids, the site of Caral in present-day Peru developed into a city around the same time as Monte Albán. Built on a base of agricultural surplus, all of these cities demonstrate urban planning, heterogeneous populations, regional trade, and monumental architecture.

CONTEMPORARY CHALLENGES OF FARMING SOCIETIES

Communities relying primarily on extensive horticulture or intensive agriculture are generally able to meet their own subsistence needs. However, with the development of cities into regional empires, many cultivators became incorporated into larger structures of trade and government. Under pressure from these structures, farmers past and present were and are obliged to **sell their surplus** for cash in order to pay taxes and purchase agricultural inputs such as seed and fertilizer. As cities and states grow, they exert pressure on cultivators to produce ever higher yields to support greater populations and more elaborate state projects. As cultivators become incorporated into demanding states, they become a class of **peasants**. A peasant is a farmer with a small plot of land incorporated into a larger regional economy. Nearly all contemporary cultivators are part of a peasant class in their nation-states (Sillitoe 2018). Peasants are often marginalized and disadvantaged, reliant on economic and political structures they cannot control, and exploited by urban elites. Many farmers now make up a rural underclass.

Extensive horticulturalists such as the Kayapó require large areas of land in order to allow their fallow plots to regenerate before reusing them. Over the past 30 years, cattle ranchers, loggers, and miners have moved into Kayapó territory. Unlike the Kayapó, ranchers and loggers practice ecologically damaging methods, leaving large areas of barren wasteland in their wake. Early on, some Kayapó communities accommodated iron and gold mining operations, signing contracts that granted mining companies permission to operate in exchange for a small percentage of profits. However, mining practices polluted the rivers that the Kayapó rely on for drinking, bathing, and fishing. With the emergence of gold rush towns and the flood of foreigners into the area, the Kayapó began to see unwelcome changes in their communities, such as increases in disease and problematic alcohol use. Many Kayapó turned against outsiders, attacking loggers and miners to force them off of Kayapó land. As a further problem, the Brazilian government has proposed a series of large hydroelectric dams on Kayapó rivers to generate power in the Amazonian hinterlands. These dams would flood Kayapó territory, displacing more than 20,000 people. Recognizing these projects as threats to their culture and way of life, the Kayapó have joined with other Amazonian Indigenous groups in dramatic protests attracting global attention and support (Turner and Fajans-Turner 2006). The rock star Sting attended one such protest and later founded the Rainforest Foundation Fund to support the efforts of the Kayapó to protect their land.



Kayapo representatives are shown a map of mining concessions within their lands. Mining is just one of the threats to the Kayapo way of life and to the ecological health of their territory that has emerged in the recent decades. (credit: Beto Ricardo/Instituto Socio-Ambiental/Wikimedia Commons, Public Domain)

You may have heard this story before—the story of Indigenous peoples who come to be surrounded and dominated by extractive capitalists and state officials. In their relations with Indigenous peoples practicing gathering-hunting, pastoralism, and horticulture, states often argue that such people are resisting inevitable progress. Indeed, American world history textbooks often represent the emergence of cities, the expansion of trade, and the creation of bureaucratic states as steps in the triumphal march of progress, key achievements in the development of civilization. But progress for whom? The more that is learned about life in nonindustrial, noncapitalist societies, the more questions are raised about these notions of progress.

EXCHANGE, VALUE, & CONSUMPTION

Before moving ahead to discuss the last of the four major subsistence methods, it's worth reviewing the ways in which goods circulate in societies in accordance with each mode of subsistence. The four subsistence strategies are defined primarily by their techniques of production—that is, the way people use materials from their environments to make the things they need, such as food, clothing, shelter, and medicines but there are also various methods of **circulating things through social groups**.

Most societies rely on one primary strategy for making a living, though they very often combine it with one or more others in flexible ways over time. If key foods become impossible to find, gatherer-hunters may take up farming for a few seasons. Many herding groups regularly hunt and sometimes plant crops along their nomadic routes, returning the next season to harvest the crops. Many farmers also keep domesticated animals. So it is with **modes of exchange**. Most societies practice not just one strategy but a combination of many, dominated by the form of exchange that dovetails with the main subsistence strategy.

FORMS OF EXCHANGE & RECIPROCITY

There are three distinct ways to integrate economic and social relations and distribute material goods. Contemporary economics only studies the first, **market exchange**. Most economic models are unable to explain the second two, **reciprocity** and **redistribution**,

because they have different underlying logics. Economic anthropology, on the other hand, provides perspective into how diverse modes of exchange shape, and are shaped by, everyday life across space and time. Anthropologists understand market exchange to be a form of trade that today most commonly involves general purpose money, bargaining, and supply and demand price mechanisms. In contrast, reciprocity involves the exchange of goods and services and is rooted in a mutual sense of obligation and identity. Anthropologists have identified three distinct types of reciprocity: generalized, balanced, and negative. Finally, redistribution occurs when an authority of some type collects economic contributions from all community members and then redistributes these back in the form of goods and services. Redistribution requires centralized social organization, even if at a small scale. As we will see, various modes of exchange can and do coexist, even within capitalism.

While early economic anthropology often seemed focused on detailed investigations of seemingly exotic economic practices, anthropologists such as **Bronislaw Malinowski** and **Marcel Mauss** used ethnographic research and findings to critique Western, capitalist economic systems. Mauss, a French anthropologist (and nephew of Durkheim) was one of the first to provide an in-depth exploration of reciprocity and the role that gifts play in cultural systems around the world. Mauss asked why humans feel obliged to reciprocate when they receive a gift. His answer was that giving and reciprocating gifts, whether these are material objects or our time, *creates links between the people involved*. This makes sense when we consider Durkheim's ideas about 'feelings of force'—social forces. What Mauss was able to articulate was that the need to reciprocate 'gifts' (loosely defined) is one such cultural or social force.

Over the past century, anthropologists have devoted considerable attention to the topic of reciprocity. It is an attractive one because of the seemingly moral nature of gifts: many of us hope that humans are not solely self-interested, antisocial economic actors. Gifts are about social relations, not just about the gifts themselves. Giving a gift that contains a bit of oneself builds a social relationship with the person who receives it. Studying reciprocity gives anthropologists insights into the **moral economy**: the processes through which customs, cultural values, beliefs, and social coercion influence our economic behavior. The economy can be understood as a symbolic reflection of the cultural order and the sense of right and wrong that people adhere to within that cultural order.

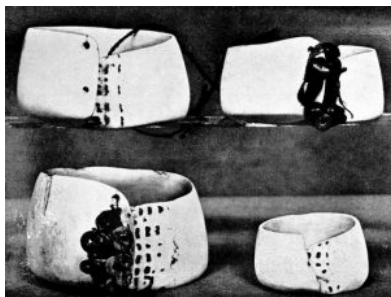
GENERALIZED RECIPROCITY

When we gift without reckoning the exact value of the gift or expecting a specific thing in return we are practicing **generalized reciprocity**. This form of reciprocity occurs within the closest social relationships where exchange happens so frequently that monitoring the value of each item or service given and received would be impossible, and to do so would lead to tension and quite possibly the eventual dissolution of the relationship. However, generalized reciprocity is not necessarily limited to households. Communities might cook and deliver meals for neighbors who have a new baby, a sick parent, or recently deceased relative. Similarly, at Halloween

we give out handfuls of candy (sometimes spending \$50 or more in the process)—the reciprocation here is ostensibly not getting egged, but the concept of 'trick-or-treat' has largely lost the 'trick' component over the past several decades moving the practice closer to *generalized* reciprocity.

BALANCED RECIPROCITY

Unlike generalized reciprocity, **balanced reciprocity** is more of a direct exchange in which something is traded or given with the expectation that something of equal value will be returned (usually within a specific time period). This form of reciprocity involves three distinct stages: the gift must be given, it has to be received, and a reciprocal gift has to be returned. A key aspect of balanced reciprocity is that without reciprocation, the exchange system will falter and the social relationship might end. Balanced reciprocity generally occurs at a social level more distant than the family, but it usually occurs among people who know each other. In other words, complete strangers would be unlikely to engage in balanced reciprocity because they would not be able to trust the person to reciprocate within an acceptable period of time.



Mwali from the Kula Exchange

The Kula ring system of exchange found in the Trobriand Islands in the South Pacific is possibly the most famous example of balanced reciprocity. A Kula ring involves the ceremonial exchange of shell and bead necklaces (*soulava*) for shell arm bands (*mwali*) between trading partners living on different islands. The arm bands and necklaces constantly circulate and *only have symbolic value*, meaning they bring the temporary owner honor and prestige but cannot be bought or sold for money. Malinowski was the first anthropologist to study the Kula ring, and he found that although participants did not profit materially from the exchange, it served several important functions in Trobriand society. Because participants formed relationships with trading participants on other islands, the Kula ring helped solidify alliances among tribes, and overseas partners became allies in a land of danger and insecurity. Along with arm bands and necklaces, Kula participants were also engaging in more mundane forms of trade, bartering from one island to another. Additionally, songs, customs, and cultural influences also traveled along the Kula route. Finally, although ownership of the arm bands and necklaces was always temporary (for eventually participants are expected to gift the items to other partners in the ring), Kula participants took great pride and pleasure in the items they received. The Kula ring exhibits all the hallmarks of balanced reciprocity: necklaces are traded for armbands with the expectation that objects of equal value will be returned within a specific time period.

NEGATIVE RECIPROCITY

Unlike balanced and generalized reciprocity, **negative reciprocity** is an attempt to get something for nothing. It is the most impersonal of the three forms of reciprocity and it commonly exists among people who do not know each other well—because close relationships are incompatible with attempts to take advantage of other people. Gambling is a good example of negative reciprocity, and some would argue that market exchange, in which one participant aims to buy low while the other aims to sell high, can also be a form of negative reciprocity.

In the 21st century, one of the best known examples of negative reciprocity may be the use of malware, ransomware, or email phishing scams. The anthropologist Daniel Smith studied the motives and practices of email scammers who are responsible for approximately one-fifth of these types of emails that flood Western inboxes. He found that the common "Nigerian Prince" scams emerged in the largest African state in the late 1990s when there were few legitimate economic opportunities for the large number of educated young people who had the English skills and technological expertise necessary for successful scams. Smith spoke with some of the Nigerians sending these emails and found that they dreamed of a big payoff someday. They reportedly felt bad for people who were duped, but said that if Americans were greedy enough to fall for it they got what they deserved.

REDISTRIBUTION

Redistribution is the accumulation of goods or labor by a particular person or institution for the purpose of dispersal at a later date. Redistribution is found in all societies. For example, within households we pool our labor and resources, yet we rarely distribute these outside of our family. For redistribution to become a central economic process, a society must have a centralized apparatus (political, religious, etc.) to coordinate and enforce the practice. Redistribution can occur alongside other forms of exchange. For example, in the United States everyone who works in the formal sector pays federal taxes to the Internal Revenue Service.

Sometimes economic practices that appear to be merely reciprocal gift exchanges are revealed to be forms of redistribution after closer inspection. The **potlatch** system of Indigenous American groups living in the United States and Canadian northwestern coastal area was long understood as an example of functional gift giving. Traditionally, two groups of clans would perform highly ritualized exchanges of food, blankets, and ritual objects. The system produced status and prestige among participants: by giving away more goods than another person, a chief could build his reputation and gain new respect within the community. After contact with settlers, the excessive gift giving during potlatches escalated to the point that early anthropologists described it as a "war of property." Later anthropological studies of the potlatch revealed that rather than wasting, burning, or giving away their property to display their wealth, the groups were actually giving away goods that other groups could use and then waiting for a later potlatch when they would receive things not available in their own region. This was important because the availability of food hunted, fished, and foraged by native communities could be highly variable; the potlatch

primarily served a livelihood function by ensuring the redistribution of goods between groups with surpluses and those with deficits.



A potlatch in British Columbia in the 1890s. In potlatch ceremonies, the power and wealth of a group was demonstrated not by what they acquired but by what they gave away. (credit: Edward S. Curtis/Wikimedia Commons, Public Domain)

MARKETS

The third way that societies distribute goods and services is through **market exchange**. Markets are social institutions with prices or exchange **equivalencies**. Markets do not necessarily have to be localized in a geographic place (e.g., a marketplace), but they cannot exist without **institutions** to govern the exchanges. Market and reciprocal exchange appear to share similar features: one person gives something and the other receives something. A key distinction between the two is that market exchanges are regulated by supply and demand mechanisms. The forces of supply and demand can **create risk** for people living in societies that largely distribute goods through market exchange. If we lose our jobs, we may not be able to buy food for our families. In contrast, if a member of a Dobe Ju/'hoansi community is hurt and unable to gather foods today, she will continue to eat as a result of generalized reciprocal exchanges.

While market exchange is generally less personal than reciprocal exchange, personalized transactions between people who have a relationship that endures beyond a single exchange do exist. Atomized transactions are impersonal ones between people who have no relationship with each other beyond the short term of the exchange. These are generally short-run, closed-ended transactions with few implications for the future. In contrast, personalized transactions occur between people who have a relationship that endures past the exchange and might include both social and economic elements.

To better understand the differences between transactions between relative strangers and those that are more personalized, consider the different options one has for a haircut: a person can stop by a chain salon such and leave twenty minutes later after spending \$15 to have his hair trimmed by someone he has never met before, or he can develop an ongoing relationship with a hair stylist or barber he regularly visits. These appointments may last an hour or even longer, and he and his stylist probably chat about each other's lives, the weather, or politics. At Christmas he may even bring a small gift or

give an extra tip. He trusts his stylist to cut his hair the way he likes it because of their long history of personalized transactions.

Among strangers, market exchange is the most common form of transaction. In capitalist societies, market exchange is the default setting; if all else fails, pay for it. Market transactions are quick and easy, and the participants walk away relatively unencumbered by future obligation. If this is the advantage of market exchange, it can also be a big disadvantage. Without the relations of mutuality and trust established by forms of reciprocity, the participants in market exchange are motivated by the desire to get more than they give. A society dominated by market exchange is therefore dominated by the logic of self-interest and greed rather than cooperation and social well-being.

MONEY

While general purpose money is not a prerequisite for market exchanges, most commercial transactions today do involve the exchange of money. Money serves as a medium of exchange, a tool for storing wealth, and as a way to assign interchangeable values. It reflects our ideas about the generalized interchangeability of all things—it makes products and services from all over the world commensurable in terms of a single metric. In so doing, it increases opportunities for unequal exchange. Different societies have attempted to challenge this notion of interchangeability and the inequalities it can foster in different ways.

What is **money**? In the formulation of classical philosophy, money is defined by three functions: it serves as a medium of exchange, a unit of account, and a store of value. Imagine that two friends from neighboring groups, one a pastoralist group and the other a horticultural group, meet in town. The pastoralist has a freshly slaughtered goat slung over their shoulder. The horticulturalist is carrying a small sack of vegetables. They decide they'd like to trade. The farmer wants all of the meat, but the herder wants only a small portion of the vegetables. Each person wants the trade to be equal; that is, they both want to give and receive the same value. How can they conduct this transaction? How do they know the value of the things they want to trade?

It seems natural to imagine these two trader friends attempting to negotiate some sort of barter. The swapping of goods on the spot, however, was never a dominant form of exchange in any culture in the past. Instead, many anthropologists argue that precapitalist peoples relied more on gift exchange, redistribution, and debt to circulate goods through society. When an uneven exchange was made, the one who benefited more would 'owe' the other. The other possible solution is money. If these two traders live in a society that uses some **arbitrary other thing to enumerate value**, they would know that all of the meat has the value of a number of shekels, cowrie shells, tally sticks, bones, animal skins, brass rods, gold coins, bank notes, or any other objects used as money. With some units of money, they can make the exchanges and walk away without entanglement.

INDUSTRIALISM

All of the modes of subsistence previously discussed rely on human labor applied directly to environmental resources to produce

relatively small batches of food, tools, and other goods. In the past 10,000 years, gathering-hunting, pastoralism, and agriculture all existed side by side, and most groups dabbled in more than one of these modes.

In these systems, most work is conducted by extended-family groups in the context of the household, whether settled or mobile. These family groups regulate their own work cycles and determine how goods are produced and distributed based on their own needs and strategies. In the 1700s in Europe, a new way of producing goods began to develop, slowly at first and then growing exponentially to sweep the globe. That mode of subsistence is **industrialism**: the use of wage labor and technological processes to mass-produce commodities. This mode of subsistence drew sets of people away from their households into factories where they performed repetitive forms of labor in return for regular wages. In the factory setting, workers have very little control over their own work cycles and no claim whatsoever on the goods they produce.

As a mode of subsistence, industrialism drew from and transformed other modes of production, such as pastoralism and agriculture. Industrialism did not supersede other modes but rather used them as sources of raw materials and labor. Gatherer-hunters, with no surplus to supply industry, are deemed useless to industrialism. Gatherer-hunter groups are thus marginalized by contemporary states, often being confined to reservations where their way of life is difficult or impossible to practice.

CLOTH, FACTORIES, AND SLAVERY: THE RISE OF INDUSTRIALISM

In the early 1700s, small-scale British sheepherders produced raw wool exported to European countries like the Netherlands for processing into cloth, but envious British manufacturers sought to expand local wool processing for export, driving up wool prices and prompting large landholders to evict small-scale peasants to expand sheep herds, while landless people flooded cities seeking work just as manufacturers needed cheap wage labor for new factories, with the drive to increase productivity while lowering costs prompting technological innovations (water mills, steam engines) and new labor management techniques (clock-regulated workdays, shop-floor discipline) that stimulated similar mass production shifts in cotton cloth, pottery, and metals, completely transforming England's economy by the mid-1800s into one dominated by factory-produced commodities for global export—a model that spread across western Europe, reshaping urban national economies in the Netherlands, Germany, France, and beyond.

As these industries outgrew local raw material supplies, they sought additional sources of cotton, sugar, tea, and tobacco, ultimately resulting in the creation and expansion of the **African slave trade**—using enslaved persons on New World plantations to supply English factories. European societies shifted to industrial production not because it provided better lives for most people but because it generated stupendous profits for large landowners, factory owners, and transnational traders—not progress for peasants forced into urban slums working 14-hour days under harsh shop-floor discipline, nor for enslaved persons abducted, shipped abroad, and worked to death under the lash, but perhaps seeming like progress to

European consumers eager for fancy clothes and tasty foods, with the modern advertising industry invented during this time to stimulate consumption of mass-produced commodities and promote notions of progress and development that emerged in 19th-century Europe as rationales for new forms of conflict and domination demanded by the industrial economy.



Industrial weaving was often done by young women. Working long hours in a textile factory was a very different experience from the weaving that these women's mothers and grandmothers may have done at home. (credit: "The Bobbin Girl" by National Park Service/Wikimedia Commons, Public Domain)

COLONIALISM AND GLOBAL CAPITALISM

The development of the industrial economy in Europe generated the global system of capitalism that exists today. After the European slave trade was abolished in the early 19th century, Europeans expanded their control over African, Asian, and New World territories, cultivating new sources of such raw materials as peanuts, cocoa, and palm oil to develop even more lucrative European industries. This expansion of control took the form of **colonialism**, the political domination of another country in the interest of economic exploitation.

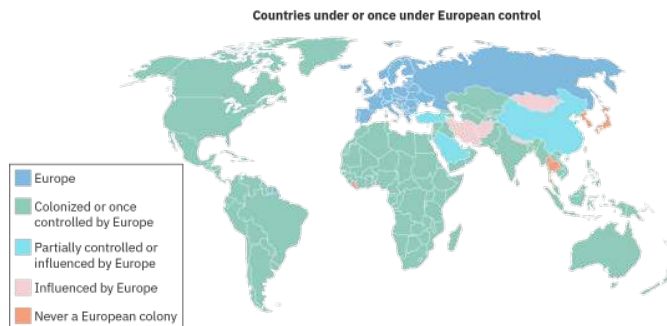


Figure 7.18 Postcolonial countries of the world. Note the pervasive influence that European nations have had around the globe, with just a few isolated areas that have remained free of European influence or control. (attribution: Copyright Rice University, OpenStax, CC BY 4.0 license)

From the 1500s to the 1900s, European countries dominated much of Africa, Asia, the Middle East, and the Americas through colonialism involving violent rule, raw material extraction, forced labor, taxation, Christian missions, local culture denigration, disease introduction, and increased local conflict, with colonizers claiming a "civilizing mission" to bring progress benefits like hospitals and schools despite hardships and injustices far outweighing meager benefits for colonized peoples. Economically, colonialism was designed to extract raw materials supporting European industrial economies, so countries like Britain, France, and Germany sought valuable minerals and fertile land for cash crops—seizing fertile African regions and selling them to White settlers for tea and cotton plantations, relocating African peoples to less fertile lands and forcing them to work on White plantations to survive, recruiting African farmers to grow coffee and cocoa where tropical diseases like malaria made White settlement difficult, taxing colonial subjects to force mine and plantation work or cash crop cultivation, edging African businesspeople out of international trade, and curtailing colonial industrial development to protect European industry.

Most colonized countries gained independence in the mid-20th century, but colonial economic domination persists for most postcolonial countries whose economies remain dominated by few mining and cash crop exports, with wildly fluctuating global raw material prices making government budgeting difficult and eroding export value over time, forcing countries to export increasingly more just to maintain economies and making real economic growth nearly impossible.

👉 IMPORTANT!

Today, we can better understand this history. Importantly, we can also consider the role colonialist practices have had on shaping anthropology. In the past, ideas about "civilization" drove incorrect assumptions about linear cultural development, the existence of biological races, and so forth. Today, anthropology has an important role to play in better understanding these systems, their effects, and the importance of (and reasons for) cultural difference.

MODERNITY, THE SOCIOCULTURAL COMPLEX OF INDUSTRIAL SOCIETIES

What happens when a country industrializes? Anthropologists have been interested in how processes of industrialism have unfolded in non-European contexts such as India, China, Brazil, and Mexico. Wherever this transformation occurs, certain other sociocultural conditions tend to follow. Social scientists refer to the complex of features that accompanies industrialization as **modernity**.

While anchored by a set of commonalities, modernity takes different forms in different contexts. Societies accommodate the changes of industrialism using their own cultural institutions, practices, and belief systems, informed by their own historical experiences. Some versions of modernity emphasize individualism and allow for vast amounts of inequality among people in different social categories. Other versions of modernity emphasize community well-being and equality. Some scholars use the term **alternative modernity** to describe versions of modernity that have developed outside of Europe.

Nevertheless, industrialism does entail a set of sociocultural forces that interact with local cultural features to produce these distinctive versions of modernity.

The first of these forces is urbanization. People are pushed or pulled into **urban centers** to find jobs when factories are established. Rural farmers must rely on unpredictable factors such as weather and volatile market prices for their goods.

The second notable feature of industrial society is regimented **wage labor**. In the other modes of subsistence, people are obligated to work to survive, but they maintain control over the conditions of their work, such as when they start and end their workday, when they take breaks, what tasks they perform that day, how they perform those tasks, and how much they produce in a given day. In the factory setting, the nature of work changes profoundly. Even as many industrialized societies have shifted to services as the basis of their economies, they have retained the fundamental structure of regimented wage labor for the vast majority of shop and office workers—even societies that value personal "freedom" require most people to work under authoritarian conditions.



Punching the time clock. Regimented wage labor is a defining feature of industrial societies. (credit: "Detroit, Michigan (Vicinity). Chrysler Corporation Dodge Truck Plant. War Workers 'Punching In' for Their Job of Helping to 'Punch' the Axis" by Arthur S. Siegel/Library of Congress)

A third feature of industrialism is the grouping of people into **social classes**. In other modes of subsistence, society is structured primarily by family groups, gender groups, age sets, and regional associations. In industrial societies, extended-family systems tend to be increasingly challenged and sometimes replaced by much more mobile nuclear families. Social identity is increasingly reckoned according to occupation. In non-Western contexts, class often combines with ethnic and religious identities to create complex cultural forms of inequality and conflict.

A fourth feature of industrial societies is **an increase in commodity consumption**. People of all classes in industrial societies buy, consume, and own an extraordinary amount of stuff. This is necessary, of course, because industrialized capitalist economies *produce* so much stuff. Food retailers throw away more than 45 billion tons of unsold food products every year. Many clothing companies shred or burn the clothes they cannot sell. Marketing and advertising have evolved to stimulate increased consumption by attaching specific meanings to commodities. Often, ads portray commodities such as perfumes or cars as powerful objects that possess the ability to transform their users. This association of commodities with magical powers is called **commodity fetishism**. People are encouraged to think that owning or consuming certain commodities makes them beautiful or enviable or gives them membership in a more powerful social class. In fact, commodities do not really have the power to transform people. Commodities are inert. Rather, it is people who have power—the power to transform materials into commodities.

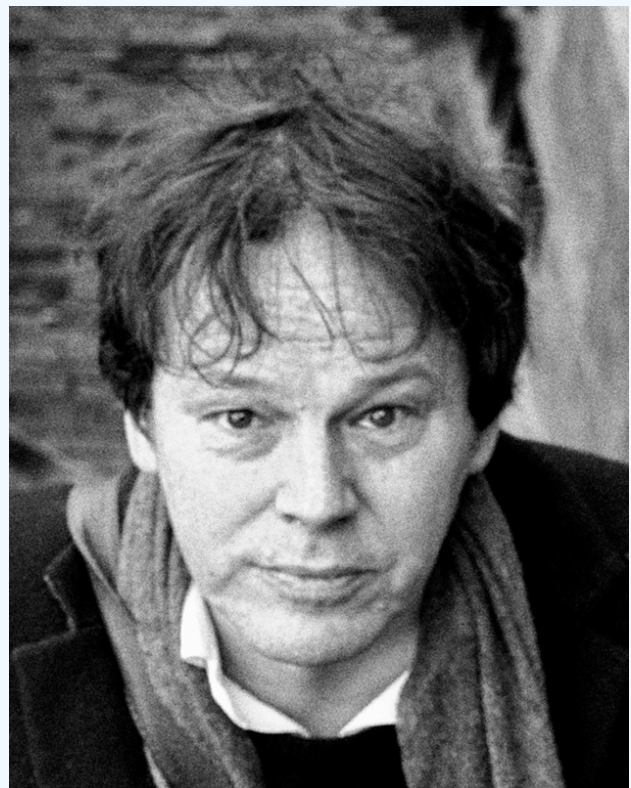
Finally, as suggested by their patterns of commodity consumption, people in industrial societies often place a high **value on individualism**. Increasingly in industrial and postindustrial societies, people develop identities based on their personal tastes, attributes, experiences, and goals rather than those of their surrounding families or other social groups to which they belong. Rather than living with family, many people in US society live alone for years or even decades. On the one hand, this development

provides people with opportunities to choose their own paths in life, to explore new identities and ways of living. On the other hand, individuals are increasingly expected to rely on themselves rather than cultivating relations of mutuality and reciprocity with others. In societies that emphasize self-reliance, people often face material and emotional hardship alone. Feeling isolated and cut off from social relationships, many experience a sense of what Max Weber called **alienation**.

POSTINDUSTRIALISM AND POSTMODERNITY

In the 1970s, Western economies shifted from manufacturing to services and information as companies relocated factories to developing nations like China, Brazil, and Mexico marking the rise of globalization and what theorists call **postmodernity**. This transition intensified rather than reshaped society's structures: work became more demanding, with professional elites securing benefits-laden jobs while former manufacturing workers competed for precarious service positions or gig work, creating widespread **anxiety** (in a social as well as psychological sense) and inequality across all classes. Meanwhile, pervasive technology and constant **information flows** produced what David Harvey termed "time-space compression"—a sensation of accelerating time and a shrinking world—as new media reshaped social identities and relationships while sociocultural polarization and nationalist identities resurged alongside growing **precarity**—a state of persistent insecurity with regard to employment or income.

✓ EXAMPLE: DAVID GRAEBER



David Graeber (credit: Guido van Nispen/Wikimedia Commons, CC BY 2.0)

David Graeber was born in New York and grew up in a working-class family steeped in radical politics. While in junior high school, he became fascinated by Mayan hieroglyphics and translated many glyphs that had only partially been translated before. He sent his translations to a Mayan scholar, who was so impressed that he helped Graeber get a scholarship to a prestigious prep school in Massachusetts.

Graeber earned his PhD from the University of Chicago after fieldwork in Madagascar observing self-governing communities. He became a leading critic of modern economic systems despite facing professional setbacks due to his radical activism, including losing his Yale position in 2005. His influential works—particularly *Debt: The First 5,000 Years* (2014), which traced debt as an inequality mechanism from ancient Sumer to modern America and advocated for debt jubilees, and *Bullshit Jobs* (2018), which argued that technological advances created meaningless white-collar work causing moral damage—established him as an innovative economic thinker who connected anthropological insights to contemporary crises.

As a political activist and Occupy Wall Street co-founder, Graeber championed direct democracy, debt cancellation, and social movements addressing inequality, working conditions, and environmental sustainability until his career at the London School of Economics.

While on vacation in Venice with his new wife in 2020, David Graeber died suddenly of necrotic pancreatitis. He was 59. The following year, David Wengrow, an archaeologist with whom Graeber collaborated published *The Dawn of Everything: A New History of Humanity* the two use archaeological and cultural anthropological evidence to describing the diversity of early human political organization. The book critiques traditional narratives of history's linear development from primitivism to civilization.

ENVIRONMENTAL IMPACTS OF INDUSTRIAL AND POSTINDUSTRIAL SOCIETIES

Whether exacerbating existing global cycles or primarily on its own, there is no doubt industrialism has severely damaged environments through fossil fuel emissions causing climate change, water and soil contamination, and habitat loss from resource extraction. Increasingly, climatologists are convinced that industrialized practices are creating detrimental changes to the Earth's **thermohaline circulation**. Thermohaline circulation is a large-scale ocean current system driven by differences in water temperature and salinity (saltiness), which affect density. Also called "the global conveyor belt," it moves warm, less dense surface water toward the poles, where it cools, becomes saltier, and sinks to the ocean floor. This dense, cold water then flows back towards the equator in the deep ocean.

This process is critical for redistributing heat around the globe, with significant impacts on regional climates. The worst effects of both

human actions like resource extraction and the resulting effects on climate occur or are most detrimental in poorer regions. Anthropologists studying these impacts through "climate ethnography" have documented how climate change is forcing subsistence farmers and herders in vulnerable areas like Papua New Guinea, Siberia, Bangladesh, and Alaska to abandon traditional livelihoods due to droughts, floods, and unpredictable weather, often migrating to cities for wage work.

Unlike gathering-hunting, pastoralism, and horticulture—which often sustain environments and can coexist as supplementary strategies—industrialism and postindustrialism form a globally dominant system that forces other subsistence modes into the capitalist market while depleting natural resources, making the loss of ecologically sustainable traditional practices both a cultural tragedy and environmental disaster.

CATEGORIZATION OF POLITICAL SYSTEMS

It is again tempting to mistake these descriptions of production and distribution as moving along a linear chain from gatherer-hunter to post-industrialization. While this is somewhat the case for the move from agriculture to industry to most-industry, there is nothing to say the move is 'better'—only different. Further, there is nothing innate about agriculture which 'causes' industrialization. So to say, had the 1800s in Europe gone differently, some other system of production, distribution, and political organization may have come about.

European colonizers in the late 1800s, seeking raw materials for their industrial economies, governed colonized territories based on ethnocentric stereotypes that non-Western societies were either tyrannical or anarchic. However, early 20th-century anthropologists working in African colonies discovered these assumptions were entirely wrong, culminating in the landmark 1940 book *African Political Systems* by Meyer Fortes and E. E. Evans-Pritchard, which documented that African societies had sophisticated political organizations including both centralized systems with formal rulers and acephalous ("headless") societies governed through kinship or village consensus. Using structural-functionalist analysis to demonstrate the stability of these precolonial systems, this research laid groundwork for later neo-evolutionists like Elman Service, who in the 1960s-70s proposed four evolutionary categories of social organization—bands (gathering-hunting), tribes (horticulture), chiefdoms (agriculture), and states (multiple subsistence modes plus conquest and trade)—each with distinct political systems linked to their subsistence patterns.

Contemporary political anthropologists reject both evolutionary schemes that rank societies from simple to complex and structural-functionalist approaches that portray non-Western societies as timeless, instead emphasizing each society's unique historical trajectory and equivalent political sophistication. Drawing on Max Weber's sociology, they analyze power—the ability to influence people and shape social processes—through three types of authority: **traditional** (priests, elders), **charismatic** (persuasive personal qualities), and **rational-legal** (coercive positions like president). While Service's four categories—bands and tribes (acephalous societies with dispersed power) and chiefdoms and states (centralized leadership)—provide a useful framework,

anthropologists recognize political organization as a *spectrum* rather than discrete stages, acknowledging that most societies combine multiple forms of authority that intersect, interact, and sometimes contradict each other.

Cultural anthropologists thus focus on understanding particular histories of political practices rather than fitting societies into evolutionary typologies, though they remain mindful of these idealized categories when analyzing *how power is distributed and formalized across different communities*. We will round out this chapter by looking at several of the ways anthropologists describe societal structures.

ANCEPHALOUS SOCIETIES

Any group without an official leader is acephalous. Until the early 20th century, many Europeans believed that all humans were essentially selfish and would relentlessly pursue their own personal interests without the moralizing forces of civilization to force them to be more cooperative. They assumed that any non-Western society without formal leadership and codified laws would necessarily be a chaotic free-for-all of greed, coercion, and violence. Anthropologists discovered otherwise.

In such communities, power is not concentrated in any formal position of leadership but rather diffused throughout society. Elders or people with experience in certain areas may give valuable advice, but they do not have the power to enforce their judgments. Their authority is based on **persuasive power**—that is, their ability to convince others and build group consensus. Certainly in any group there will be some people who want to exert power or force their own ideas on others, but without a formal mechanism allowing such people to enforce their will, others can generally ignore or evade them. The result is a mostly cooperative social order rather than chaos and strife.

Fortes and Evans-Pritchard described three types of **acephalous societies**. The first corresponds to what we have called **band societies**, or gatherer-hunters living in small groups of 20 to 30 people. Such groups are strongly egalitarian, stressing equality, cooperation, and sharing. People make decisions through discussion and consensus. Those with knowledge and experience in particular areas may exert influence in those areas, but there are no formal positions of leadership.

Small-scale societies like gatherer-hunter groups make subsistence decisions through consensus rather than hierarchy. The Hadza, for example, actively resist attempts at authority by simply ignoring bossy individuals or moving to another camp to avoid them, a strategy they extend even to government officials and missionaries. This egalitarian approach demonstrates how power in acephalous societies remains dispersed among community members, with decisions emerging from collective knowledge and consensus rather than being imposed by leaders, reflecting a political structure where anyone attempting to exercise unilateral authority is effectively neutralized through social avoidance.

While band societies have no political structure whatsoever, a second type of acephalous society relies on extended family structures and/or councils to organize leadership, decision-making,

and conflict resolution. Elman Service (1962) referred to these as **tribal societies**. Service's "tribal" form of social organization is associated with modes of subsistence such as pastoralism and horticulture, in which extended families control certain resources such as animals or land. Such communities are typically larger than bands, living in groups ranging from a few hundred to several thousand people.

A cautionary note about the words **tribe** and **tribal**. Too often, the adjective *tribal* is used to describe seemingly irrational group loyalties and conflicts, particularly in non-Western societies. The word *tribe* carries connotations of primitive lifeways and collective groupthink. In fact, many contemporary conflicts that are attributed to "tribal" animosity occur between groups that got along just fine before the colonial period of European domination. Because the word has been so often misused, some anthropologists have replaced the term *tribe* with the term *ethnic group* to describe large collectivities based on a sense of common ancestry and shared culture. Many anthropology texts do continue to use the term *tribal* to refer to a specific form of sociopolitical organization based on extended family groups. Many Indigenous groups also use the term to refer to their social groups. It's one thing for people in a group to use the term *tribe* to refer to their own social group and quite another to use the word to describe a whole category of social organization.

A **lineage** is a group of people related by a common ancestor through either the maternal or the paternal line. In **lineage orders**, communities consist of two or more lineage groups, each one with an elder or group of elders that plays a prominent role in establishing consensus and settling disputes within the lineage. Such leaders do not occupy formal positions of leadership, but rather exercise informal authority through their accumulated knowledge and their ability to persuade members of the lineage to follow their instructions. Like band societies, lineage orders tend to be fairly egalitarian. Some lineage societies are **segmentary lineages**. These consist of family units called minimal lineages, which are encompassed by larger groups called maximal lineages, which are subsumed by even larger groups called **clans**. Minimal lineages are groups that trace descent from a common great-grandfather. In disputes between minimal lineages, people can recruit allies from the larger groups of kin, though there are no leaders in these larger groups.

Another informal position of leadership, common to lineage-order societies in Melanesia and New Guinea, is the role of the **big man**. Although lineage orders are generally egalitarian, a man can distinguish himself through the accumulation of wealth, public acts of generosity, and the performance of verbal skills. Big men do not hold formal office and have no official power to enforce their will. Their power is persuasive, not coercive. By sponsoring feasts and helping young men pay bride wealth, big men attract loyal followers who respect their authority and follow their commands. Big men settle disputes within communities and represent local peoples in their dealings with outsiders. Though the accumulation of wealth and prestige is necessary to become a big man, far more important is the equitable distribution of wealth and service to the community. Greed and selfishness are abhorred and punished.

In some acephalous societies, communities are fundamentally organized through a system of age-related groups called **age sets**. An age set is a group of similarly aged people in a community who share a common social status with permitted roles, activities, and responsibilities. An array of age sets may be organized into a hierarchical age grade system, dividing members of the community into children, youths, adults, and elders (the term *age set* refers to the group, while the term *age grade* refers to the level in the hierarchy). Most often, age sets are gendered, with female and male versions of the same grade. In adolescence, males and females of similar ages are summoned at different times for initiation into the age set of their teenage years, either young men or young women. Strong lifelong bonds are formed through age sets, creating solidarities that cross lineage and clan boundaries in a community.

In addition to bands and lineage orders, a third and more atypical form of acephalous political organization is **village democracy**. Western students are often taught that democracy was invented in the ancient Greek city-state of Athens. Considering themselves heirs to the classical political tradition, Europeans who established colonial rule over African territories typically thought that they were bringing more enlightened ways of governing to African societies. But the Igbo of eastern Nigeria were already practicing a highly effective form of homegrown democracy before the arrival of the British. Indeed, many anthropologists reject the notion that democracy was invented by the Greeks. Lacking formal rulers, most acephalous societies practice forms of discussion and consensus-building that resemble democratic systems. In fact, the egalitarian and highly participatory form of democracy in such societies might be considered far more democratic than the form of representational democracy in large, Western societies, dominated by wealthy campaign donors and powerful lobbyists. In acephalous societies, a version of '**councils**' are often the main arena of public decision-making, councils play a more advisory role in societies with centralized authority.

CENTRALIZED SOCIETIES

The process of agricultural intensification often results in the centralization of power. Big men or lineage elders acquire the authority to command the labor of others and control the storage and distribution of agricultural surplus. They take on the role of organizing regional trade. They oversee the construction of infrastructure such as roads and irrigation systems. They organize groups of local young people to protect the community. They perform important community rituals to ensure agricultural productivity and community prosperity. Over time, such leaders may seek to hand down their leadership roles to their own kin in subsequent generations. As leadership becomes inherited, one lineage in a community may emerge as a royal lineage.

CHIEFDOMS

Anthropologists refer to those with formal, inherited positions of community leadership as **chiefs**. Over time, a chief can expand their dominion to incorporate several towns and villages into a small **chiefdom**. Chiefs are leaders with formal, inherited positions who can expand their authority into hierarchical chiefdoms encompassing multiple villages, with powerful paramount chiefs at the apex of

pyramidal systems that may include regional and village-level chiefs. When chiefdoms grow to control multiple ethnic groups in regional empires, their leaders become kings, as seen in diverse societies across Africa, Oceania, the Middle East, Europe, Asia, and the Americas throughout history. The defining feature of chiefdoms is the fusion of economic, political, religious, and military power in a single office, illustrated by Mesopotamian Sumer where religious priests initially shared power with secular governors before these roles merged in the hereditary position of lugal, creating dynastic rule. Chiefs exercise power primarily through controlling economic resources—holding land in public trust, allocating farmland, commanding communal labor on their own plots, collecting agricultural surplus for redistribution during feasts or emergencies, regulating local and regional trade networks, and monopolizing production of prestige goods like royal textiles and precious metal ornaments.

Militarism is another common feature of chiefdoms throughout the world. While the power of leaders in acephalous societies depends on their ability to persuade others to do what they say, chiefs have **coercive power** to force people to carry out their commands. Also common to many chiefdoms is the promotion of moral and religious ideology that supports the legitimacy of their rule. Although they wield great power, chiefs are often bound by a morality that compels them to use resources such as land and gold for the good of the people rather than for private benefit.

STATES

Starting around 5,000 years ago, a new form of political organization emerged independently in many parts of the world, including Mesopotamia, China, Egypt, India, Mesoamerica, and South America. As some societies in these areas became more populous and hierarchical, their leaders developed modes of governance that combined forms of economic extraction such as taxation and tribute with mechanisms of social control such as law and policing. These governments used public revenues to build infrastructure and monuments. They developed extensive bureaucracies to interpret and enforce laws and maintain social order. Large military forces defended and expanded control over territory, resulting in multiethnic empires. The government asserted a monopoly on the use of violence, meaning that only the government was allowed to use extreme forms of violence to control or punish anyone. Societies with this form of political organization are called **state societies**.

Many of the features of states mentioned above are common to the political organization of chiefdoms, and indeed states have generally emerged from the increasing centralization of political power in large chiefdoms. This concentration of power happens gradually over time, stimulated by a variety of pressures, some very general and universal and others more particular to the context of specific societies. Population growth and increasing **social stratification** are among the more general pressures, while the militaristic threats of specific neighboring societies and the particular opportunities of regional trade affect societies in different ways. Attempting to explain the rise of the state, theorists emphasize two sets of forces that propel the process: integrative pressures and conflict pressures.

Integrative pressures arise from the need for greater coordination in order to satisfy the needs of a growing population. As the population increases, agricultural production must also be increased to meet subsistence needs and for trade. Leaders are compelled to organize more complex irrigation systems and forms of landscape management, such as terracing and raised fields. These complex systems are built and maintained using public resources and labor. Increasing trade also exerts an integrative force, as leaders strive to maximize the wealth of their societies by stimulating production of agricultural and craft goods and establishing local markets and regional trade opportunities. As agriculture and trade become more complex, power becomes more centralized in order to manage the necessary conditions and infrastructure for economic growth.

Conflict pressures arise from the need to manage both internal and external threats to the power of leaders and the integrity of their societies. Some theorists argue that political power becomes increasingly centralized as a leader builds a large military force and wages long-term warfare to defend and expand territory. Conquering neighboring societies allows leaders to command regular tribute. In addition to conquest, military forces provide leaders with large cadres of loyal, well-armed supporters. Other theorists argue that internal tensions are just as pivotal to the centralization of power. State societies are built upon a system of social stratification; that is, they feature class and caste systems with unequal access to wealth and power. With the emergence of a class of privileged elites governing over urban craft workers and rural peasantry, leaders face new forms of inequality and potential conflict. Systems of law and ideology are developed to command the cooperation of disadvantaged groups.

IDEOLOGY AND HEGEMONY

People are often shocked to learn about the prevalence of state-sanctioned practices around the world (such as modern Korean compulsory military service, ancient Aztec human sacrifice, and countless examples of slavery through human history). We might wonder, how could people go along with such routine public violence conducted by representatives of the state? How did they not protest?

Every society develops a set of dominant ideas that frame the existing social order as the way things should be. These ideas form a narrative about the way the world works and the roles of different groups in promoting social harmony and collective prosperity. Typically, a society has many competing ideas about the way the world works, each one reflecting the perspectives and experiences of a particular group. The worldview of a particular group or class in society is called an **ideology**. Literary theorist Terry Eagleton (1991) describes ideology as an intertwined set of ideas, values, and symbols that can be either conscious or unconscious. When an ideology transcends one group to become the dominant way nearly all people in a society think about social reality, it becomes **hegemony**. Hegemony is a strategic set of “common sense” ideas that support the social order.

As a form of sociopolitical organization, the state requires the vast majority of citizens to lead lives of hard labor and sacrifice in order to support classes of artisans and nobles who live in great cities full

of bustling trade, luxurious goods, and monumental architecture. Tearing the heart from a victim on a public altar may seem shocking, but the logic of sacrifice serves as a metaphor for the bodily sacrifice of commoners required to endure lives of hardship to support the well-being of the state. To manage the inequality of classes and ensure the cooperation of all groups, the Aztecs came to embrace the hegemonic notion that sacrifice was necessary to ensure the very existence of the world.

The wealth of all state societies, past and present, rests on the hardship of manual laborers at the bottom of the social hierarchy. The dominant ideas of any state are ways of justifying the inequality inherent to all states. These ideas are highly variable. Some societies emphasize religious ideologies of self-sacrifice or the dangers of eternal damnation. Others celebrate economic ideologies of economic growth and consumerism. In American society, for instance, some believe it is necessary to keep the minimum wage of workers very low in order to protect economic growth, an idea not so far removed from notions of bodily sacrifice. In recent decades, the American system has offset these low wages by supplying working-class people with a vast array of cheap consumer goods. The relentless stream of advertising pervading social life continuously reiterates the consumerist mantras of affordability and satisfaction. Ironically, however, those goods are cheap because American manufacturers have relocated their factories to parts of the world where they can pay workers even less than they would pay Americans. The dominant ideology of consumerism draws attention away from the conditions of work and production and toward the ideals of choice and leisure.

As both Aztec and American societies demonstrate, the economic and political systems of state societies are deeply entwined, and this relationship is often reflected in the dominant ideas of a society. **Political economy** is the study of the way political and economic realms frequently reinforce and sometimes contradict one another over time.

CONCLUSION

Anthropologists have identified forms of structural inequality in countless places around the world. As we will learn in the Public Anthropology chapter, anthropology can be a powerful tool for addressing the pressing social issues of our times. When anthropological research is presented in an accessible and easily understood form, it can effectively encourage meaningful public conversations about questions such as how to best disperse relief aid after natural disasters.

One of economic anthropology’s most important lessons is that *multiple forms of economic production and exchange structure our daily lives and social relationships*. As we have seen throughout this chapter, people simultaneously participate in both market and reciprocal exchanges on a regular basis. For example, I may buy lunch for a friend today with the idea that she will return the favor next week when she cooks me supper. Building on this anthropological idea of economic diversity, some scholars argue that in order to address the economic inequalities surrounding us we should collectively work to construct a community economy, or a space for economic decision-making that recognizes and negotiates

our interdependence with other humans, other species, and our environment. J. K. Gibson-Graham, Jenny Cameron, and Stephen Healy argue that in the process of recognizing and negotiating this interdependence, we become a community.

At the heart of the community economies framework is an understanding of economic diversity that parallels anthropological perspectives. The economic iceberg is a visual that nicely illustrates this diversity. Above the waterline are economic activities that are visible in mainstream economic accounts, things like formal wage labor and shopping for groceries in a supermarket. Below the waterline we find the wide range of people, places, and activities that contribute to our well-being. This conceptual tool helps us to explore interrelationships that cannot be captured through mechanical market feedback loops.

The most prevalent form of labor around the world is the unpaid work that is conducted within the household, the family, and the neighborhood or wider community. When we include these activities in our understanding of the diverse economy, we also reposition many people who may see themselves (or are labeled by others) as unemployed or economically inactive subjects. When we highlight these different kinds of labor and forms of compensation we expand the scope of economic identities that fall outside the narrow range valued by market production and exchange (employer, employee, or entrepreneur). Recognizing our mutual connections and the surplus possibilities in our own community is an important first step toward building an alternative economy, one that privileges community spheres rather than market spheres and supports equality over inequality. This also resonates with one of economic anthropology's central goals: searching for alternatives to the exploitative capitalist relations that structure the daily lives of so many people around the world today.

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3.5: MARRIAGE AND KINSHIP

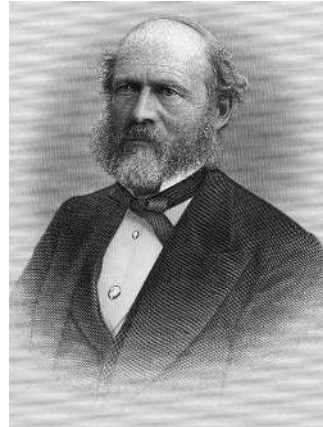
WHAT IS KINSHIP?

Social scientists commonly refer to social norms and behaviors—for example, as explored in Chapter 1, the ways that individuals are assigned to racial categories and what these categories mean about an individual's place within that society—as **sociocultural constructions**. Such norms and behaviors create categories and rules according to social criteria (not biological truths) and thus vary across cultures. **Kinship** is also a sociocultural construction, one that creates a network of social and biological relationships between individuals. Through kinship systems, humans create meaning by interpreting social and biological relationships. Although kinship, like gender and age, is a universal concept in human societies (meaning that all societies have some means of defining kinship), the specific “rules” about who is related, and how closely, vary widely. Depending on the way kinship is determined, two individuals who would call each other cousins in one cultural group may not even consider themselves to be related in another group.

The common assumptions that kinship is static and created by biological relationships reveal the strength of sociocultural constructs in our lives. It is culture—not biology—that defines for us whom our closest relatives are. Biology relies on genetics, but kinship is determined by culture. One interesting and very familiar example of the sociocultural dimension of kinship is the practice of adoption, through which those who have no necessary genetic relationship to one another are considered both legally and culturally to be family. Biological relatedness is determined at the genetic level. This form of knowledge is detected through specialized DNA testing and typically has little meaning in our day-to-day lives except within legal and economic contexts where paternity or maternity may be in question. Otherwise, across history and cultures, including within our own society today, family are those we live with, rely on, and love. These individuals, whether or not they have a specific genetic relationship to us, are those we refer to using family terms of reference—my mother, my son, my aunt.

The study of kinship is central to anthropology. It provides deep insights into human relationships and alliances, including those who can and cannot marry, mechanisms that are used to create families, and even the ways social and economic resources are dispersed within a group. One of the earliest studies of kinship was completed by Lewis Henry Morgan (1818–1881), an amateur American anthropologist, in the mid-nineteenth century. Intrigued by the cultural diversity of the Haudenosaunee living in upstate New York, Morgan began to document differences in kinship terminology between cultural groups, based on historical accounts and surveys from missionaries working in other geographic locations. In *Systems of Consanguinity and Affinity of the Human Family* (1871), he defined three of the primary kinship systems that we still recognize today, identifying each with either descriptive kinship terms, such as “mother’s sister’s son,” or classificatory terms, which group diverse relationships under a single term, such as “cousin.” Although Morgan used different names, today we know these three systems as lineal kinship, bifurcate merging kinship, and generational kinship.

The publication of his book marked the beginning of kinship studies in anthropology.



Left: Lewis Henry Morgan described the diversity of kinship structures and terms across cultures. Right: Bronislaw Malinowski researched the ways that kinship functions as a social institution. (credit: (left) “Lewis Henry Morgan” by Kelson/Rochester Historical Society/Wikimedia Commons, CC-PD-Mark (right) credit: “Bronislaw Malinowski” by Library of the London School of Economics and Political Science/Wikimedia Commons, Public Domain)

After Morgan’s research, anthropologists began a more methodical examination of kinship. W.H.R. Rivers (1864–1922) introduced the *genealogical method* in fieldwork in a 1910 article, “The Genealogical Method in Anthropological Query.” Using a series of basic questions about parents, grandparents, and siblings, Rivers approached the study of kinship as a systematic inquiry into the social structure of societies, seeking to understand how different cultures define family and family roles. Although he focused on small-scale societies, he argued that investigating kinship was a good way of establishing rapport with people and opening them up to sharing more detailed information about their lives regardless of the size of the society. Today, ethnographers continue to use a form of the genealogical method, through either face-to-face interviews or surveys, especially when doing fieldwork in small-scale societies. In this way, the ethnographer seeks to understand the sociocultural relationships in society and the ways that family affects those relationships.

In the 1920s, British anthropologists Bronislaw Malinowski (1884–1942) and A.R. Radcliffe-Brown (1881–1955) expanded the understanding of kinship as a social institution by studying the ways that kinship intersected with other institutions in society, such as inheritance, education, politics, and subsistence. Malinowski did fieldwork in the Trobriand Islands of Papua New Guinea, a matrilineal society where descent and inheritance were traced solely through mothers and grandmothers. In his work *Argonauts of the Western Pacific* (1922), he examined the functional role of kinship in Trobriand society, exploring how it works with other social institutions to address basic needs. Expanding kinship exploration beyond its early beginnings as a study of linguistic terminology only, Malinowski (1930, 19–20) says, “Kinship terminologies . . . are the most active and the most effective expressions of human

relationship, expressions which start in early childhood, which accompany human intercourse throughout life, which embody all the most personal, passionate, and intimate sentiments of a man or woman.” He saw kinship as a driving force connecting individuals to each other by means of enduring bonds. A. R. Radcliffe-Brown also focused on kinship as a social institution in his study *The Andaman Islanders* (1922), but instead of looking at the function of kinship, Radcliffe-Brown examined the roles and statuses created for an individual by the practice of kinship.

Through these early studies in kinship, anthropologists began to better understand the diverse ways that cultural groups think about things like family and community. Kinship relationships determine both rights and obligations to other people. These connections contribute to the way a society functions and resolve problems associated with everyday life. In small-scale societies with low population density, kinship identity plays a significant role in most of the life choices an individual will have, while in larger-scale societies, kinship plays a smaller and more limited role. In all societies, however, kinship provides guidelines on how to interact with certain other individuals and the expectations that are associated with these relationships.

Cultures call attention to kinship relationships through the way people speak to and refer to one another. Anthropologists sort this kinship terminology into two categories: **terms of reference** and **terms of address**. Terms of reference are the words that are used to describe the relationship between individuals, such as “mother,” “grandfather,” or “father’s brother.” Terms of address are the terms people use to speak directly to their kin, such as “Mom,” “Uncle,” and “Grandpa.” Sometimes the same word is used as reference and address: “This is my father” and “Hello, Father.” These terms are important because they designate relationships between individuals that carry responsibilities and privileges that structure human societies.

FAMILIES AND HOUSEHOLDS

A **family** can be defined as two or more people in an adaptable social and economic alliance that involves kinship, whether perceived through blood, marriage, or other permanent or semipermanent arrangement. It frequently, but not always, involves reproduction and the care of offspring and coresidence within the same locale. Families vary greatly across cultures and also adapt to changing social and economic needs. Sometimes families aggregate into larger units for short periods to meet challenging needs, such as eldercare, illness, job loss, transition between college and career, etc. A **household** is a group of individuals who live within the same residence and share socioeconomic needs associated with production and consumption. A family and a household may be the same unit, but they do not have to be. Sometimes families live within larger households, where there may be two or more families residing; at other times a family may be physically separated as family members migrate to work or study temporarily in other locations.

Like the concept of kinship, family is a sociocultural construct. Family is defined and recognized differently across cultures according to differing social norms. Some cultures consider families to be only those people believed to be related to each other, living

together, and sharing similar goals, while other cultures define family as a disperse set of individuals with an ancestral history. The definition of family that a cultural group endorses reflects such things as kinship and the social interpretation of biology, cultural traditions and norms, and socioemotional ties. It is commonly scaled from the intimate unit in which children are raised to a larger, more amorphous web of relatives.

Many Western societies perceive family to be a *nuclear family* of parents and their immediate offspring living together in a household. The extended family, on the other hand, is a loose collection of relatives with varying degrees of perceived kinship, from those referred to as blood relatives (*consanguine*) to those who have married into the family (*affine*). Among the Mundurucú in the lowland Amazonia of Brazil, the resident family includes only the mother and her preadolescent offspring, while the father resides in the tribal men’s house. Among the Mosuo of China (also called the Na), women form sexual alliances with men from outside of their families to produce offspring, and then remain with their brothers in their own households to raise their children. The children are considered to be part of the women’s lineage unit and family. This practice is sometimes known as “walking marriage” (but you can probably see why it more accurately a non-marriage).



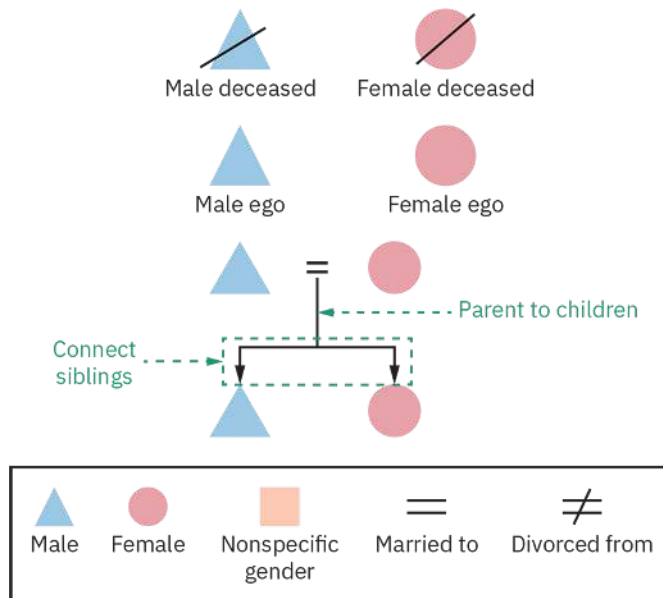
The Mosuo of China do not formally recognize a separate fatherhood role. Mosuo girls (left) and Mosuo boys (right) remain with their mother and her extended family, and fathers have no social or economic obligations for their biological offspring, though they often have significant responsibility for their nieces and nephews. (credit: “P8310032” and “P8310036” by Sherry Zhang/flickr, CC BY 2.0)

READING AND USING KINSHIP CHARTS

Anthropologists graphically illustrate relationships between family members with kinship charts (also called kinship diagrams). Anyone who has ever used an online genealogy program like Ancestry.com is already familiar with the ways that family relationships can be depicted. Anthropological charts use **EGO** as their starting point. The term EGO identifies the person whose chart is depicted. EGO marks the starting point for the kinship chart, and relationships are read as alignments between EGO and other individuals. The sum of kinship relationships identified through EGO is referred to as EGO’s **kindred**. Serving as a map and model, the kinship chart can be “read” like a text, with its own syntax and grammar identifying each individual within a society by means of their relatedness to each other.

Kinship charts depict two types of relationships, consanguineal and affinal. A **consanguineal tie** between individuals indicates a perceived biological connection (a connection “by blood”) and is indicated by a single line, regardless of whether it is drawn vertically or horizontally. A consanguineal tie is most often considered to be

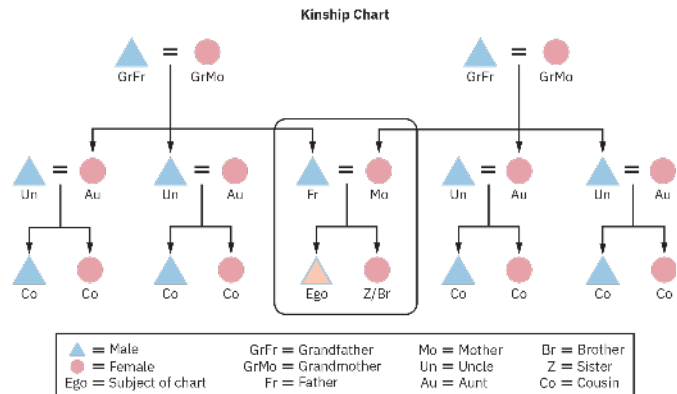
permanent. An **affinal tie** depicts a contractual relationship by marriage or mutual agreement and is drawn as a double line. Such ties usually can be broken, and if they are, a forward slash will be struck through the double line. There is also a hashed line (----) used for relationships that do not conform completely to type (e.g., to indicate adoption or an honorary family member). Hashed double lines are used to distinguish between a formal marriage and a relationship of cohabitation. The following is the most basic legend of the kinship chart:



An anthropological kinship legend. The iconography of kinship denotes such things as gender, relationships of marriage and descent, and individual terms of reference. (CC BY 4.0; Rice University & OpenStax)

Kinship charts can be read both vertically and horizontally. Individuals who share the same horizontal line are considered to be in the same cohort or generation, and individuals above and below EGO are in relationships of **descent**, meaning they are believed to be connected by blood or enduring kinship bond across generations. Anthropologists use common abbreviations to depict kinship relations across cultures, allowing us to compare families: father (FA), mother (MO), brother (BR), sister (SI or Z), aunt (AU), uncle (UN), son (SO), daughter (DA), and then compound terms, such as mother's or father's brother (MoBr, FaBr) or mother's or father's sister (MoSi, FaSi). Grandparents are usually designated as GrFa and GrMo.

The figure below depicts a kinship chart utilizing standard icons and abbreviations. Within this chart, EGO is depicted as a part of two different families: the **family of orientation**, which is the nuclear family unit in which EGO was reared and nurtured as a child and adolescent, and the **family of procreation**, which is the family that EGO creates, usually as a result of marriage. Test yourself and see if you can read it.



This generic kinship chart shows three generations, with a family of orientation. (credit: "Eskimo Kinship Chart" by Fred the Oyster/Wikimedia Commons, CC0)

As you can see in the figure above, EGO has multiple ties and embeddedness within the kinship network, leading to a complex web of rights and obligations. These concurrent ties with more than one family involve descent rules (how an individual traces relatedness across generations), residence rules (where an individual will live following marriage), and in some societies, even remarriage rules (how marriage will be reinstated following the death of a spouse). Each of these will be discussed later in the chapter.

FAMILY TYPES ACROSS CULTURES

Although family is difficult to categorize because of its diversity, anthropologists have defined four basic family types that are duplicated across cultures with minor variations. Each of these types is adapted to the social and economic needs of the family unit and is normally associated with particular subsistence strategies. Some families change to address immediate needs, such as when elderly parents can no longer live on their own independently. Regardless of its type, the family unit is a remarkably adaptive cultural mechanism.

Nuclear families: Also known as a single-couple family, a **nuclear family** is composed of one or two parents and their immediate offspring. It is the smallest family structure and is often found in societies where geographic mobility is valued. The nuclear family is common in small-scale foraging societies (bands) and industrial/postindustrial and market societies (states), both settings in which subsistence activities require families to relocate with some regularity. Although the model of the American nuclear family consisting of a two-parent household with one or more children has become less typical over the last several generations, it continues to be a norm. As of the 2016 census, 69 percent of US children under the age of 18 were living in a two-parent household, a decrease from 88 percent in 1960.

There are, however, other kinds of nuclear families. In the 2016 US census, 23 percent of children under 18 were living in a female single-headed household (mother), almost triple the number living in female single households in 1960 (8 percent). There was also an increase in children under 18 living in male single households (father), from 1 percent in 1960 to 4 percent in 2016 (United States Census Bureau 2016; Kramer 2019). Another growing nuclear family type is same-sex families. These may or may not include children. In the 2020 census, 14.7 percent of the 1.1 million same-

sex couples in the United States had at least one child under 18 in their household ([United States Census Bureau 2020](#)). In cases where the alliance between adults is temporary or informal, these families may be *nonconjugal nuclear families* or *cohabitation families*. (Note: The above terminology related to sex, gender, and family relationships is consistent with US Census data collection and reporting terminology, and may not reflect the terminology used by readers.)

Extended families: The **extended family** can be very complex. It includes two or more family units functioning as a single integrated family. It may involve three or more generations (e.g., grandparents, parents, and children), polygamous families with multiple spouses and their offspring, or married siblings living together with their children, a type of extended family known as *joint families*. The extended family can be an effective social and economic unit because it involves multiple adults able to contribute to the household. Extended families have been most commonly associated with agricultural societies, where a high value is typically placed on labor and self-subsistence. In the United States today, we commonly see the emergence of the extended family during times of transition, such as when family members are changing jobs, returning to school, or recovering from economic hardship. Worldwide, the extended family is the most common type of family.



An extended family in Pretoria, South Africa, including several generations. A family functions as a combined socioeconomic unit, where family members cooperate and support each other within the same household. (credit: Henry M. Trotter/Wikimedia Commons, Public Domain)

Blended families: **Blended families** are families in which there is more than one origin point for the members. This typically occurs when one or more divorced and/or widowed adults with children remarry, combining two formerly independent units into a new blended family. Blended families are common in the United States and in societies in which we find serial monogamy. Although the US census does not collect data specifically on stepfamilies, in 2009 Pew Research estimated that 16 percent of all American children lived in blended families.

FICTIVE KINSHIP

Some families also include **fictive kin**, a kinship tie in which individuals are defined as family regardless of biology. Fictive kinship is based on intentional relationships such as godparenthood or other close social ties.

One form of voluntary fictional kinship is a type of godparent relationship called **compadrazgo**. Originally developed as a social institution within the Catholic Church, the godparents of a Catholic child are named during the ritual of baptism when the child is an infant. These godparents are selected by the child's parents as role models to encourage their child in religious instruction and living a "godly" life. Godparents are most frequently chosen from among the child's relatives, thus *reinforcing kinship ties*. Although godparenthood is not formally practiced in every society, families in all societies do cultivate non-blood relationships and close friendships.

The Spanish and Portuguese empires introduced godparenthood into Latin America following the 16th-century conquest. The institution was adapted to meet the particular needs of populations suffering from disease, warfare, and mass casualties. These social disruptions often left children without parents who were able to adequately take care of them. In such a setting, children's godparents shifted from being chosen from among relatives to being selected from friends and acquaintances. This use of fictive kin relationships served as an extension of family for a child and *created new kinship ties* between families not previously related. It created a contract (Foster 1961) between the godparents (who referred to the child as *ahijado/a*), the child (who referred to their godparents as *padrino* and *madrina*), and the parents (who, along with the godparents, referred to each other as *compadre* and *comadre*), which provided an ever-widening social network.



Godparenthood (called compadrazgo in Spanish-speaking societies) is a formal designation and acknowledgement of fictive kin. It is commonly associated with Catholic Church rituals such as baptism. Here, an infant is photographed with baptismal godparents. (credit: "Godparents and Chris" by Brian Smith/flickr, CC BY 2.0)

Over time, the practice of compadrazgo adapted to the specific needs of this new cultural setting. A symmetrical form developed in which parents choose friends and coworkers of their same socioeconomic status to serve as godparents for their children. An asymmetrical form also developed, in which parents contract with individuals or couples who are in a higher class or status group to provide opportunities for their child. This form functions very similarly to a social security system. Many members of the upper classes see it as their Christian duty to sponsor a large number of godchildren within their communities or workplaces.

In addition, *compadrazgo* extends beyond religious rituals into secular society, including the practice of naming *compadres* for such things as a child's first haircut or the purchase of a new house. In smaller communities, *compadrazgo* is even practiced as the ritual sponsorship of community buildings or initiatives. In 1980 in Ica, Peru, the installation of a new water tower included the designation of *compadres*.

Those serving as *compadres* enjoy an enhancement of social status in Latin America. Over a lifetime, individuals typically have a series of new and expanding *compadrazgo* relationships. People gain new *compadres* through life changes such as marriage, the birth of children, and sometimes even the acquisition of expensive material items. While these relationships may change over time—for example, when a child has become an adult, the birth *compadres* may no longer send gifts or offer advice—the relationships themselves endure as (fictive) family connections. The respect and acknowledgement of these relationships remains important to all the individuals involved in the *compadrazgo* family.

ADOPTION

Adoption of children is widespread across cultures, sometimes constituted legally, but more often through informal structures of support and sponsorship. There were an estimated 1.5 million adopted children under 18 in the United States in 2019, about 1 out of every 50 children, and adoption is increasing, especially among same-sex couples. In 2019, 43.3 percent of children of same-sex couples were adopted or stepchildren.

Across cultures, informal adoption and foster care have long been practiced to strengthen families and provide opportunities for young people. Anthropological studies in West Africa, Oceania, Latin America, and in minority communities in North America document the prevalence of these practices, as well as their benefits and risks. In general, cultures that see social relationships as open and fluid are able to provide a greater range of opportunities to children. One common form of informal adoption relocates children from rural birth families to relatives living in urban areas, where they have more opportunities for education, employment, and career training. Sometimes informal fostering helps to provide caretaking for shorter periods of time. A family may send an older child to temporarily live with a relative or even a friend who has a new infant or is facing a family crisis. These relationships may be mutually beneficial, allowing older children to meet new people and develop a wider network of friends and relatives. Historically, adoptive ties have played a major role in family security and in creating stronger social ties between families, some of which may provide future educational, work, and career opportunities.

KINSHIP ACROSS CULTURES

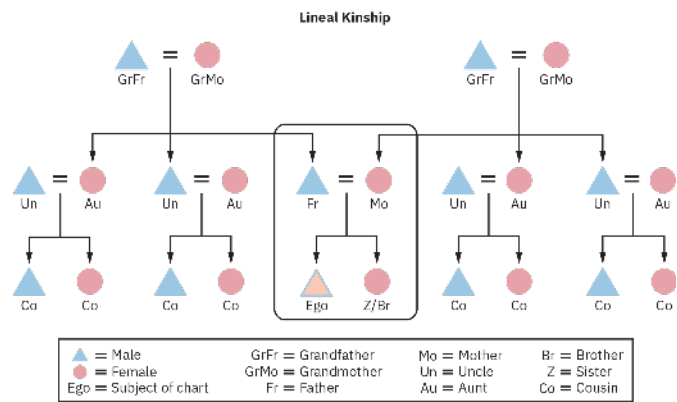
By defining relationships between individuals, cultural understandings of kinship create kinship systems or structures within society. This is the institutional aspect of kinship, and it is bigger than the family itself. In smaller societies with lower populations, kinship plays a major role in all social institutions. In larger societies with higher populations, kinship places the local and familiar in opposition to a wider, more amorphous society, where relationships

have less and less significance. In effect, kinship frames the way the individual and family are viewed in relation to the larger society and embodies social values.

TYPES OF KINSHIP SYSTEMS

In his early research, Lewis Henry Morgan distinguished three basic forms of kinship structure commonly found across cultures. Today, we refer to these kinship forms as lineal, bifurcate merging, and generational kinship. Each one defines family and relatives a bit differently and so highlights different roles, rights, and responsibilities for these individuals. This means that depending on the kinship structure used by a society, EGO will refer to a different set of individuals as kindred and will have a different relationship with those individuals.

Lineal kinship: **Lineal kinship** (initially referred to as *Eskimo kinship*) is a form of kinship *reckoning* (a way of mapping EGO to other individuals) that highlights the nuclear family. While kindred in a lineal system is traced through both EGO's mother and father (a practice called bilateral descent), the kinship terminology clearly shows that the rights and responsibilities of the nuclear family far exceed those of other kindred. In effect, lineal kinship, associated frequently with North American and European societies, suggests a very small and nominal family with little power and influence across other social institutions.

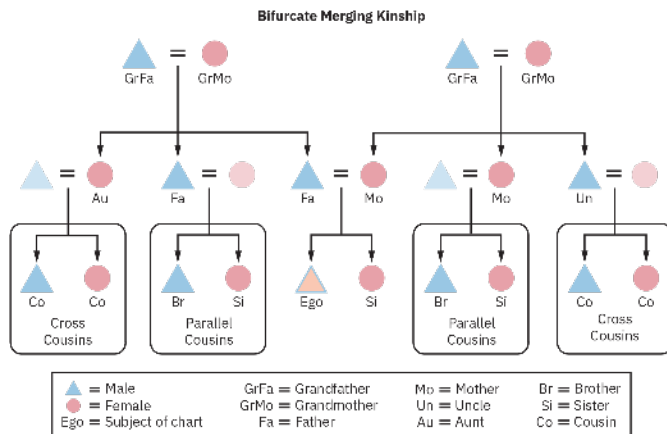


A lineal kinship diagram. Note the distinction of the nuclear family. (credit: "Eskimo Kinship Chart" by Fred the Oyster/Wikimedia Commons, CC0)

On the lineal diagram (above), note the following: each of the members of the nuclear family have specific kinship terms, but bilateral kin (through both EGO's mother and father) and **collateral kin** (EGO's siblings and their offspring) are lumped together with similar terms. These relationships are not highlighted by individualized terms because there are minimal rights and responsibilities between EGO and kin outside of the nuclear family of orientation and procreation.

Bifurcate merging kinship: **Bifurcate merging kinship** (initially referred to as *Iroquois kinship*) highlights a larger family of orientation for EGO by merging EGO's parents' same-sex siblings and their offspring into the immediate family (creating parallel cousins) and bifurcating, or cutting off, EGO's parents' opposite-sex siblings and their offspring (creating cross cousins). The figure below depicts bifurcate merging kinship with unilineal descent (either patrilineal or matrilineal). This means that once descent is

introduced into the diagram, EGO's relationships, with associated rights and responsibilities, will shift toward either the mother's or father's side. This form of kinship reckoning, quite common to tribal societies, is found extensively, and it creates a distinction between the family of orientation, which is merged together from various lines, and other relatives, who are bifurcated, or cut away.

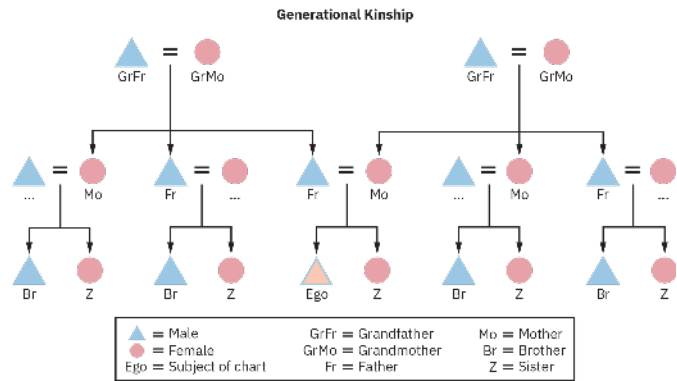


A bifurcate merging kinship diagram. Note the distinction between parallel and cross cousins. (credit: "Iroquois Kinship Chart" by Fred the Oyster/Wikimedia Commons, CC0)

On the bifurcate merging diagram (above), note that the members of the family of orientation share kinship terms that indicate a close intimacy with EGO. As an example, while EGO knows who his biological mother is (the woman who gave birth to him), his relationship with his biological mother has the same rights and responsibilities as his relationship with his mother's sister(s), etc. Notice also that the category of individuals lumped together as "cousins" under the lineal diagram are here distinguished depending on EGO's relationship with their parent. EGO's mother's sisters are called "mother" and his father's brothers are called "father," which means that any of their offspring would be EGO's brothers or sisters. Notice, though, that the mothers and fathers highlighted outside of EGO's biological parents are married to non-kin members; EGO does not refer to his mother's sister's husband as father—he is referred to as "mother's husband." Mother's brothers and father's sisters produce offspring who are bifurcated and lumped as "cousin." Anthropologists distinguish between **parallel cousins** (EGO's brothers and sisters through his parents' same-sex siblings) and **cross cousins** (EGO's cousins through his parents' opposite-sex siblings). In many tribal societies, EGO would choose his (or her) marriage partner from among his (or her) cross cousins, thereby merging their children back into a primary kinship line. In this way, the family unit (the kindred) maintains a stable and significant presence across generations.

Generational kinship: **Generational kinship** (initially referred to as *Hawaiian kinship*) presents a very different case. Widespread in Polynesia, especially during the times of chiefdom societies, generational kinship provides a distinction in kinship terms only along gender and generational lines. Generational kinship has the least complicated kinship terminology of all kinship systems, but the impact of creating a family of orientation this large and powerful is immediately apparent. In reading this chart, it is obvious that the

intimate family was as large as could be configured and it would have significant sociopolitical impact within the society.



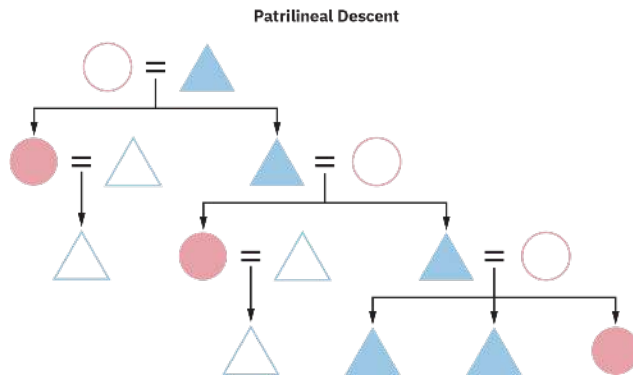
A generational kinship chart. Note the family of orientation, which is now at its maximal size. This graphically indicates the important role family has in all aspects of EGO's life. (credit: "Hawaiian Kinship Chart" by Fred the Oyster/Wikimedia Commons, CC0)

DESCENT

Kinship structure is highly diverse, and there are many different ways to think about it. Descent is the way that families trace their kinship connections and social obligations to each other between generations of ancestors and generations to come. It is a primary factor in the delineation of kinship structures. Through descent, the individual highlights certain particular relationships with kindred and drops or leaves off other possible relationships. Descent ultimately determines such things as inheritance, alliance, and marriage rules. There are two common ways that a cultural group can trace descent across generations:

Unilineal descent: **Unilineal descent** traces an individual's kinship through a single gendered line, either male or female, as a collective social rule for all families within a society. The patrilineal or matrilineal relatives that connect to and from EGO form EGO's **lineage**. This lineage is believed to be a continuous line of descent from an original ancestor. Lineages believed to be close in relationship are gathered into **clans**, a tribal social division denoting a group of lineages that have a presumed and symbolic kinship, and eventually into **moieties** (the social division of a tribe into two halves).

- In **patrilineal (or agnatic) descent**, the descent of both males and females is traced solely through male ancestors. Females hold the patrilineal descent of their fathers, and males pass on the descent through their children.

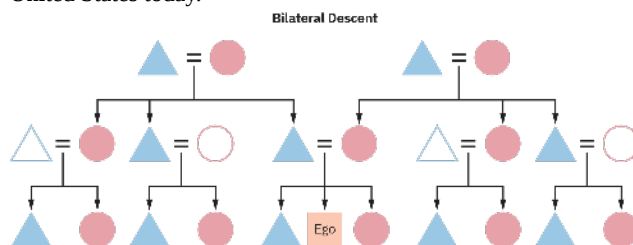


A chart illustrating patrilineal descent across several generations. Note that all offspring individuals marked in blue are part of their father's descent, but descent only passes through males. (CC BY 4.0; Rice University & OpenStax)

In **matrilineal (or uterine) descent**, the descent of both males and females is traced solely through female ancestors. Males hold the matrilineal descent of their mothers, and females pass on the descent through their children.

Cognatic descent: **Cognatic descent** is a kinship structure that follows descent through both men and women, although it may vary by family.

- In **ambilineal descent**, an individual's kinship is traced through a single gendered line, with each family choosing *either* the mother's or the father's descent line; in societies practicing this type of cognatic descent, some families will trace descent through the mother and others through the father. Usually families will choose their descent type at marriage based on the different opportunities presented by either the mother's or father's family, and they will use this for each of their children. While societies practicing ambilineal descent might initially look like those of unilineal descent, they are different. Within these societies, families are diverse and do not follow a single type of descent reckoning.
- In **bilateral descent** (also referred to as bilineal descent), an individual's kinship is traced through *both* mother's and father's lines. This is the most common form of descent practiced in the United States today.



A chart illustrating bilateral descent across several generations. Note that all offspring trace their lineage through both mother and father. (CC BY 4.0; Rice University & OpenStax)

Why does descent matter? It structures the way the family will be formed (who counts most in decision-making). It determines the choices individuals have in forming their own families. And it directs how material and symbolic resources (such as power and influence) will be dispersed across a group of people. As the

example in the next section shows, descent affects the whole structure of society.

A MATRILINEAL SOCIETY IN THE UNITED STATES

The Navajo are among the most populous of the Indigenous peoples in the United States, exceeding 325,000 members. Roughly half live in the Navajo Nation. Covering some 27,000 square miles, the Navajo Nation is an autonomous jurisdiction that crosses New Mexico, Arizona, and Utah. Traditionally a matrilineal society, the Navajo trace descent and inheritance through their mothers and grandmothers. Such a descent pattern would normally lead to the establishment of matrilineal households, with daughters bringing their husbands to live with or near their matrilineal kin following marriage.

In his study of the contemporary Shonto Navajo, however, William Yewdale Adams (1983), an anthropologist who spent part of his childhood living on the Navajo reservation, found that this wasn't always the case. While matrilineal residence remained the ideal for Navajo families, it was not followed any more frequently than patrilocal residence (living with or near the groom's father). Neolocal residence (a separate, independent household) was also practiced across the Navajo Nation. While the ideal Navajo family type endured as part of their identity, the actual everyday practices of families depended on their particular circumstances and might change over the course of their lives. When job opportunities and economic choices necessitated that families live in different areas, they adapted. When families became large and less manageable as a socioeconomic unit, they might splinter into smaller units, some into nuclear families living alone. However, during major life events, such as marriage and childbirth, it is the matrilineal family that will most support the couple by providing resources and any needed labor and help. Matrilineal descent also elevates the role of women in society, not by excluding men, but by recognizing the vital roles that women play in the establishment of both family and society.



A contemporary Navajo family (credit: "IMG_1123" by Neeta Lind/flickr, CC BY 2.0)

Traditionally, the Navajo constructed houses (called hogans) of timber or stone frames covered with earth (Haile 1942). There are multiple types of hogans, including a male hogan, which is conically shaped and used for more private rituals, and a female hogan, which

is circular and large enough to accommodate the whole family. Although today most Navajo live in Western-style homes with electricity and running water, many families still construct one or more hogans for ritual and ceremony. For families that continue traditional Navajo ceremonies, the most common hogan form today is the female hogan. As Adams aptly argues, the Navajo are very much like other societies in regard to kinship—while it defines an ideal within Navajo society, its primary function is to provide “possibilities and boundaries” around which individuals will construct kinship (1983, 412). It adapts to the changing environment and the needs of family.

MARRIAGE AND FAMILIES ACROSS CULTURES



Customers peruse goods in a market in downtown Lima, Peru. Some Indigenous people in Peru begin marriage with a practice known as *servinakuy*. In *servinakuy*, a couple establish an independent household and live together until the birth of their first child, after which they are formally considered to be a fully married couple. (credit: “Lima, Peru” by YoTuT/flickr, CC BY 2.0)

Marriage is the formation of a socially recognized union. Depending on the society, it may be a union between a man and a woman, between any two adults (regardless of their gender), or between multiple spouses in polygamous societies. Marriages are most commonly established to provide a formal structure in which to raise and nurture offspring (whether biological or adopted/fostered), but not all marriages involve reproduction, and marriage can serve multiple functions. One function is to create alliances between individuals, families, and sometimes larger social networks. These alliances may provide political and economic advantages. While there are variations of marriage, the institution itself, with a few notable exceptions, is universal across cultures.

Marriage is an effective means of addressing several common challenges within families. It provides a structure in which to produce, raise, and nurture offspring. It reduces competition among and between males and females. And it creates a stable, long-term socioeconomic household in which the family unit can more adequately subsist with shared labor and resources. All societies practice rules of marriage that determine what groups an individual should marry into (called *endogamy rules*) and which groups are considered off limits and not appropriate for marriage partners (called *exogamy rules*). These rules are behavioral norms in a

society. For example, in the United States, individuals tend to marry within the same generation (endogamy) and usually the same linguistic group, but they marry outside of very close kin (exogamy). Those considered to be too closely related to marry are prohibited by rules of *incest*, a relationship defined as too close for sexual relations.

Across all cultures, there is an **incest taboo**, a cultural norm that prohibits sexual relations between parents and their offspring. This taboo sometimes extends to other relations considered too close for sexual relationship. In some societies, this taboo may extend to first cousins. In the United States, first-cousin marriage laws vary across states. French anthropologist Claude Lévi-Strauss argued that incest is the original social structure because it naturally separates groups of people into two types—those with whom an individual has family ties (so-called *biological ties*) and those with whom an individual can have sexual relations and establish ties.

Defining marriage can be complex. In the southern Andes of Peru and Bolivia, Indigenous people begin marriage with a practice known as *servinakuy* (with spelling variations). In *servinakuy*, a man and woman establish their own independent household with very little formal social acknowledgement and live together until the birth of their first child, after which they are formally considered to be a fully married couple. Not a trial marriage and not considered informal cohabitation, *servinakuy* is, instead, a prolonged marriage process during which family is created over time. Andean legal scholars argue that these unions should carry with them the legal rights and protections associated with a formal marriage from the time the couple begins living together (Ingar 2015).

Like all social institutions, ideas about marriage can adapt and change. Within urban Western societies, the concept of marriage is undergoing a great deal of change as socioeconomic opportunities shift and new opportunities open up for women. In Iceland, in 2016, almost 70 percent of children were born outside of a marriage, usually to committed unmarried couples (Peng 2018). This trend is supported by national social policies that provide generous parental leave for both married individuals and those within a consensual union, but the change is also due to the more fluid nature of family today. As norms change in Iceland across generations, it will be interesting to see if the practiced form of consensual union we see today eventually comes to be considered a sanctioned form of marriage.

FORMS OF MARRIAGE

Anthropologists group marriage customs into two primary types: a union of two spouses only (*monogamy*) or a union involving more than two spouses (*polygamy*). **Monogamy** is the socially sanctioned union of two adults. In some societies this union is restricted to a man and a woman, and in other societies it can be two adults of any gender. Monogamy, because it produces an overall smaller family unit, is especially well adapted to postindustrial societies and cultures where family units are highly mobile (such as nomadic foragers). Monogamy also includes same-sex marriage. In June 2015, in *Obergefell v. Hodges*, the US Supreme Court legalized same-sex marriage in the United States, following earlier legal recognitions in many other Western countries. Today, same-sex

marriage is legal in 30 countries. While the movement to legalize same-sex marriage has been long and tumultuous in many of these countries, same-sex marriages and unions have historically played significant roles in both Indigenous and Western societies.

Serial monogamy: **Serial monogamy** is a form of monogamy in which adults have a series of two-person monogamous marriages over a lifetime. It is increasingly common in Western societies, but it is also practiced in some small-scale societies, such as bands. In serial monogamy, divorce and remarriage are common.

Polygamy: **Polygamy** is the socially sanctioned union of more than two adults at the same time. In polygamous societies, families usually begin with a two-person marriage between a man and a woman. In some cases, the marriage will remain as a single couple for a long period of time or for the duration of their lives because of lack of resources or availability of partners. Adding partners is frequently a sign of status and is considered an ideal for families in polygamous societies. In some cases, too, polygamy is practiced to address extreme social stress due to things such as warfare or skewed population distributions caused by famine and high mortality rates. In her cross-cultural study of polygamy, cultural anthropologist Miriam Zeitzen (2008) noted a great deal of diversity within polygamy, from *de jure* unions that are formal, legal contracts (such as is found in Gambia) to *de facto* polygamy, which may be just as enduring, stable, and acceptable within a society (such as is found in Ivory Coast).

There are two principle kinds of polygamy, depending on the partners involved, as multiple men and multiple women in a single marriage (called *group marriage*) is not common. **Polygyny**, which is the more common form of polygamy, is the marriage of one man to more than one woman. There is often marked age asymmetry in these relationships, with husbands much older than their wives. In polygynous households, each wife commonly lives in her own house with her own biological children, but the family unit cooperates together to share resources and provide childcare. The husband usually “visits” his wives in succession and lives in each of their homes at various times (or lives apart in his own). It is common, also, for there to be a hierarchy of wives based on seniority. Polygyny is found worldwide and offers many benefits. It maximizes the family labor force and the shared resources and opportunities available for family members and creates wide kinship connections within society. Commonly in polygynous societies, larger families are afforded higher social status and they have stronger political and economic alliances.

Polygyny is prevalent in Thailand today, with as many as one in four Thai men between the ages of 30 and 50 having a second wife, called a *mia noi* (minor wife). In her research in Thailand, cultural anthropologist Jiemin Bao (2008) studied polygyny among a group of *lukchin* Thai (Thai of Chinese descent). She found that the *lukchin* practiced polygynous marriages as a joint husband-and-wives economic enterprise, many times sending remittances back to family members still living in China. Bao found that husbands frequently seek their wives’ consent before adding another wife and that the family overall considers polygyny to create greater economic opportunities for all family members because multiple

wives create a pool of stable laborers with individual skill sets. Even so, Bao observed turmoil and conflict even within economically successful polygynous families and observed that many marriages were conducted as if they were “cutting a business deal” (151). Gender politics of polygynous marriage among the *lukchin* often left women with few choices except to work for her husband’s family. Economic success for the family was culturally attributed to the male head of household and not his wives.

A second form of polygamy is polyandry. In **polyandry**, which is comparatively rare, there is one wife and more than one husband. Polyandrous marriages minimize population growth and may occur in societies where there is a temporary surfeit of males and scarcity of females or scarcity of resources. In **fraternal polyandry**, brothers marry a single wife. This is the most common in Nepal, where it is practiced by a minority of mainly rural families. Fraternal polyandry offers several benefits for societies like Nepal with scarce resources and dense population. Where there is extreme scarcity of land acreage, it allows brothers to share an inheritance of land instead of dividing it up. It reduces inequality within the household, as the family can thus collectively subsist on the land as a family unit. Also, in areas where land is scattered over large distances, it allows brothers to take turns living away from home to tend herds of animals or fields and then spending time at home with their shared wife. It also minimizes reproduction and population growth in a society where there is a very dense population (Goldstein 1987), as the wife can carry only one pregnancy at a time.

POSTMARITAL RESIDENCE RULES

Following marriage, a couple begins a new family and establishes a shared residence, whether as a separate family unit or as part of an already established family group. The social rules that determine where a newly married couple will reside are called **postmarital residence rules** and are directly related to the descent rules that operate in the society. These rules may be adapted due to extenuating circumstances such as economic need or lack of housing. In the United States today, for example, it is increasingly common for newly married couples to postpone the establishment of a separate household when work, schooling, or children create a need for familial support.

There are five postmarital residence patterns:

- Under **neolocal residence**, a newly married couple establishes an independent household not connected to either spouse’s family. This pattern of residence is mostly associated with bilateral descent. While this is a norm in our own society, during times of economic stress or familial need, couples in the United States do occasionally live in the household of one spouse’s parents.
- More common worldwide is **patrilocal residence**, associated with societies practicing patrilineal descent. In patrilocal residence, the newly married couple establishes their new household with or near the groom’s father or the groom’s father’s relatives. What this means is that at marriage the groom remains within his household and/or family group, while the bride leaves her parents. Their future children will belong to the groom’s lineage.

- **Matrilocal residence** is associated with societies practicing matrilineal descent. In matrilocal residence, the newly married couple establishes their new household with or near the bride's mother or the bride's mother's relatives. At marriage the bride remains within her household and/or family group, while the groom leaves his parents. Their future children will belong to the bride's lineage.
- Less frequent but also associated with matrilineal descent is **avunculocal residence**, in which the newly married couple resides with or near the groom's mother's brother. In societies that practice avunculocal residence, the groom has commonly had a long-term relationship with his maternal uncle, who is part of his own mother's matriline. By joining with household of the groom's maternal uncle, the couple is able to benefit from both the husband's and the wife's matriline.
- Under **ambilocal residence**, the couple decides which spouse's family to live with or near. Ambilocal residence is associated with ambilineal descent. In ambilocal residence, the newly married couple will usually have made their decision about which spouse's family to join with prior to their marriage. Their future children will then trace descent through that particular line.

MARRIAGE COMPENSATION

In all cultures, marriage is a consequential matter not only to the adults immediately involved, but also to their families and to the broader community. In societies that practice unilineal descent, the newly married couple moves away from one family and toward another. This creates a disadvantage for the family that has "lost" a son or daughter. For example, in a patrilineal society, while the wife will remain a member of her birth lineage (that of her father), her children and her labor will now be invested mostly in her husband's lineage. As a result, in societies practicing unilineal descent, there is a **marriage compensation** from one family to the other for this perceived loss. Marriage compensation is the transfer of some form of wealth (in money, material goods, or labor) from one family to another to legitimize the marriage as a creation of a new social and economic household. It is not seen as payment for a spouse, but as recognition that the marriage and future children are part of one lineage rather than another (Stone 1998, 77). There are several forms of marriage compensation, each symbolically marked by specific cultural practices.

Bride wealth: **Bride wealth** (also called bride price) is the transfer of material and symbolic value from the groom's to the bride's family. Depending on the cultural group, this may involve transfer of money, cattle, house goods, jewelry, or even symbolic ritual artifacts. Bride wealth is the most common form of marriage compensation across cultures. In her study of the Thadou Kukis of northeast India, Burma, and Bangladesh, Indian sociologist Hoineilhing Sitlhou (2018) explores how bride wealth has changed over time. Historically, the items exchanged included cows, copper gongs, silver earrings, and ceremonial clothing for the bride's parents. Today, more contemporary items are offered, such as gold jewelry, cars, furniture, appliances, and land. One practice that has not changed is paying a portion of the bride wealth prior to the

marriage ceremony and the remainder at some later point so that the groom remains in respectful debt to the bride's family. In other societies, bride wealth must be paid in full before the marriage is considered legitimate. If marriages conducted using bride wealth end in divorce, normally the bride wealth (or equivalent value) is returned to the groom's family to signify the dissolution of the contract.

Bride service: Similar to bride wealth, **bride service** involves a transfer of something of value from the groom's to the bride's family, but in this case the arrangement involves the contracted labor of the groom, whether before or after the marriage. Future grooms may work for months or years for the bride's family (usually her father's household) prior to the marriage, or husbands may work for months or years with the bride's family after the marriage. In the first case, the groom completes his service prior to the marriage and then moves with the bride back to his family after the marriage. In the second case, the newly married couple remains in residence with the bride's family until the service is concluded. The advantage of the second type of service is that frequently the wife is living with her mother when her first child (or children) is born. While her children are aligned with her husband's family as far as descent (and inheritance), her parents are able to support the couple and their first child or children for a period of time.

The contractual obligations of bride wealth and bride service are not without conflict. In many unilineal societies, these obligations create a great deal of strife and conflict that can go on for years. What if the marriage is temperamentally difficult? What if the wife is barren or a child dies? What if the husband's family suffers economic challenges that create a disparity between what he can offer their family of procreation and what the wife's lineage could offer the children? Each of these situations creates conflict. Sometimes these conflicts between lineages (because marriage is seen as a contract with the larger family) spill over into the larger society and create larger social divisions.

Dowry, a third form, functions differently than bride wealth and bride price. It is a form of material value, such as money, jewelry, house goods, or heirlooms, that the bride brings into her own marriage to provide her with wealth within her husband's lineage. In some societies women turn their dowry over to their husbands, but in other societies they retain rights to this wealth as married women. Among Nepalese Brahmins, sons inherit land and property equally at the death of the father, while women receive a dowry of clothing, jewelry, and household utensils from their own patriline at marriage (Stone 1998). They will use this wealth for status within the marriage. In other societies, women create a dual inheritance for their own daughters from their dowry, passing their dowry down through their daughters. Regardless of how the wealth is used, a woman's most stable route to higher status within a patrilineal society is through the birth of her sons. It is sons within the patriline who will bring wives into their father's household and increase the size and prominence of the patriline through the birth of their children. In patrilineal societies, women with many sons typically carry a higher social status.



A display of a woman's dowry in Turkmenistan, in Central Asia. These goods have been laid in preparation for the woman's marriage. (credit: "wedding gifts 2" Salvatore D'Alia/flickr, CC BY 2.0)

While marriage compensation is most commonly associated with patrilineal societies, it is important to note that almost all marriages represent shared investments of one kind or another. Since marriage is the creation of a new family, spouses most often bring with them into their marriage their skills, traditions, and social networks, all of which carry symbolic weight within societies.

REMARRIAGE OBLIGATIONS

The many rules and corresponding obligations specific to marriage in unilineal societies (such as residence rules and marriage compensation) are evidence that families and communities invest a great deal in marriages and the formation of new families. So what happens if a young and newly married spouse dies? What about the marriage compensation and the new household? In many unilineal societies (most especially in patrilineal societies), **remarriage obligations** ensure that in these cases the marriage contract endures. Remarriage obligations require the widowed spouse to remarry someone from the same lineage in order to maintain the stability of the family unit.

There are numerous issues that affect when and how remarriage obligations are enacted. The factors that most affect remarriage obligations are the ages of the spouses and amount of time that has passed since the marriage occurred, the ages of the offspring and whether there are young children within the family unit, and the particular marriage contract and value of the marriage compensation. Cultures (and families) determine how best to enact these rules within their own value systems and based on current need. But the primary underlying purpose of remarriage obligations is to maintain the alliance that was made between the two lineages at the time of the marriage. These are intended to be enduring ties that benefit all members of each lineage.

If the husband dies and there is a surviving wife (now widow), under the **levirate** remarriage rule she will marry one of her husband's surviving brothers. While levirate will not be invoked in every case, it is quite common when there are young children remaining within the immediate family unit. Because levirate is usually practiced in societies with polygynous families, a married brother taking an additional wife will not disrupt his existing family, and the *new* wife

and her children will remain within the lineage where the children were born.

The **sororate** applies to situations in which the wife dies and there is a surviving widower. Under this remarriage rule, the deceased wife's lineage must provide a replacement female, preferably the former wife's sister. If her sisters are already married or there are no sisters available, another female from the same lineage can be sent as a replacement. Sororate allows young children from the first marriage to remain with their father in his lineage and also maintain a symbolic and emotional bond with their biological mother's kindred. Finally, there is also the highly variable practice of **ghost marriage**, where a marriage is performed between one or two deceased individuals in order to create an alliance between lineages. Among the Dinka and Nuer of South Sudan, a ghost marriage is similar to the levirate, with the deceased husband's brother standing in for him in a ghost marriage. Unlike the levirate itself, any children from this second (ghost) marriage will be attributed to the deceased husband and not to the brother or the wider lineage itself. Among Chinese immigrants to Singapore, there are ghost marriage claims in which both spouses may be deceased (Schwartz 2010), continuing a tradition that began generations earlier (Topley 1955).

ARRANGED MARRIAGES

While all marriages are planned, some are arranged, whether between the spouses involved and/or their families or through a third party. Today, an interesting adaptation of arranged marriages has developed involving online websites and hired marriage brokers to help individuals living in different countries find a suitable spouse from their birth culture. As transnational corporations spread worldwide and individuals become more highly mobile (even nomadic) for work, finding a spouse who shares the same cultural values can be difficult. Although there are marriage brokers for many different cultural groups, there is a proliferation of matchmakers for individuals of Indian nationality or descent. While not all of these sites are reputable, the explosion of marriage brokering businesses reminds us that marriage is, first and foremost, a cultural institution.

Kinship is an adaptive mechanism across cultures. While kinship systems vary, they each address critical elements for a social group. Through families of orientation and procreation and within kinship networks, households are created, offspring are produced, and alliances are established.

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3.6: INSIDER, OUTSIDER, AND IDENTITY

Think back to our early definition of culture. Culture is *the system of shared values, beliefs, behaviors, and artifacts, transmitted from one generation to the next, that the members of a group use to cope with their world and with each another*. Also recall from biological anthropology the universal human practice of categorizing things—including other people! Notice that this definition of culture mentions 'members', but largely describes something outside of our individual selves. It also doesn't tell us what to do when we find ourselves part of more than one 'system' at the same time. In the modern Western world, we tend to consider our 'selves' to be the central point on a Venn diagram of cultures, societies, and/or roles—and we often refer to this position as our 'identity.'

The concept of identity and the concept of culture are closely linked and both culture and identity influence who we consider to be 'insiders' and who we consider to be 'outsiders.' To better understand identity, we will look in this chapter at two broad cultural categories (among many) which we today often use to define ourselves: race and gender. (Others we could use include class, nationality, ability, religion, occupation, and even age group.) As a baseline, it is important to note that the key difference between 'cultural categories' and 'identities' is that cultural categories are made by and about groups (the way insiders define outsiders) while identities are self-conceptions made by and about individuals. This does not mean that they are totally separate, of course. Race and gender provide very clear examples. Our self-conceived identity is often derived directly from our cultural assumptions.

As we've seen already, anthropologists are fond of pointing out that much of what we take for granted as "natural" in our lives is actually *cultural*—it is not grounded directly in the natural world or in biology but invented by humans. We saw this briefly with regard to race as biological anthropologists now understand it. Recall the paradoxes of culture. Because culture is invented, it takes different forms in different places and changes over time. Living in the twenty-first century, we have witnessed how rapidly and dramatically culture can change. Similarly, many of us live in culturally diverse settings and experience how varied human cultural inventions can be. We readily accept that clothing, language, and music are cultural—invented, created, and alterable—but often find it difficult to accept that race, gender, and other conceptions of self and other are likewise deeply embedded in and shaped by culture.

These ideas are further complicated by the fact that 'identity' itself is even seen by some anthropologists as a decidedly 'modern' concept. Prior to the popularization of philosophies by thinkers like René Descartes and John Locke who emphasized *the individual*, even the concept of a *personal* identity was somewhat foreign to most everyone. For example, the connection between same-sex sex—a behavior—and the idea of 'homosexuality' or 'sexual orientation'—which we today often consider part of a person's identity—is actually surprisingly new, historically speaking. For example, there is an ongoing debate among literary historians "whether William Shakespeare was gay." One of the most compelling arguments I have read is that it is essentially just a bad question. Supporters of

this argument suggest Shakespeare likely had sexual relationships with other men but can't be considered "gay" given the cultural understanding of sex and sexuality in Europe at the time. Essentially, sex between men was seen, then, as a behavior and not an identity—homosexual acts were culturally recognized, but 'to be' (if you'll allow the Shakespeare pun) a homosexual wasn't considered 'a thing.'

This can be a difficult concept to wrap our heads around given how important identity feels to us in today's modern world. We even sometimes describe American teen years as a "search for identity." To begin, then, it can be helpful to begin with a baseline definition of 'identity' that we can then approach from a cultural perspective. For these purposes **identity** is one's learned, personal and social affiliations, categories, or in-groupings. We are enculturated into our identities. This is to say, all features of our identity (including race and gender) are *culturally defined*. Notice that identities and their components are both *plural*. We are not limited to a single identity, even at a given time or place. Instead, our cultures define who is an 'insider' and who is an 'outsider.' The attributes, behaviors, or ideas that make up these definitions are largely arbitrary. But in turn, we use those same attributes, behaviors, or ideas applied to ourselves in order to form our identities.

In this chapter, we will look first at race, since we already saw (through biological anthropology) how it is culturally constructed despite its tendency to embed in our culture. Next, we will look at gender which, similarly, is closely related to but ultimately separate from biological 'sex' (which itself is much more complicated than we often first assume). And finally, we will look at the concepts of *sub-cultures* and *deviance*. These are concepts that we use to describe identities or behaviors that inhabit the grey areas between 'insiders' and 'outsiders.'

RACE

Anthropology was sometimes referred to as the "science of race" during the eighteenth and nineteenth centuries when physical anthropologists sought a biological basis for categorizing humans into racial types. Since World War II, important research by anthropologists has revealed that racial categories are socially and culturally defined concepts and that racial labels and their definitions vary widely around the world. In other words, different countries have different racial categories, and different ways of classifying their citizens into these categories. At the same time, significant genetic studies conducted by physical anthropologists since the 1970s have revealed that biologically distinct human races do not exist. Certainly, humans vary in terms of physical and genetic characteristics such as skin color, hair texture, and eye shape, but those variations cannot be used as criteria to biologically classify racial groups with scientific accuracy.

One of the biggest reasons so many people continue to believe in the existence of biological human races is that the idea has been intensively **reified** in literature, the media, and culture for more than three hundred years. Reification refers to the process in which a *cultural* concept or idea is so heavily promoted and circulated within

its culture that it begins to take on a life of its own. Over centuries, the notion of biological human races became ingrained—unquestioned, accepted, and regarded as a concrete “truth.” As we have already seen, studies of human physical and cultural variation from a scientific and anthropological perspective have allowed us to move beyond reified thinking and toward an improved understanding of the true complexity of human diversity.

The reification of race has a long history. Especially during the eighteenth and nineteenth centuries, philosophers and scholars attempted to identify various human races. They perceived “races” as specific divisions of humans who shared certain physical and biological features that distinguished them from other groups of humans. This historic notion of race may seem clear-cut and innocent enough, but it quickly led to problems as social theorists attempted to classify people by race. One of the most basic difficulties was the actual number of human races: how many were there, who were they, and what grounds distinguished them? Despite more than three centuries of such effort, no clear-cut scientific consensus was established for a precise number of human races.

Two major types of “race classifiers” have emerged over the past 300 years: *lumpers* and *splitters*. Lumpers have classified races by large geographic tracts (often continents) and produced a small number of broad, general racial categories. Splitters have subdivided continent-wide racial categories into specific, more localized regional races and attempted to devise more “precise” racial labels for these specific groups. Racial labels, whether from a lumper or a splitter model, clearly attempt to identify and describe *something*. So why do these racial labels not accurately describe human physical and biological variation? To understand why, we must keep in mind that racial labels are distinct, discrete categories while human physical and biological variations (such as skin color, hair color and texture, eye color, height, nose shape, and distribution of blood types) are *continuous* rather than discrete.

Physical anthropologists use the term **cline** to refer to differences in the traits that occur in populations across a geographical area. In a cline, a trait may be *more common* in one geographical area than another, but the variation is gradual and continuous with no sharp breaks. A prominent example of clinal variation among humans is skin color. Human skin color does not occur in just 3, 5, or even 50 shades. The reality is that human skin color, as a continuous trait, exists as a spectrum from very light to very dark with every possible hue, shade, and tone in between.

Just because the idea of distinct biological human races is not a valid scientific concept does not mean, and should not be interpreted as implying, that “there is no such thing as race” or that “race isn’t real.” **Race is indeed real but it is a concept based on arbitrary social and cultural definitions rather than biology or science.** Thus, racial categories such as “white” and “black” are as real as categories of “African” or “Adolescent” or “Atheist.” Many things in the world are real but are not biological. So, while race does not reflect biological characteristics, it reflects socially constructed concepts defined subjectively by societies to reflect notions of division that are perceived to be significant. Some sociologists and

anthropologists now use the term *social races* instead, seeking to emphasize their cultural and arbitrary roots.

Race is most accurately thought of as a socio-historical concept. Michael Omi and Howard Winant noted that “Racial categories and the meaning of race are given concrete expression by the specific social relations and historical context in which they are embedded.” In other words, racial labels ultimately *reflect a society’s social attitudes and cultural beliefs regarding notions of group differences*. Put another way, *race is one among many ways we culturally define insiders and outsiders*. And since racial categories are culturally defined, they can vary from one society to another as well as change over time within a society.

ETHNICITY

The terms race and ethnicity are similar and there is a degree of overlap between them. The average person frequently uses the terms “race” and “ethnicity” interchangeably as synonyms and anthropologists also recognize that race and ethnicity are overlapping concepts. Both race and ethnic identity draw on an identification with others based on common ancestry and shared cultural traits. A *race* is a social construction that defines groups of humans based on arbitrary physical and/or biological traits that are believed to distinguish them from other humans. An **ethnic group**, on the other hand, claims a distinct identity based on cultural characteristics and a shared ancestry that are believed to give its members a unique sense of peoplehood or heritage.

The cultural characteristics used to define ethnic groups vary; they include specific languages spoken, religions practiced, and distinct patterns of dress, diet, customs, holidays, and other markers of distinction. In some societies, ethnic groups are geographically concentrated in particular regions, as with the Kurds in Turkey and Iraq and the Basques in northern Spain.



A collage of different ethnic groups: Afar man, Tuareg man, San man, Inuit man from Canada, Terena indigenous man from Brazil, Kazakh man, Japanese man, Rajasthani man (India), Buryat man, Malay man, Arab man from Qatar, Sami man from Norway, Swedish man, Italian man, Tongan man, Indigenous Australian (Source: Public Domain, [Wikimedia Commons](#))

Ethnicity refers to the degree to which a person identifies with and feels an attachment to a particular ethnic group. As a component of a person's identity, ethnicity is a fluid, complex phenomenon that is highly variable. Many individuals view their ethnicity as an important element of their personal and social identity. Numerous psychological, social, and familial factors play a role in ethnicity, and ethnic identity is most accurately understood as a range or continuum populated by people at every point. One's sense of ethnicity can also fluctuate across time. Children of Korean immigrants living in an overwhelmingly white town, for example, may choose to self-identify simply as "American" during their middle school and high school years to fit in with their classmates and then choose to self-identify as "Korean," "Korean American," or "Asian American" in college or later in life as their social settings change or from a desire to connect more strongly with their family history and heritage. Do you consider your ethnicity an important part of your identity? Why do you feel the way you do?

GENDER

Like race, gender and sexuality are topics that any culture assumes their version of is more universal than it is. This is further complicated for these topics because of their relationship to biological sex—which, though it is easy to hastily say comes down to a binary arrangement, is actually much more complicated. Even this can be more culturally defined than we think.

We may struggle with the idea that the division of humans into two and only two categories, "male" and "female," is not universal, that "male" and "female" are cultural concepts that take different forms and have different meanings cross-culturally. Similarly, human sexuality, rather than being simply natural is one of the most

culturally significant, shaped, regulated, and symbolic of all human capacities. The concept of humans as either "heterosexual" or "homosexual" is a culturally and historically specific invention that is increasingly being challenged in the United States and elsewhere. Part of the problem is that gender has *some* biological component—however flexible. We do have bodies and there are some male and female differences, including in reproductive capacities and roles, albeit far fewer than we have been taught. Similarly, sexuality, sexual desires and responses, are partially rooted in human natural capacities.

However, in many ways, sexuality and gender are like food. We have a biologically rooted need to eat to survive and we have the capacity to enjoy eating. What constitutes "food," what is "delicious" or "repulsive," the contexts and meanings that surround food and human eating—those are all cultural. Gender and sexuality, like eating, have biological components. But cultures create systems of meaning that often barely resemble what is innate. We experience gender and sexuality largely through the prism of the culture or cultures to which we have been exposed and in which we have been raised.

GENDER VS. SEX

In the West, the development of terms like "sex" and "gender" itself reflects shifting cultural beliefs about biology and identity. Historically, sex referred to both biological differences and sexuality, with males and females seen as inherently distinct in capacities and desires. These views were shaped by Judeo-Christian beliefs and the emergence of 'scientific' thought. By the 19th century, women's sexuality was reduced to reproduction, and gender roles were strictly tied to heterosexuality and what was considered "conventional" behavior. These ideologies conflated sexual preference and gender roles, portraying deviations like "homosexuality" as biological abnormalities. Over time, increasing recognition of gender as separate from biological determinism has expanded the understanding of gender beyond male and female.

Decades of research on gender and sexuality, including by feminist anthropologists, has challenged these old theories, particularly biological determinism. We now understand that cultures, not nature, create the gender ideologies that go along with being born male or female and the ideologies vary widely, cross-culturally. If we think back to subsistence strategies, what is considered "man's work" in some societies, such as carrying heavy loads, or farming, can be "woman's work" in others. What is "masculine" and "feminine" varies: pink and blue, for example, are culturally invented gender-color linkages, and skirts and makeup can be worn by men, indeed by warriors. Hindu deities, male and female, are highly decorated and difficult to distinguish, at least by conventional masculinist U.S. stereotypes.

Women can be thought of as stronger ("tougher," more "rational") than men. Phyllis Kaberry, an anthropologist who studied the Nsaw of Cameroon in the 1940s, said males in that culture argued that land preparation for the rizga crop was "a woman's job, which is too strenuous for the men" and that "women could carry heavy loads because they had stronger foreheads." Among the Aka who live in the present-day Central African Republic, fathers have close,

intimate, relationships with infants, play major roles in all aspects of infant-care, and can sometimes even produce breast milk.

Ultimately, biologic sex is a different phenomenon than gender. **Gender** is a set of culturally invented expectations. It constitutes a role one assumes, learns, and performs, more or less consciously. It is an “identity” one can in theory choose, at least in some societies, although there is often tremendous pressure, as in the United States, to conform to the gender role and identity linked to your biologic sex.

Gender tends to be an identity. Sexuality can be an identity (particularly in the West), but this isn't always the case.

This is a profound transformation in how many of us think about both gender and sexuality. The reality of human biology is that males and females are shockingly similar. There is arguably more variability within than between each sex, especially taking into account variations in physical traits among human populations globally.

Biology does not exist in a vacuum. Biological traits, including gender differences, are influenced by culture. Height is affected by diet and access to food, both linked to socioeconomic status. Other biological traits, like body hair, can, through cultural means, be used to exaggerate gender differences, whether through growing beards or using shaving or waxing to remove body hair. Since so much of what has been defined as biological is actually cultural, or has a major cultural component, the possibilities for transformation and change are nearly endless! That can be liberating, especially when we are young and want to create identities that fit our particular configuration of abilities and preferences. It can also be upsetting to people who have deeply internalized and who want to maintain the old gender ideology.



Left: For a Sikh, the practice of keeping a beard for men is part of the religious observance of Kesh—a commandment to keep all hair uncut (Source: Copyright [Yann Forget](#) / [Wikimedia Commons](#) / CC-BY-SA. Right: A 1920s American advertisement for “ZIP,” a hair removal product aimed at women and encouraging the removal of female body hair (Source: [Motion Picture Magazine](#) / Public Domain / [Wikimedia Commons](#)).

OTHER FORMS OF GENDER AROUND THE WORLD

One common assumption is that all cultures divide human beings into two and only two genders, a binary or dualistic model of gender. However, in some cultures gender is more fluid and flexible, allowing individuals born as one biologic sex to assume another gender or creating more than two genders.

Examples of non-binary cultures come from pre-contact Native America. Anthropologists such as Ruth Benedict long ago identified a phenomenon of “two-spirit” people, individuals who do not comfortably conform to the gender roles and gender ideology normally associated with their biologic sex.

The third gender category of some form of “two-spirit” is found in over 150 Native American cultures. In terms of bodies, the most common two spirits would be assigned as having a male body at birth, but some would be assigned as physical females or intersex. In most Native American cultures, two spirit people do some women’s work and mix together roles, dress, and behavior of both men and women. Since they are neither male nor female, they are often seen as mediators between men and women and/or between physical or spiritual worlds. This idea is often connected to the group’s cosmology. For example, among the **Navajo**, the creator, Changing Woman, has both male and female aspects. Two spirit people are an example of where variation in bodies or gender identity is sanctified and not viewed as a threat or an exception.

Similarly, the **Zuni** people of New Mexico, beginning in the pre-contact era, lived in a relatively gender-egalitarian horticultural society. Individuals could choose an alternative role of “not-men” or “not-women.” A two-spirited Zuni man would do the work and wear clothing normally associated with females, having shown a preference for female-identified activities and symbols at an early age. In some, but not all cases, they would marry a man. Early European ethnocentric reports often described it as a form of homosexuality. Anthropologists suggested more-complex motivations, including dreams of selection by spirits, individual psychologies, biological characteristics, and negative aspects of male roles (e.g., warfare). Most significantly, these alternative gender roles were *acceptable, publicly recognized, and sometimes venerated*.

A well-known example of a non-binary gender system is found among the **Hijra in India**. Often called a third gender, these individuals are usually biologically male but adopt female clothing, gestures, and names; may eschew sexual desire and sexual activity; and go through religious rituals that give them certain divine powers, including blessing or cursing couples’ fertility and performing at weddings and births. Hijra sometimes undergo voluntary surgical removal of genitals through a “nirvan” or rebirth operation. Some hijra are males born with ambiguous external genitals.

Research has shown that individuals with ambiguous genitals, sometimes called “**intersex**,” are surprisingly common. Scholars estimate that intersex individuals constitute at least two percent of human births. So what are cultures to do when faced with an infant or child who cannot easily be “sexed?” Many Western cultures ultimately force children into one of the two binary categories, even if it requires surgery or hormone therapy. But in other places, like

India and among the Isthmus Zapotec in southern Oaxaca, Mexico, they created a third gender category with an institutional identity and role to perform in society.

These cross-cultural examples demonstrate that *the traditional rigid binary gender model in the United States is neither universal nor necessary*. While all cultures recognize at least two biological sexes, usually based on genitals visible at birth, and have created at least two gender roles, many cultures go beyond the binary model, offering a third or fourth gender category. Other cultures allow individuals to adopt, without sanctions, a gender role that is not congruent with their biological sex.

GENDER ROLES

Even societies with a binary gender system exhibit enormous variability in the meanings and practices associated with being male or female. Sometimes male-female distinctions pervade virtually all aspects of life, structuring space, work, social life, communication, body decoration, and expressive forms such as music. For instance, both genders may farm, but may have separate fields for “male” and “female” crops and gender-specific crop rituals. Or, the village public space may be spatially segregated with a “men’s house” (a special dwelling only for men, like a “men’s club”) and a “women’s house.” In some societies, even when married couples occupy the same house, the space within the house is divided into male and female areas.

Women and men can also have gender-specific religious rituals and deities and use gender-identified tools. There are cases of male and female foods, rains, dances, hairstyles, and communication forms (including words, verb forms, pronouns, inflections, and writing systems); one example is the Nu Shu writing system used by some women in parts of China in the twentieth century). Gender ideologies can emphasize differences in character, capacities, and morality, sometimes portraying males and females as “opposite” poles on a continuum.

In societies that are highly segregated by gender, gender relationships sometimes may be seen as hostile or oppositional with one of the genders (usually female) viewed as potentially threatening. Female bodily fluids, such as menstrual blood and vaginal secretions, can be dangerous, damaging to men, “impure,” and “polluting,” especially in ritual contexts. In other cases, however, menstrual blood is associated with positive power. A girl’s first menstruation may be celebrated publicly with elaborate community rituals, as among the **Bemba** in southern Africa, and subsequent monthly flows bring special privileges. The **Navajo** carry out a puberty ceremony called Kinaalda to transition a girl to a woman in correspondence with her first menstrual cycle. In some small-scale societies (like the **Sambia** or Simbari in Papua New Guinea), menstrual bleeding is considered so powerful that men perform ritualized self-induced nose-bleeding called “male menstruation.” The meanings of these rituals are quite complex.

A Western, male-dominated binary can limit our ability to understand alternative models of gender—including other binary-dominated frameworks. Not all binary cultures are segregated by gender; nor does hostility necessarily accompany gender separation. Nor are all binary cultures deeply concerned with regulating female

sexuality and marriage. Premarital and extra-marital sex can even be common and acceptable, as among the **!Kung San** and **Trobriand Islanders**.

Different need not mean unequal. The **Lahu** of southwest China and Thailand exemplify a complementary gender system in which men and women have distinct expected roles but a male-female pair is necessary to accomplish most daily tasks. A male-female pair historically took responsibility for local leadership. Male-female dyads completed daily household tasks in tandem and worked together in the fields. The title of anthropologist Shanshan Du’s book, *Chopsticks Only Work in Pairs* (1999), encapsulates how complementary gender roles defined Lahu society. A single chopstick is not very useful; neither is a single person, man or woman, in a dual-focused society.

Like the Lahu, the nearby **Na** believe men and women both play crucial roles in a family and household. Women are associated with birth and life while men take on tasks such as butchering animals and preparing for funerals. Every Na house has two large pillars in the central hearth room, one representing male identity and one representing female identity. Both are crucial, and the house might well topple symbolically without both pillars. As sociologist Zhou Huashan explained in his 2002 book about the Na, this is a society that “values women without diminishing men.”

Anthropologists have also encountered relatively androgynous gender-binary cultures. In these cultures, some gender differentiation exists but “gender bending” and role-crossing are frequent, accepted, and reflect circumstances and individual capacities and preferences. Even cultures with well-defined gender roles do not necessarily view them as fixed, biologically rooted, permanent, “essentialist,” or “naturalized” as occurred in the traditional gender ideology in the United States. Gender may not even be an “identity” in a psychological sense but, rather (and perhaps more commonly across human history), a social role one assumes in a particular social context.

In recent decades, anthropologists have come to understand that this “social context” includes food acquisition and child-bearing—namely, that the concept of “man the hunter” is a myth. All cultures have creation stories that address the origins of males and females, their relationships, and often explain the dominance of one gender over the other. Scientific theories in the 19th and early 20th centuries, shaped by Darwinian ideas, perpetuated the belief that male dominance is universal, rooted in evolutionary biology and the “hunting way of life.” This view argued that men, as hunters and providers, developed traits like strength, aggression, and leadership, while women, engaged in child-rearing, became dependent on men for survival. These ideas, reflected in cultural stereotypes, suggested that men are naturally suited for leadership and women for domestic roles, shaping societal attitudes about gender roles, from household dynamics to political participation.

However, decades of research have challenged these theories, particularly the notion that hunting was central to early human survival and male dominance. Studies on primates and early foraging societies reveal that female roles were much more active, with women often gathering the bulk of food and sometimes hunting

themselves. Gender roles were not universally tied to hunting or biological determinism, and in many societies, both men and women contributed equally to survival through cooperation and shared responsibilities. The historical assumptions about male superiority and female passivity, deeply rooted in patriarchal narratives, have been debunked by evidence showing the complexity and flexibility of early human social structures.

SEXUALITY & SEXUAL ACTS

NOTE

This section contains descriptions of sexual acts that Western readers may find objectionable. The key take-away is that sexual acts, sexual attraction, and the link between gender, sex, and sexuality are not universal or easy to define.

Unraveling the hunting-way-of-life scenario, especially female dependence on males, undermines the naturalness of the Western (United States) “nuclear family” with its male-provider-protector and female-domestic-child-care division of labor. As we saw in the previous chapter, more than one hundred years of cross-cultural research reveals the varied forms humans invented for “partnering”—living in households, raising children, establishing long-term relationships, transmitting valuables to offspring, and other behaviors associated with family. Once again, the universality and evolutionary origins of the American family is more fiction than fact, a projection of our cultural model of family and gender on the past and the entire human species.

Like gender, sexuality has a biological component—if only to the extent that sex organs are biological simply by being organs. There is also a biological relationship between parents and offspring—again, more obvious in the case of the mother since the baby develops in and emerges from her body. Nevertheless, DNA and genes are real and influence the traits and potentialities of the next generation. Beyond those biological realities, culture and society seem to take over, building on—or ignoring—biology. We all know there are biological fathers unaware of or not concerned about their biological offspring and not involved in their care and biological mothers who, after giving birth, give up their children through adoption or to other family members. We also know that reproduction is only a small fraction of sexual attraction, roles, and behaviors.

Even the concept of sexual ‘attraction’ can be problematic from a culturally relative perspective. The connection between sexual relationships, marriage or formal bonding, and sexual relationships—ideas about “the one” or “soulmates,” for example—are not universal.

For the purposes of our understanding this week, we might simply say that ‘**sexuality**’ describes how a culture maps gender roles onto sexual behavior. Therefore, the sexuality of a culture depends on how the culture defines sex, gender, and sexual behaviors!

The concept of “homosexual men,” for example, exists in our culture because we map sexual attraction between ‘males’ to that term—and typically use that term ‘male’ in that mapping to refer to individuals who are both male in terms of sex and gender. In cultures

where a man (by biological sex characteristics) may have the role of a woman (such as in a “third gender”), a man being sexually attracted to this individual may not be seen as homosexual.

The **Sambia** (Simbari) until relatively recently, practiced a number of rituals for boys’ initiation to manhood. These included stealing them from their mothers, bloodletting from the nose as mentioned above, self-infliction with stinging nettles, and, important to understanding ‘sexuality,’ ritualized fellatio of adult men. The Simbari believed boys were not born with semen but had to acquire it in this way. From the outside perspective, the boys must perform oral “sex” on adult men to ingest semen. But the Simbari never saw it this way. This ritual obligation was not sexual. In fact, the Simbari have particularly strong views against this sort of act among adult men. They do not see the act as sexual in its ritual context and in fact have a strong cultural taboo against the practice outside of that context *because* of their beliefs regarding the power and potency of semen. In their theory of human development, semen is a crucial substance for healthy male growth, for eventually marrying a woman and fathering children, and for becoming a “real man.” Ultimately, the act of ingesting semen in this way is decidedly *not* a sexual act—to the degree that to do it as a sexual act is taboo.

Some individuals in India practice “female-female sexuality” or “male-male sexuality.” While this might involve a deep relationship and intimate sexual behavior, it refers to *behavior* and social *relationships*, not some internal, fixed, fundamental *identity*. In some cultures, whether one is “homosexual” or “heterosexual” is not linked simply to engaging in same-sex sexual behavior. Instead, as among Brazilian males studied by anthropologist Don Kulick, your status in the sexual relationship, literally and symbolically, determines whether you are the inserter or the penetrated.

COMPLEX CATEGORIES & IDENTITY

For over two thousand years female and male bodies were not conceptualized in terms of difference. For example, medical texts from ancient Greece until the late eighteenth century defined male and female bodies as similar with the only difference that female bodies have genitalia on the inside. It is not until the late 18th century that we get the concept of sex as we think about it currently—biological differences in males and females—with a focus on difference instead of similarity.

Ultimately, “complex” does not begin to describe the types of variation that exist in gender and sexuality throughout the world, but this cultural reality is often hidden behind a modern (Western) attempt to describe human sex as having purely biological bases. As with race, gender and sexuality help illustrate that nothing cultural is ever 100% biological.

Same-sex sexual and romantic relationships (which can be different) probably exist in every society, but categories like “gay,” “lesbian,” and “bisexual”—and whether there are further categories beyond that—are cultural constructions. They reflect culturally specific beliefs about gender, sexuality, and how sexual preferences develop. As with the ongoing debate around Shakespeare, in many cultures same-sex sex is a *behavior*, not an identity. Sexual behavior need not correspond to an internal sense of “who you are.” It is something

you do, an activity you engage in, for certain purposes, which may or may not be sexual.

SUB-CULTURES & DEVIANCE

This sort of thinking about sex and gender raises some interesting questions about the LGBTQIA+ community, particularly in the United States. If nothing else, *that* it raises these questions illustrates a point we all already know—that being "an American" is much more of an *identity* than a *culture*. Does the queer community and/or ally community constitute a "subculture?" But, if so, what culture is it a subculture to?

According to many sociologists, the **dominant** culture of a society is the one exemplified by the **most powerful** group in the society. Taking the United States as an example, Andersen, Taylor and Logio (2015: 36-37) suggest that while it is hard to isolate a dominant culture, there seems to be a "widely acknowledged 'American' culture," epitomized by "middle class values, habits, and economic resources, strongly influenced by . . . television, the fashion industry, and Anglo-European traditions," and readily thought of as "including diverse elements such as fast food, Christmas shopping, and professional sports." Philosopher and cultural theorist Kwame Anthony Appiah (1994: 116) is more pointed, emphasizing America's historically Christian beginnings, its Englishness in terms both of language and traditions, and the mark left on it by the dominant classes, including government, business, and cultural elites.

In contrast to the dominant culture of a society, say sociologists, are the various **subcultures**, conceived as groups that are part of the dominant culture but that differ from it in important ways. Many sociology textbooks are quick to propose race and ethnicity as important bases for the formation of subcultures. Other commonly mentioned bases include geographic region, occupation, social or economic class, and religion. Although this way of thinking about the connections between culture and groups has now fallen somewhat out of favor among cultural theorists, it is still common in basic sociology texts. The alternative is looking at group membership in terms of *identity*.

A subculture develops when a portion of a society shares many of the core cultural assumptions of the larger culture but approaches them differently. Music-based subcultures are a ready example. If 'rock music' is seen as a broader culture defined by a particular 'attitude,' its subcultures might include grunge, punk, heavy metal, goth, etc. which manifest that same overall attitude in similar but different ways.

In contrast, **deviance** is a behavior, belief, or appearance that violates a society' or culture's norms or expectations. As in many aspects of sociology and anthropology, there are no absolute answers about deviance. What people agree is deviant differs in various cultures, and it may change over time. Tattoos, vegan lifestyles, single parenthood, breast implants, and even jogging were once considered deviant in the West but are now widely accepted. The change process usually takes time and may be accompanied by significant disagreement, especially for social norms that are viewed as essential. For example, divorce affects the social institution of

family, and so divorce carried a deviant and stigmatized status at one time. Marijuana use was once seen as deviant and criminal, but U.S. social norms on this issue are changing.

Consider race and gender/sexuality with regard to deviance. Both may be aspects of a person's identity—but which may be considered deviant (rightly or wrongly)? What impact must it have on a person's identity (and wellbeing) for some element of that identity to be considered outside the norm? And note that what is considered deviant is entirely based on the culture itself. Just as eating cow meat is considered deviant in Hindu culture but commonplace in many other cultures, what is deviant in our current society is only so because it falls beyond our baseline expectations. A same-sex relationship is seen as deviant (outside established norms) within a religious conservative subculture in the United States but remains well within the bounds of norms and expectations within any of the 150+ Indigenous traditions with some version of "two spirit" people.

Anthropology draws its study of 'deviance' from sociology. According to sociologist William Graham Sumner, deviance is a violation of established contextual, cultural, or social norms, whether folkways, mores, or codified law (1906). It can be as minor as picking your nose in public or as major as committing murder. Although the word "deviance" has a negative connotation in everyday language, we recognize that deviance is not necessarily bad. In fact, from a structural-functionalist perspective, one of the positive contributions of deviance is that it fosters social change.

As norms vary across cultures and time, it also makes sense that notions of deviance change. Sixty years ago, public schools in the United States had dress codes that often banned women from wearing pants to class. Today, it's socially acceptable for women to wear pants, but less so for men to wear skirts. And more recently, the act of wearing or not wearing a mask became a matter of deviance, and in some cases, political affiliation and legality. *Whether an act is deviant or not depends on a culture's response to that act.*

Anthropologists are primarily concerned with the *cultural* aspects of deviance and their role in our responses to it. When a person violates a social norm, what happens? A driver caught speeding can receive a speeding ticket. A student who wears a bathrobe to class gets a warning from a professor. An adult belching loudly is avoided. All societies practice social control, the regulation and enforcement of norms. The underlying goal of social control is to maintain social order, an arrangement of practices and behaviors on which society's members base their daily lives. Think of social order as an employee handbook and social control as a manager. When a worker violates a workplace guideline, the manager steps in to enforce the rules; when an employee is doing an exceptionally good job at following the rules, the manager may praise or promote the employee.

The means of enforcing rules are known as **sanctions**. Sanctions can be positive as well as negative. Positive sanctions are rewards given for conforming to norms. Negative sanctions are punishments for violating norms. Sociologists also classify sanctions as formal or informal. Although shoplifting, a form of social deviance, may be illegal, there are no laws dictating the proper way to scratch your nose. That doesn't mean picking your nose in public won't be punished; instead, you will encounter informal sanctions. Informal

sanctions emerge in face-to-face social interactions. For example, wearing flip-flops to an opera or swearing loudly in church may draw disapproving looks or even verbal reprimands, whereas behavior that is seen as positive—such as helping an elderly person carry grocery bags across the street—may receive positive informal reactions, such as a smile or pat on the back.

Given this framework, anthropologists are most keen to interpret informal sanctions—and particularly those embedded in other cultural forms. Consider the example of body hair removal for women in the 20th century in the United States. A sociologist and an anthropologist would look at this situation very similarly. But, where a sociologist might focus more on the structures and functions of society that explain the pressure for women to remove their body hair, an anthropologist would be much more interested in the broader ideas, values, and beliefs that feed into those structures. An anthropologist would be more inclined to look at the ritual of removing body hair or the use of body hair as a *symbol* for manliness—hence that ritual removal by women.

Another concept important to understanding identity in anthropology is **stigma**. Stigma is distinct from but related to subculture and deviance. While subcultures represent alternative systems of meaning, practice, and identity that coexist with or challenge mainstream cultural norms while *within* the framework of the larger culture, and deviance refers to behaviors or attributes that violate those norms, stigma concerns the social consequences of such perceived deviations or other differences. Stigma is not always about deviance—other aspects like ability, class, and other statuses beyond a person's control may be stigmatized. Subcultures may actively cultivate difference as a form of resistance or self-definition, whereas stigma denotes *a process of discrediting difference through moral judgment and social exclusion*. Not all deviant behaviors are stigmatized, and not all stigmatized identities arise from deviant acts. Instead, stigma reflects the cultural and political work of *classification* we have seen already—how societies **mark** some identities as inferior, contaminated, or shameful *to reinforce dominant values and social hierarchies*.

In anthropology, stigma is the process of social labeling and boundary maintenance. Drawing from the work of sociologist Erving Goffman, the concept of stigma involves the reduction of a person from a “whole and usual” individual to one tainted by an attribute that discredits their social identity. This transformation is contingent upon culturally specific notions of purity, morality, and normalcy, through which certain characteristics—such as illness, disability, sexuality, or ethnicity—become grounds for exclusion. Stigma functions as a mechanism of social control, reinforcing conformity by linking moral worth to bodily and behavioral norms. Stigma is one example of the basis for *sanctions*.

At the same time, anthropologists emphasize that stigma is not merely an individual burden but a socially embedded and politically charged phenomenon. It emerges within particular historical and cultural configurations of power, inequality, and value. Ethnographic studies have shown, for example, how the stigmatization of people living with HIV/AIDS, members of lower castes, or migrants *reflects broader anxieties about social order, pollution, and*

belonging. Moreover, those who experience stigma often engage in subtle forms of resistance, reinterpretation, and community formation that challenge dominant discourses. In this sense, stigma is both a site of oppression and a potential ground for the rearticulation of identity and moral personhood within culture.



In 2025, U.S. Immigration and Customs Enforcement (ICE) Enforcement and Removal Operations' (ERO) officers (here in West Palm Beach, Florida) have been increasingly deployed to U.S. cities. The agency's practices—such as surveillance, detention, and deportation—materialize state definitions of legality and belonging, transforming certain immigrant identities into embodiments of criminality or threat. ICE operates not merely as an enforcement body but as a *cultural* instrument that reinforces symbolic boundaries between “citizen” and “alien,” legitimizing broader narratives 'insider' and 'outsider' that shape stigma among migrant communities. Your opinion of ICE's activities largely come down to your cultural definition of these boundaries. (Source: Public Domain, [Wikimedia Commons](#))

Those who experience stigma do not passively internalize the devaluing judgments imposed upon them; rather, they often respond through practices of reinterpretation, resistance, and community-making that challenge dominant narratives. In the context of immigration in the United States, for instance, stigmatization frequently emerges through discourses that frame certain migrant populations—particularly Latin American, Middle Eastern, or African groups—as “illegal,” “burdensome,” or “culturally incompatible.” These labels function to morally and politically marginalize migrants, casting them as threats to national integrity or social cohesion. Yet anthropological research reveals that within these conditions of exclusion, migrants actively negotiate meaning and belonging, developing alternative moral and cultural frameworks that affirm their dignity and collective worth.

Such acts of resistance often operate subtly and symbolically rather than through overt confrontation. Immigrant communities, for example, reinterpret stigmatized identities through narratives of hard work, sacrifice, and familial responsibility—qualities that counter the dominant portrayal of them as socially parasitic or criminal. Religious congregations, neighborhood associations, and transnational networks provide spaces for the cultivation of moral legitimacy and mutual recognition, where members assert belonging through ritual, language, and shared memory. Cultural practices such as festivals, food traditions, or bilingual education initiatives serve not only to preserve heritage but also to reclaim public space and visibility in the face of exclusion. These forms of everyday

resilience illustrate what anthropologist James C. Scott terms “infrapolitics”: small-scale, often hidden acts that contest hegemonic power. In this way, stigmatized immigrants transform the very symbols of marginality into resources for solidarity and self-definition, unsettling the boundaries between outsider and citizen, deviant and normative, imposed by dominant U.S. cultural discourses.

Recalling that even the idea that you have a 'personal identity' is itself cultural, you might look at it this way: anthropologists are often interested in the ritual, the symbol, and the shared ideas/values that *produce* identities and concepts of insider and outsider than we are the individual insiders or outsiders. Just like we approach religious beliefs from the perspective of believers and define kinship primarily using the terms the kinship groups themselves use, we approach and define "insiders" and "outsiders" as much as we can in the way "insiders" themselves do. This is to say, an anthropologist is

particularly interested in a person's "identity" because that identity presents a variety of broader, insider, cultural leads to follow.

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CHAPTER OVERVIEW

4: ARCHAEOLOGY

Archaeology is the third of the four pieces of anthropology's holistic puzzle that we will look at in this course. Put simply, archaeology is the study of the human past through the analyses of material remains—the “stuff” people leave behind. Archaeologists study *human* history, which is what makes them different from paleontologists (who study prehistoric animals, including dinosaurs), contrary to the popular belief that excavations search only for fossils. Archaeology differs from history in that history focuses on written records while archaeology relies more on the material objects left behind. This allows archaeologists to address a much longer time frame than historians; our human species has been around for at least 200,000 years, and the oldest writing (cuneiform, shown in the tablet below) only dates back to about 5,500 years ago.

In addition, a focus on material objects means that archaeologists are not constrained by the point of view of the writer of a text. In most societies, it's the people in charge who are writing the histories and not everyone's story is told. This means that only one perspective is represented. Archaeologists try to fill in the missing perspectives and tell a story by looking at the objects and material people left behind. With the passage of time, most of what we find buried in the ground is what was discarded or thrown away. Specifically, archaeologists investigate three kinds of materials:

- **Artefacts** (also spelled artifacts) are portable *items* that were made and used by humans. This may include ceramic pots, stone and bone tools, metal objects, etc. In 100 years, the computer used to type this text will also be considered an “artifact.”
- **Ecofacts** are *natural objects that have been used or moved by humans*. This might include the bones of animals that were eaten or the remains of trees that were planted in a garden. The banana peel you might throw in the trash could be an ecofact, as could the bulb of the tulips in people's yards. Both are natural but would not have gotten where they are without human activity.
- **Features** are larger, *non-portable human creations*. A house or other structure could be a feature, but so could a fire pit. We can learn about past human activity by looking at the creation and placement of that fire pit, but we can't take this feature back to the lab for further analysis without destroying it.

Archaeologists spend their time immersed in survey (looking for sites), excavation (digging at sites), and analysis (investigating the artifacts, ecofacts, and features they recover). Archaeologists who work in colleges and universities generally seek grants to fund research projects that are intended to answer specific research questions about the past.

It is more common, however, for archaeologists to work in **cultural resource management (CRM)**. Most professional archaeologists in the U.S. are employed in CRM. Archaeologists working in CRM are hired to survey construction sites before work begins as this work is

mandated by state and federal law. This ensures that no important cultural materials will be destroyed without being recorded.

Museums are another venue for archaeologists. Increasingly museum archaeologists and cultural anthropologists work together with state and tribal governments. Archaeologists and other anthropologists at one time collected artifacts to fill museums with specimens to display. Those days are not too far in the past. Anthropologists and other scientists are working with museum curators today to undo the damage of decades of collections—modern material culture, ancient artifacts, and even human remains—often taken without consent from the peoples that they belonged to. Today, archaeologists and museums in many countries work with Indigenous groups both domestically and internationally to return cultural and human remains that were taken from them.

In addition, archaeologists work in museums to maintain archaeological and anthropological **collections**. This includes curating them to keep them in a safe condition, studying them to gain knowledge about the peoples that created them, and creating exhibits to display them for the general public. Museums are also important places for education in many ways, from displays of fragile artifacts and reconstructions of ancient settings to highly interactive exhibits.

Archaeologists also sometimes create living-history presentations to educate the public and reconstruct ancient structures and tools that the public can handle. In addition, archaeologists can also work with museums to give the public a taste of what archaeologists actually do! This includes excavation, identification, and curation. **Reconstruction** in archaeology is the re-creation or building of an ancient artifact or feature to improve our understanding of past societies. Reconstructions can be partial, meaning that they add to an existing structure, or can be made whole cloth. Whether partial or whole, they are based on the partial remains, written records, oral histories, or images of the object that is built.

One of the benefits of archaeology is the way we are able to use **the scientific method** to test hypotheses about the past. This allows us to explore questions that would be impossible through historical research alone. Without archaeology, there would be no other way to learn about humanity in the time before written records.

BEWARE “PSEUDO-ARCHAEOLOGY”

Archaeologists use the scientific method.

Popular culture has portrayed “archaeology” as something done by treasure hunters or tomb raiders—Indiana Jones or Lara Croft. By now, you know they don't truly represent what we do. Likewise, we often get inaccurate images of peoples of the ancient past. Even archaeologists have been guilty of this on occasion. The book *Motel of the Mysteries* by David Macauley (1979) makes fun of how the

first archaeologists had these kinds of misconceptions, using the excavation of an ancient 20th-century motel many years in our future. But for many years, people have come up with implausible assumptions about ancient sites and artifacts and who created them. Some of the people you might see on TV today suggest that the famous Pyramids at Giza in Egypt or Chichén Itzá in Mexico weren't even built by inhabitants of our planet!

By and large, these people are not archaeologists and don't apply the scientific method, spreading pseudoscience (specifically pseudoarchaeology). Pseudoarchaeologists usually attribute ancient remains to space aliens, giants, or magical creatures. Space aliens are often used to explain the construction of large stone monuments in England and on Easter Island, the Nazca lines in Peru, and the aforementioned pyramids in Egypt and Mexico (Bond 2018). *Ancient peoples were just as capable, creative, and intelligent as modern people—just living in different times and cultures.*

Many theories in pseudoarchaeology are based on racist, white supremacist assumptions. In many cases, colonizers from powerful countries in Western Europe tried to explain large sites in the Americas, Africa, and the Pacific as proof that white, European explorers—or outsiders from other parts of the world, for example the Lost Tribes of Israel—had to have previously occupied the areas

before their current inhabitants came. In fact, these sites were all created by the ancestors of the Indigenous peoples from these areas.

IN THESE CHAPTERS

In the following sections, we will focus, then, on 'real' archaeology using the scientific method to analyze human artefacts, ecofacts, and features to better understand our human past.

The sections that follow will look at:

- **Material Culture:** the things humans make and how these connect to our culture in interpretable ways.
- **Excavation and Context:** the techniques archaeologists use to find, access, and interpret the material culture and ecofacts of the past. And
- **Interpretation and Ethics:** Looking more closely at some of the theoretical implications of archaeological interpretation including conservation, political and legal aspects, public outreach, and protecting cultural heritage.

[4.1: Material Culture](#)

[4.2: Excavation and Context](#)

[4.3: Interpretation and Ethics](#)

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4.1: MATERIAL CULTURE

In this chapter, we will begin to look at material culture. **Material culture** is the physical objects, resources, and spaces that people create, use, and share as part of their culture. These tangible items can include tools, clothing, buildings, and art. They both indicate and influence a society's beliefs, values, and social structures. The subfield of archaeology is the study of material culture. It analyzes these materials to understand the relationship between people and the physical things they create and use.

CULTURE IS WHAT WE MAKE

Museums are buildings where objects of historical, artistic, scientific, or cultural interest are displayed. The Smithsonian's National Museum of the American Indian has one of the world's largest collections of Native artifacts, including many two- and three-dimensional objects such as baskets, pottery, and preserved specimens representative of the lives of Native populations from all areas of the country.



This basket, woven by Kucadikadi (Mono Lake Paiute) artist Lucy Telles, is an excellent example of the art of basket weaving. Telles, whose work was done in the early part of the twentieth century, is widely admired for her use of color and innovative designs. (credit: "Mono Lake Paiute Basket" by Ernest Amoroso, National Museum of the American Indian/Wikimedia Commons, Public Domain)

People living in groups learn to craft the things they need in order to make a living in their environment. Early human ancestors learned how to make sharp blades useful for processing meat. They shared their knowledge of toolmaking in groups, passing those skills down to younger generations. Objects that are made and used by humans in group contexts are called **material culture**. All of the tools developed by early hominins (blades, arrows, axes, etc.) are examples of material culture. All of the artifacts discovered by archaeologists (buildings, pottery, beads, etc.) are examples of material culture. The specialized knowledge and skills used for making material culture are called **technology**. Today, the word *technology* is often used to refer to electronic devices such as smartphones and computers. Our material culture now includes visual culture (media) and *digital* technologies. For anthropologists,

both smartphones and obsidian blades are forms of material culture produced through specialized technologies. That is, *technology* refers to the knowledge and skills required to make blades, phones, and other objects of material culture.

Material culture is not just found in museums, of course. Material culture is all around. All of the furniture, appliances, books, dishes, and pictures on the walls in a typical American home are elements of material culture, and they reveal a great deal about the whole way of life of a society.

Consider the toothbrush. It would be possible for people to clean their teeth with a found object such as a twig or leaf, or even with a finger. Ancient peoples often used a special chew stick, a twig with a frayed end. The bristled toothbrush was invented in 15th-century China and spread across Europe and into the United States, where it began to be mass produced in the late 19th century. Drugstores now feature many styles of toothbrush with an array of special features. Specialized teams design, manufacture, and market this wide variety of toothbrushes to consumers. Parents buy toothbrushes for their children and teach them the conventional techniques for brushing their teeth (little circles, two minutes, etc.). As adults, people often isolate themselves in a special room to brush their teeth in privacy. Even so, toothbrushing is a profoundly social act, relying on shared knowledge and observance of social norms for hygiene and health.

Trees, rocks, microbes, and planets are all material objects, but they are not material culture unless they are made and used by humans in group contexts. For instance, a tree growing in a natural forest is not an object of material culture. However, an apple tree can be material culture if it is planted by a farmer in an orchard designed to produce fruit for human consumption. An old oak tree becomes material culture if it becomes culturally (perhaps ritually) significant. Note that this might happen with or without creating any evidence for future archaeologists to uncover.



This rock is on display in the British Museum. While a rock is not in and of itself material culture, this rock, which carries special meaning for those who view it, is. (credit: Archaeomoonwalker/Wikimedia Commons, CC BY 3.0)

On display in the Cleveland Museum of Natural History is a gray rock. This rock was simply found by humans and never shaped for

any particular use. Sitting there in the museum, it has no specific purpose other than to serve as an object of popular contemplation. Though it is a fairly unremarkable lump of basalt, thousands of people stop to gaze at this rock, reading the sign that describes how it was obtained, marveling at its presence there in the museum. Why? What's so interesting about a rock? This particular rock was collected by astronauts on the Apollo 12 mission to the moon. The rock serves as evidence of this magnificent feat of scientific engineering and a source of great pride to the culture that accomplished such a mission. We go to museums to view the items on display there, but clearly, the human activities surrounding those objects are what make them interesting to us. That is, culture is not just material objects—it's *also what we do and what we think*.

ARTEFACTS, ECOFACTS, AND FEATURES

As noted in the introduction to chapter 4, archaeological evidence includes three types of material culture. These are artefacts, ecofacts, and features.

- **Artefacts** (also spelled artifacts) are portable *items* that were made and used by humans. This may include ceramic pots, stone and bone tools, metal objects, etc. In 100 years, the computer used to type this text will also be considered an "artifact."
- **Ecofacts** are *natural objects that have been used or moved by humans*. This might include the bones of animals that were eaten or the remains of trees that were planted in a garden. The banana peel you might throw in the trash could be an ecofact, as could the bulb of the tulips in people's yards. Both are natural but would not have gotten where they are without human activity.
- **Features** are larger, *non-portable human creations*. A house or other structure could be a feature, but so could a fire pit. We can learn about past human activity by looking at the creation and placement of that fire pit, but we can't take this feature back to the lab for further analysis without destroying it.

ANALYZING MATERIAL CULTURE

In the next chapter, we will work backwards and look more closely at how 'sites' form and how archaeologists excavate and interpret them. For the time being, we will take a look at some of the ways archaeologists analyze individual types of artefacts, ecofacts, and features. These forms of evidence and their analysis work together to create a full picture of a broader archaeological site and context.

LITHIC ANALYSIS

The word "lithic" come from the Greek *lithos* and means "stone." Lithic tools and their by-products are among the most commonly recovered artifacts from archaeological sites, in large part because these artifacts are imperishable. As a result, lithic artifacts are also the oldest known artifacts in the world. Archaeologists generally divide stone tools into two types: flaked stone tools and groundstone tools. Flaked stone tools are made from chert or obsidian, or other fine-grained lithic materials that have a predictable fracture pattern. When a chunk of this material (called a core) is struck in a particular way with a stone or a piece of antler or wood (called a hammer), a flake is produced. Flakes could used as tools due to their sharp edges or were further modified into other tools. Sometimes the core was also shaped into a particular tool. Two of the most recognizable

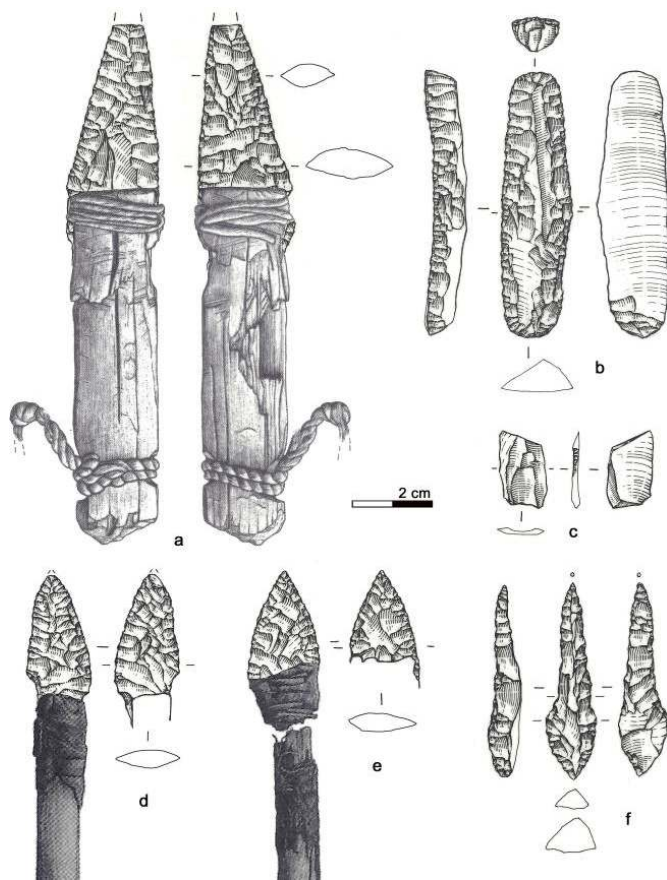
flaked stone tools are spear or arrow points that were hafted onto the ends of sticks or canes. Groundstone tools, on the other hand, are made from sedimentary, igneous, or metamorphic rock and are shaped by pecking or grinding. Some groundstone tools were used to grind or pound seeds, nuts, and other plant material or minerals for pigments or paints; others were shaped into axes, plummets, or ornaments. Common groundstone tools in the Americas are the *mano* and the *metate*, which were used together to grind seeds or maize.

Archaeologists who analyze lithic artifacts begin by sorting them into flaked and groundstone objects. They then further divide the two subgroups of artifacts into different artifact types. The two most basic types of flaked stone artifacts are débitage (pronounced *deb-eh-taj*) and tools, categories that are then further broken down into more specific subcategories. Subcategories of débitage include flakes, cores, and shatter; subcategories of these tools include arrow or spear points, knives, and scrapers. Specific types of groundstone artifacts are generally more varied. Some more common types are *manos*, *metates*, abraders, hammerstones, anvils, and fire-cracked rock. When the artifacts in an assemblage are divided into the desired groups, they are further classified by material type and then are counted and weighted.

A common type of flaked tool analysis is examining débitage, or the waste produced when making a flaked stone tool. Débitage can help archaeologists determine the kinds of tools that were made at a particular archaeological site. Common types of débitage include flakes, shatter, and cores. A flake is thin piece of lithic material with certain morphological characteristics such as a bulb of percussion, a striking platform, and sharp edges. Shatter refers to the blocky fragments of stone material created from the hammer crushing the parent material during the flaking process. Cores are the original nodules of parent material from which tools were created.

Microwear (or use-wear) analysis is a way to understand exactly how flaked stone tools were used. This process involves replicating the flaked stone tool, using it in specific ways (e.g., cutting, scraping, piercing, or drilling) on specific materials (e.g., wood, bone, plants, or animal hide or meat), examining microscopic wear patterns on the used edge of the tool, and comparing the use wear on the replicated tool to the evidence of wear on tools recovered from archaeological contexts.

Lithic analysts almost always try to identify the geographic location, or source, from which lithic material was obtained to make stone tools. Sometimes this can be done by macroscopic comparisons of the material type to raw sources obtained from certain locations. In other cases, a microscopic analysis of the crystals or a chemical analysis of the composition of a material is necessary to determine its source.



Lithics associated with "Ötzi the Iceman." (Source: CC-BY-SA: Wierer, U., Arrighi, S., Bertola, S., Kaufmann, G., Baumgarten, B., Pedrotti, A., Pernter, P. and Pelegrin, J.; [Wikimedia Commons](#))

BONE & SHELL ARTEFACTS

After lithics, bone tools are the oldest found in the archaeological record, dating back at least 1.5 million to 2 million years ago. Bone and shell can be chipped, cut, ground, or polished into a number of different forms. Common bone tools include hoes and other agricultural implements; scrapers or other tools for processing food; fishhooks; weaving tools, awls, needles, or other sewing equipment; musical instruments (e.g., flutes); and jewelry, beads, or other adornments.

There are two parts to analyzing artifacts made of shell and bone. First, an archaeologist considers the same sorts of attributes that are recorded for any artifact—the size and shape of the tool, the techniques used to manufacture the tool, the style or type of the tool, and any microwear. These data can help us better understand the technology of tool production and the context of its use. For example, more than 60 bone tools that were found in the Contrebandiers Cave in Morocco show evidence of being used for clothing manufacture approximately 120,000 years ago. Archaeologists made this determination because the style and use wear are consistent with tools used for working with leather and fur in other contexts. Likewise, studies of the marks on bone tools dating to about 35,000 years ago from the Kimberley region in Australia show that they were used for a variety of purposes, including crafting items from plant fiber and resin and for hunting and fishing.

In addition to analyzing tool technology, archaeologists also examine the bone itself. They try to identify the skeletal element (specific bone) from which the tool is made as well as the species of the animal it came from. If there is minimal modification (as with the scapula of a large mammal used as a hoe), it may be relatively easy to ascertain the species. However, if the bone has been extensively shaped and polished (as with a point, needle, or fishhook), it may be nearly impossible to identify the species from visual examination alone. Newer techniques can analyze biomarkers in the bone to identify the species of origin. When some species are overrepresented or underrepresented in the tool assemblage, that may provide information about crafting choices or ritual associations between particular tools and particular animals. Likewise, if a bone or shell artifact is made from a species that is not local, this can inform archaeologists' understanding of travel and/or trade routes. For example, the presence of marine shell beads, gorgets, shell cups, and other prestige artifacts in higher-status households and ritual contexts at the site of Cahokia (in what is the state of Illinois today) show that high-status people there were connected to the Gulf Coast through complex trade routes.



A fragment of a bone flute. (Source: CC-0, Yale University Art Gallery, [Wikimedia Commons](#))

CERAMICS

Unlike stone and bone tools, ceramics are not found in the archaeological record until after the evolution of modern Homo sapiens. However, once they appear in the record, they are often among the most common artifacts. Archaeologically, ceramic refers to any material that humans made out of clay and fired. Ceramics are uniquely useful to archaeological investigations because pots and other fired-clay objects are found around the world and preserve remarkably well. Although they break, they do not decompose, and broken potsherds are not often collected by looters. Moreover, because they are ordinary, daily-use artifacts, ceramics are found in a variety of contexts and thus can inform archaeologists about many activities related to how they were used and made.

For a potter in ancient times, the first step to making pottery was finding and preparing the clay. Although clay occurs naturally, in order to make a high-quality pot, it is necessary to remove unwanted particles and add in more desirable additives, known as temper. A skilled potter knows that different kinds and quantities of temper prepare the clay for different uses. For example, a pot for cooking may be created with a rougher temper, which allows it to heat and cool more effectively without cracking.

Clay can be molded in a variety of different ways: by pinching a ball into the desired shape, using the coil method, using a mold, building with slabs, and so forth. Different techniques for forming the vessel may be practical, but they can also reflect cultural or stylistic preferences. Likewise, changes may result from the introduction of new technology such as the pottery wheel. Once the basic form of a vessel is made, secondary or decorative forming techniques may be added before it is fired. Techniques may include beating, scraping, smoothing, burnishing, and polishing. Decorative motifs may be cut, carved, or molded onto the vessel. The surface may be covered with slip, glaze, or painted decoration.

Firing techniques also vary by cultural group and chronological period. If you have taken a ceramics class, you probably fired your pieces in an enclosed kiln, which provides a controlled, even heating environment. However, it is possible to create pottery without a kiln. In an open-fire method, the pots are mixed with the fuels on the surface of the ground or in a small pit and then burned. Because it is more difficult to control the atmosphere, careful placement prior to firing is necessary to ensure an even heating environment. Even under ideal conditions, some pots will crack, break, collapse, or fire unevenly, depending on the combination of the heating atmosphere, the rate of heating, and the maximum temperature.

An understanding of the basics of pottery manufacture helps archaeologists analyze the resulting ceramics. The ceramics that have survived in the archaeological record are often broken or have been deposited in a refuse pit. Archaeologists work back from the discarded artifact to better understand the context of its use and creation. Different approaches to archaeological analysis include an analysis of form and function, a stylistic analysis, or a characterization study. The kinds of analyses an archaeologist employs depend on the particular research question she is asking. Many investigations require multiple analyses.

The shape and form of an artifact can give us some clues about its function or how it was used. In some cases this may seem obvious—a pitcher is clearly used for pouring liquid, while a large pot with burn marks must have been used for cooking. In other cases, however, the function of a vessel is not as clear. The first step in this sort of analysis is to create a typology, grouping like objects together with like. This is the sort of thing you probably do without thinking about it when you organize dishes in a kitchen: you put the plates on one shelf, the cups on another, and so forth. However, the sorting process becomes trickier when you are organizing items for which you lack cultural context. The people who used the pottery may have had a different classification system than the archaeologists who are studying it. In addition, it's important to remember that the same pot may have been used for different purposes over the course of its use life, making simple categorization even more difficult. Even so, it is usually possible to roughly divide any collection into vessels used for storage, for cooking or food processing or for serving or for transfer. From there, additional sorting will depend on the collection. Archaeologists consider a number of attributes, including the shape of the rim, the base, or the handles; the dimensions of the rim or base; the thickness of the vessel walls; the compactness of the clay; the color; the firing environment; the presence of specific paste

inclusions; the type of finish; the presence of glaze or wash; and any signs of use wear.

In addition, archaeologists may consider stylistic attributes that do not contribute to the function of the vessel. Style is often seen as a proxy for cultural identity. Shared styles may indicate a close social relationship among cultures, while abrupt stylistic changes may indicate some sort of change in social or political organization. Archaeologists may record specific elements or motifs that appear on different pots and consider how they change over time and between sites. At the same time, an old archaeological adage warns against confusing pots for people. It means that we need to be careful about methodological approaches that focus only on the artifact without considering what the people who created it were trying to communicate. For example, while Iron Age ceramic styles in southern Africa were traditionally interpreted primarily as markers of ethnicity, ethnohistoric and ethnoarchaeological studies show that pottery is more complex when considered through the various lenses of production, distribution, and engagement with different social networks. Archaeologists need to recognize that pots and other ceramic vessels are mobile objects and that their styles are a form of communication over both time (as novice potters learn from their elders and from experimentation) and space (as people move, vessels are traded, and pots are used in different contexts over their use life).



An example of ceramic artefacts. (Source: CC-0, [Wikimedia Commons](#))

ARCHAEOMETALLURGY

The study of metal in archaeological contexts is known as archaeometallurgy. While metal artifacts are relatively rare at older sites, they became increasingly important over time. Metal technologies have traditionally been used to categorize past societies (bronze age, iron age), although some of these typologies can be problematic.

The oldest metal artifacts that archaeologists have recovered were made from native metals that were formed into decorative bangles, necklaces, bracelets, and other ornamental objects, either through cold hammering or by melting the metal and shaping it with a mold. Metal alloys were later independently developed in many different locations across the world to serve a variety of different purposes. Bronze, for example, is a copper alloy, which is harder and stronger than copper alone. The first alloys mixed copper with arsenic, but true bronze requires tin. The earliest known tin bronze was found in what is Serbia today and dates to about 6,500 years ago; other early tin bronze is found across the Near East that dates to about 5,000

years ago. Bronze artifacts include axes and spears as well as artistic and/or ritual objects. In Europe and the Near East there was a shift to iron beginning around 3,000 years ago—and earlier in some regions—as new technology enabled furnaces to get hot enough to effectively reduce iron ore into iron metal.

Just as with any other material, an archaeologist studying metal artifacts would record their basic attributes—size, shape, weight, use wear, and so forth. However, archaeometallurgists are also specifically interested in determining the specific type of metal that was used. This may begin with a visual examination, looking at aspects such as weight, density, hardness, color, corrosion, and magnetism. For example, iron is magnetic but silver is not, and aluminum is lighter than many other metals. However, more precise investigation may require chemical analysis such as X-ray spectroscopy or mass spectrometry. Elemental analysis of the chemical composition of the metal can help to determine the precise composition of alloys as well as the source of the metals.

This can be important in developing understandings of the technological process that different metalworkers followed at different times and in different places and can also be used to investigate systems of trade and exchange of ideas. For example, in her research into the complex metallurgical technologies of the South American Andes, Heather Lechtman has used elemental analysis to identify the geographical sources used in Andean bronzewear and to investigate changes over time and space.



Archaeometallurgy is also applied alongside other methods to date and further analyze coins. Shown here is an Iron Age Copper alloy Celtic coin. (Source: CC-BY-SA, The Portable Antiquities Scheme/The Trustees of the British Museum, [Wikimedia Commons](#))

TEXTILES

Although stone tools are the oldest surviving human-made artifacts, early humans likely relied first on organic tools—such as those made from leaves, wood, bone, or shell—which rarely endure in the archaeological record due to their perishable nature. Among these, textiles are especially unlikely to survive. Textiles are made from either plant-based cellulose fibers or animal-based protein fibers. Plant fibers may come from stems (bast fibers like flax, hemp, and nettle) or seeds (such as cotton), while animal fibers include wool, hair, and silk. Wool and hair can be gathered without killing the animal, a practice linked to domestication. Textile production begins with flexible strands, whether natural or processed; processing methods like beating or steaming soften fibers but also make them decay faster. When twisted, these fibers form cords or strings that

can be woven into fabrics combining flexibility and rigidity, allowing the material to be folded or rolled for storage.

Both cordage and spun thread are made by twisting the fibers. The difference is in how the short fibers are joined to make longer lengths. Cordage has spliced joins (bundles of fibers that are overlapped in groups), while yarn has a continuous overlap of fibers. However, those details are difficult to see, especially when looking at fragmentary artifacts. The fibers can be twisted together in two directions, referred to as “S” and “Z.” These initial strands can then be used as is or they can be twisted around each other to form plied yarns. The number of plies can vary significantly, but most archaeological textiles are made either with single strands or with two or three plies of fiber that are twisted for strength. Careful examination of a textile (or a cast of the textile in mud or clay) can help determine the structure of the yarn or cord used to make it.

A tiny fragment of a three-ply cord associated with a Neanderthal Levallois flake has recently been found in a context dated 41,000–52,000 years ago (Hardy et al., 2020). This is one of the earliest pieces of direct evidence for textiles. Indirect evidence can be seen in wear patterns on bone or shell ornaments (indicating that they were suspended and used as a bead). Because of their fragile nature, textiles rarely survive to be found in the archaeological record. Most that are found are highly fragmentary.

The ideal conditions for textile preservation are cool, dark, and dry (such as a tomb or a dry cave), but textiles can occasionally preserve in a variety of relatively extreme situations. These include anaerobic wet conditions, freezing temperatures, or sites with specific chemical profiles. Textiles from flax and other bast fibers have been found in the sediments at the bottom of lakes and in marshy sites, while protein fibers (wool, hair, silk, and leather) have been found in the highly acidic conditions of peat bogs. Textiles can also survive when partially burned (carbonized), when encased in salts from the corrosion of metal, or when the soils that surround an item are particularly high in salts. Fabrics made of two different fibers (such as flax and wool) can have “voids” where one of the fibers preserves and the other decays. Depending on circumstances, this can either help or hinder the interpretation.

Trace evidence can be studied even when the fabrics themselves have disappeared. Impressions of fabric structures can be found pressed into mud floors or clay pots that later hardened, preserving a record of the structure. These impressions can be studied for clues to the structures of the fabrics. Other evidence of textiles can be found in the tool kits of the makers. Spindle whorls have been found in many sites around the world. These are bead-like weights for the spindles that are used to spin yarn. They come in a wide variety of sizes, shapes, and materials and can be reflective of that kind of thread or yarn that was being produced. Some whorls are made of repurposed broken pottery, while others are clearly made as spindle whorls. Weights made of fired clay or stone indicate the use of a warp-weighted loom. As with spindle whorls, the loom weights vary in size, shape, and weight and can provide hints about the fabric woven on the loom. Because loom weights can be similar to weights used for other purposes such as fishing, they are usually identified from context. Bone awls for poking holes in hides or other materials,

bone or wood needles for sewing or nalbinding, and a variety of beaters to manipulate threads on a loom can all be used to demonstrate the presence of textiles even when the textiles themselves don't survive.



Grave goods associated with a child mummy (Egyptian). The rope fragments are made of twisted plant fibers and the sandals are made from leather. Note that this photograph includes a centimeter scale and an array of colors and shades of grey; this is a standardized panel that researchers can use to correct archaeological photographs when their analysis relies on true-to-life color. (Source: CC-0, Museo Egizio In Turin, Italy. [Wikimedia Commons](#))

ETHNOARCHAEOLOGY & EXPERIMENTAL ARCHAEOLOGY

Whether studying lithics, bone tools, ceramics, textiles, foodways, or metals, archaeologists use a variety of techniques to help test their hypotheses. One approach is to look at the ethnographic record for accounts of technologies in action. This is known as **ethnoarchaeology**. By comparing the evidence left behind by living peoples engaged in these techniques to peoples alive today and across cultural groups, it is possible to better interpret the archaeological record. Another method is to attempt to replicate the technologies seen in the archaeological record and compare the results with evidence from archaeology. This is **experimental archaeology**.

Ethnoarchaeology studies how living peoples interact with their environments and uses that knowledge to help interpret the past. Keep in mind, though, that living cultures are not some kind of “primitive” relic of the past. While different peoples have developed different technologies, we are all equally human. All human cultures change and adapt to their current situations, and no human culture is any more developed than any other, a fact that must be remembered when creating a research design. That said, ethnoarchaeology has the potential to contribute to archaeological understanding as long as archaeologists are careful and reflexive. Sometimes, ethnoarchaeology leads to unexpected discoveries, and sometimes it simply serves as a reminder that not everything will show up in the archaeological record. For example, in her work with the Pumé people of Venezuela, Pei-Lin Yu found that sting-ray spines had

ritual uses that would be hard to predict by archaeologists who simply found the item at a site.

Experimental archaeology is a way of understanding the past through the replication of artifacts and the techniques used to construct them. Experimental archaeologists analyze and interpret technologies from the archaeological past and attempt to recreate and use them to answer specific questions. They look at the process of manufacture and the waste products that result from that manufacture. They also look at how the artifact is used and analyze wear and breakage patterns. Public outreach in archaeology, which can include television programs, historical reenactments, and living-history interpretations, often include an element of experimental archaeology. In these contexts, the term “experimental archaeology” is rarely used. Instead, the practice is often described as “hands-on history” or “bringing the past to life” (although both of these terms are misleading).

There are two main aspects of experimental archaeology. The first has to do with the replication of artifacts or (in some cases) entire structures or sites. This involves developing an understanding of the techniques used to acquire the materials and to manufacture an artifact or to construct a site. The second is to use the artifact or site to better understand its function. This allows better interpretation of archaeological finds through analyses of breakage and wear patterns. For instance, an experimental archaeologist may start by creating a replica of a flint blade found at an archaeological site. This provides a basic understanding of the specific artifact and its construction. To better understand stone blades as an artifact type, the next step would be to make a number of replicas and use them to cut a variety of materials. This allows the experimenter to develop an understanding of how the shape of the tool affects its effectiveness. By then examining the wear on the cutting edges of the artifact and the replicas, it may be possible to determine the function of the original artifact.



'Flint knapping' (making stone tools by the process of "lithic reduction"—intentionally striking pieces of rock to remove flakes) is a common form of experimental archaeology used to produce new data used in lithic analysis (as described above). (Source: CC-BY, Wikitarisch, [Wikimedia Commons](#))

ZOOARCHAEOLOGY & PALEOETHNOBOTANY

Animal and plant remains found at archaeological sites provide important insights about past human behavior and how humans interacted with their environment. The evidence obtained can tell us about past dietary practices, what environments were like in the past, how and when plants and animals were first domesticated, foraging strategies, and how plant and animal resources were used for medicines, tools, and ritual items. Analysis of past animal and plant remains are two specialized fields in archaeological research.

Zooarchaeology is the study of animal (zoology) remains from prehistoric and historic archaeological sites. The overall goal of zooarchaeological research is to develop a better understanding of how past peoples interacted with their environment, specifically with animals (fauna). Zooarchaeology is an interdisciplinary field of study that combines zoology and archaeology, with an emphasis on the latter. Fields such as ecology, biology, osteology, taphonomy, animal husbandry, and various others also contribute to zooarchaeological studies. Zooarchaeological or faunal remains are a reflection of past human behavior and living strategies. Analyzing animal remains from archaeological deposits can provide a wealth of information about how past peoples lived—not just their behavior but also their impact on the environment they lived in.

Paleoethnobotany is the study of how people (ethno) used plants (botany) in the past (paleo), or how people interacted with and

impacted their environment through the use, manipulation, and consumption of plants. Paleoethnobotany can be used to understand many things: what plants people ate, how people acquired plant foods, how people prepared plants for consumption, the origins of agriculture, what the environment was like at the site, and so on. Fields such as botany, ecology, agronomy, and soil science also greatly inform paleoethnobotanical studies.

Faunal and floral remains used by prehistoric and historic peoples represent specialized material culture obtained from the living biotic environment (ecofacts) and as such are often subsumed under the category of environmental archaeology. Obtaining data during floral and faunal analysis is only the initial step in the process of addressing research questions in archaeological studies. In order to gather significant information from faunal and floral remains, it is necessary to examine in some detail the methods and techniques employed.

Zooarchaeological faunal analysis focuses on the study of preserved faunal or animal remains recovered from archaeological sites. Typically, the preserved remains consist of the hard parts of an animal such as bones, teeth, antler, shell, and scales. But also keep in mind that the category “faunal” includes more than the bones of mammals and other vertebrates; it also includes other parts of these animals such as scales, eggshells, rattles, and so on. Invertebrate animal parts may also survive in the archaeological record, such as remains of mollusks, echinoderms, and even arthropods. Depending on various taphonomic factors, a representative sample of animal remains may preserve over time, forming a zooarchaeological or faunal assemblage for a particular site. Soft items (e.g., hair, skin, muscle, and marrow) only rarely preserve in the archaeological record, in settings such as unusually anoxic wet (e.g., peat bog) or arid (e.g., dry cave) conditions. During analysis, archaeologists examine each faunal remain or specimen individually and record a series of characteristic traits and conditions. This initial step focuses on identifying elements and taxonomy: essentially, identifying the part of the animal as well as the type of animal represented by each specimen. Archaeologists use the information they obtain in this process to develop a zooarchaeological profile of the assemblage, which they can then use to address research questions regarding the human behavior that created the assemblage.

The analysis of zooarchaeological remains begins with recognizing and identifying specimens. Each piece of bone or shell is examined individually and compared to known specimens, either in a comparative collection or in reference manuals. A faunal comparative collection consists of elements from individual animals, all properly cleaned and labeled, that can be used to help an archaeologist identify typically fragmented or incomplete zooarchaeological remains. Reference manuals consist of books, journal articles, and similar publications that provide detailed illustrations (drawings or photographs) of skeletal elements that can be used to identify a specimen. In general, comparative collections are preferable to reference manuals. It is often difficult to obtain the precision necessary to accurately recognize small, distinct traits visible on skeletal elements through drawings or photographs. In addition, many skeletal remains can be quite small, making them difficult to illustrate. Finally, no reference manuals exist that contain

detailed illustrations of every bone from every animal found in a given region.



A giant clam excavated from a midden (the archaeological term for a garbage heap) of shells. Dated to 2,800 years ago, this midden in Bourewa, Fiji shows these clams disappeared about this time. (Source: CC-BY-SA, Patrick Nunn, [Wikimedia Commons](#))



A drawer at the Archaeozoology Reference Laboratory of the Dutch Heritage Agency containing the tibiae (shin bones) of many species. Sample collections like these are used for reference to identify ecofacts and artefacts made of bone. (Source: CC-BY-SA, [Rijksdienst voor het Cultureel Erfgoed](#), [Wikimedia Commons](#))

Paleoethnobotany is usually split into two methods of analysis based on the size and type of plant remains being studied: **macrobotanical analysis** and **microbotanical analysis**. Macrobotanical analysis deals with plant remains such as carbonized seeds and plant parts that you can see with your eyes or with the aid of a low-powered microscope. Microbotanical analysis deals with plant remains that you can see only with the aid of a high-powered microscope, such as pollen, starch, and phytoliths. Starch, a semicrystalline carbohydrate produced by plants, is helpful for plant identification because of morphological (shape and size) variation between different families and genera of plants. Phytoliths are made of silica (glass, or sand) and help give plants structure by forming in between cell walls when plants take up silica from groundwater. As with starch, phytoliths can be identified to plant family or genera based on their unique shape and size. Starches are found in carbohydrate-rich plants such as beans, tubers, maize, and cereal grains, while phytoliths are found in greater quantities in the grass family. In fact, many grasses feel

rough to the touch because of phytoliths. Pollen is a fine powder that plants make when they reproduce. Plant and tree pollen is dispersed by the wind and settles into soil or on top of bodies of water, such as lakes, where it falls to the bottom and accumulates in the sediment over time. Archaeologists can take core samples of the sediment to investigate changes in pollen type and abundance throughout time. Pollen morphology is also unique to families and genera.

Paleoethnobotanical analysis begins with sampling from a field site. Depending on whether an analyst will be doing macrobotanical or microbotanical recovery, these samples can range from soil to residues on artifacts to dental calculus. Macrobotanical data are derived almost entirely from plant remains found in soil (except for the cases where botanical remains are desiccated or preserved in waterlogged contexts), while microbotanical data can be derived from remains isolated from both microbotanical and macrobotanical sampling methods.



Shanidar cave where a number of Neanderthal skeletons were discovered. Microfloral analysis revealed whole clumps of pollen in addition to the usual pollen found throughout the site and suggested that entire flowering plants (or at least heads of plants) had entered the grave deposit. This has led some paleo-archaeologists to conclude that flowers were deposited in the cave as part of intentional burial practice. (Source: CC-BY-SA, [Khoshhat](#), [Wikimedia Commons](#))

Other common sources for collecting microbotanical data include dental calculus and residues on artifacts and dental calculus. Dental calculus is mineralized plaque that accumulates in layers on teeth, collected from both animal and human remains using a sanitized dental pick or sonicating toothbrush in a lab setting. Microbotanical analysis of dental calculus can give paleoethnobotanists direct information about what a person was eating, unlike the previous methods mentioned, which are only secondary sources of information about diet or how people were using plants in their day-to-day life. Residues include the remains of carbonized food from the inside of ceramic sherds, absorbed material from a ceramic sherd, or material from the cutting edges of lithics. Residues from ceramic sherds can tell archaeologists what people were cooking or storing in ceramic vessels, while residues from lithics can tell archaeologists what people were cutting with these tools. These residues are typically collected in the lab using a sanitized sonicating toothbrush. Pollen data are recovered by taking a soil core from lake sediment and sampling each stratigraphic level. Pollen is used to reconstruct ancient environments.

Wood is one of the most ubiquitous botanical remains a paleoethnobotanist will come across in both the field and the laboratory due to its abundant use as a source of fuel and shelter.

Wood is primarily encountered as wood charcoal that has been preserved by fire through incomplete burning, either accidentally or intentionally. In rarer cases, at sites with extreme weather conditions a paleoethnobotanist may encounter wood samples that are waterlogged or desiccated. Because wood charcoal is often highly fragmented and it would be impossible to know whether the wood in your sample is from one branch or ten, it is only ever weighed rather than counted. In addition, data for wood charcoal is only recorded at the 2 mm fraction and above since these data are representative of the entire sample. The small amounts of charcoal remaining in the other, smaller fractions are negligible.



Archaeologists (particularly those who deal with sites formed within the last thousand years or so) are sometimes lucky enough to encounter larger pieces of intact wood including rings. In these cases, they can turn to **dendrochronology**: the science of dating events, environmental change, and archaeological artifacts by using the characteristic patterns of annual growth rings in timber and tree trunks. Shown here are dendrochronology samples from archaeological excavations at Grodziec Castle in Poland. (Source: CC-BY-SA, Silar, [Wikimedia Commons](#))

Seeds are the primary material paleoethnobotanists use to answer anthropological questions regarding past peoples' foodways, environment, economy, and more. All seeds 1 mm and larger, both whole and broken, are counted and weighed. Generally, seeds below 1 mm in size are counted only if they are whole, although counting practices may vary by project. Seeds smaller than 1 mm are not weighed because they are too light to register on the scale; for these seeds, archaeologists record only count data.

When identifying seeds, it is important to identify distinct morphological features such as size, general shape, surface texture, appearance of the fractured seed compared to the appearance of the whole seed, and more. Much of this knowledge will come from analyzing samples with a skilled graduate student or professor and by comparing the appearance of the sample to online, printed, and physical reference collections.

Zooarchaeological and paleoethnobotanical material provide direct evidence for the diet of prehistoric and historic people. Although faunal and floral remains that are recovered do not reflect all of the food refuse people discarded in the past, they provide a sample of what people were eating. This information provides important insight into how animals and plants were processed for consumption and how human dietary strategies changed over time. Not all faunal and floral remains recovered, however, represent food refuse.

The types of animals and plants recovered at an archaeological site can provide insight into the hunting and foraging practices a site's inhabitants used. Certain faunal and floral species are available or abundant only at certain times of the year and human foragers likely optimized their efforts by focusing on those taxa only when they were likely to yield high returns. For example, nut trees such as oaks produce ripe acorns only in the fall, so foraging groups likely scheduled their seasonal travels so that they were close to oak forests during the autumn months. Likewise, these same mobile foragers might have planned to camp near large lakes or rivers in the spring, when spawning fish were in the shallows and could be caught more easily. By recognizing the time of year when different taxa are available, archaeologists can often determine the seasonality (season of occupation) for a site.

The relative abundance of different animal and plant remains also provides information about foraging behavior. Some hunter-gatherer groups (e.g., big-game hunters) focused their efforts on a select range of large animals, although most groups employed a broad-based subsistence strategy in which they procured a wide array of animals and plants to fulfill their dietary needs. Other groups may have adjusted their foraging strategies on a seasonal basis in order to take advantage of available abundant resources. Agricultural communities, for example, put considerable effort into farming during the spring planting and fall harvest seasons, but during the other seasons they supplemented their diets through hunting, fishing, and foraging.

Zooarchaeological and paleoethnobotanical material can also help archaeologists to identify other **foodways and patterns**. Archaeological evidence of plant and animal domestication can be traced through physical changes such as increases in seed size and skeletal modifications reflecting selective breeding for desirable traits. Butchery marks on animal bones reveal methods of carcass processing, resource distribution, and even social practices like feasting or tribute, while the types and locations of bones at sites can indicate hunting, transport, and marrow extraction behaviors. The discovery of nonlocal plant and animal remains—such as coastal shells or tropical crops found inland—demonstrates trade networks and the movement of goods, people, and ideas across regions. Beyond food, both plant and animal materials served vital nondietary roles: plants provided wood for tools and structures, fibers for weaving, and substances for medicine, ritual, and intoxication, while animals supplied hides, sinew, feathers, bone, and shell for tools, ornaments, and ceremonial objects. Together, these materials reflect the complexity of ancient human economies, technologies, and symbolic practices.

OSTEOLOGY AND BIOARCHAEOLOGY (HUMAN SKELETONS)

In archaeology, osteology—the study of bones—forms the foundation of **bioarchaeology**, the discipline that examines human skeletal remains to understand past lives, health, and populations. Once remains are carefully excavated and transported to the lab, bioarchaeologists photograph, document, and inventory each bone before constructing a **biological profile**. This profile includes estimations of age, sex, ancestry, and stature, along with evidence of

disease, stress, or trauma that can reveal aspects of an individual's life history. Because skeletal remains are often incomplete or poorly preserved, these assessments rely on probability and comparative data drawn from large reference collections. For example, dental eruption patterns can estimate a child's age within a range, and long bone measurements can suggest stature once sex and ancestry are determined. These methods are population-specific and provide ranges rather than exact determinations.

While osteological analysis in archaeology shares many techniques with **forensic anthropology**, the latter focuses on modern, often legal, contexts, whereas archaeological osteology deals with much older remains and broader questions about human adaptation and culture. **Ethical handling** is central to all osteological work: remains must be treated with dignity, analyzed in consultation with descendant communities when possible, and stored using appropriate, non-destructive methods.

PALEODEMOGRAPHY

Once a biological profile is generated for a skeleton, bioarchaeologists can begin to assess the data for population-wide patterns. **Paleodemography** is the study of past population dynamics, including distributions of age and sex through time. Demographic reconstructions focus on vital statistics, such as life expectancy, probability of death at certain ages, mortality rates, and population size and density. Demographic analyses use hazard models, which are nonlinear mathematical functions that represent age-related changes in the risk of dying. Paleodemographers must deal with strong selection bias: not only are they working with the remains of those who did not survive, but they must remember that the vast majority of human remains decompose before archaeologists can recover them. Therefore, what they have they may not fully represent the demographics of the once-living population.

MORTUARY ANALYSIS

The dead do not bury themselves; it is the living who perform mortuary rituals for the dead. **Mortuary archaeology** examines how the living commemorate the dead through burial practices, using grave goods, skeletal remains, and funerary structures to interpret identity, social status, and ritual behavior. Factors such as body position, burial location, container type, interment style, and associated artifacts reveal both individual and cultural beliefs about death. For example, analysis of Burial 99 in Belize showed that Maya rock-shelters functioned as symbolic mortuary spaces—memorial stops along pilgrimage routes that reinforced ancestral memory and political boundaries. Such studies demonstrate how burial placement and ritual use of space reflect broader social, political, and spiritual dimensions of past societies.

TAPHONOMY

Taphonomy is the study of what happens to a body after death and before its recovery, including decomposition, preservation, and environmental or human influences. Bioarchaeologists use taphonomic analysis to determine time since death, distinguish human from nonhuman modifications, and reconstruct events surrounding death and burial. Both intrinsic factors (like body size, age, and health) and extrinsic factors (such as soil pH, moisture,

temperature, and burial conditions) affect how remains decompose and are preserved. Through experimental and actualistic studies—often conducted at “body farms”—scientists simulate decomposition under different conditions to understand how environmental and cultural variables shape what survives archaeologically.

Taphonomic studies have revealed patterns from both natural and cultural processes, such as animal scavenging, water transport, and human burial treatment. Cases like the discovery of Ötzi the Iceman and the identification of Joseph Henry Loveless demonstrate how unique environmental conditions, from alpine ice to cave microclimates, can preserve human remains for centuries. Because these processes vary greatly across contexts, taphonomy provides bioarchaeologists with critical insight into both natural decay and the cultural choices that influence the final resting state of the dead.

Forensic anthropologists use taphonomy to interpret how environmental and human factors affect a body after death, helping them estimate time since death and reconstruct the circumstances surrounding it. By studying decomposition, bone modification, and preservation patterns, they can distinguish between natural processes—like animal scavenging or weathering—and human actions such as trauma or burial practices. Much of this knowledge comes from research conducted at “body farms”—forensic anthropology research facilities, where donated human bodies are placed in controlled outdoor and other real-world simulated environments to observe how variables like temperature, moisture, soil type, and exposure influence decomposition over time. This research is used to solve crimes and come to conclusions following fatal accidents.

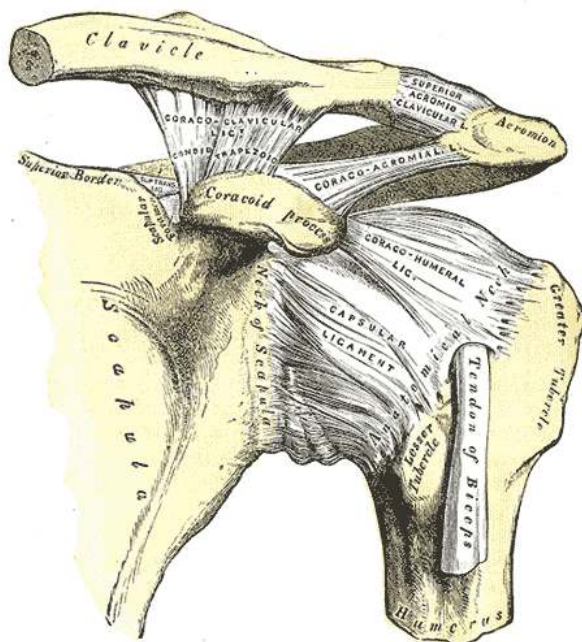
DISEASE, ACTIVITY, STRESS, AND VIOLENCE

Paleopathology is the study of ancient diseases through skeletal and dental evidence, allowing researchers to explore how health, activity, environment, and social factors shaped past populations. Skeletal diseases fall into several categories, including trauma, congenital, infectious, circulatory, metabolic, endocrinological, neoplastic, and dental pathologies. (For most fields of modern medicine, there's a forensic or biological archaeological counterpart!) However, interpreting disease in ancient remains is complex, as not all illnesses leave traces on bone, and similar skeletal changes can result from multiple causes. Bioarchaeologists use differential diagnosis to identify probable conditions while recognizing that the absence of lesions does not necessarily indicate good health—a problem known as the osteological paradox. This paradox highlights that individuals showing bone reactions may have survived disease longer, while those without lesions could have died too quickly for bone changes to form.

Modern bioarchaeology expands the concept of health to include **physiological stress**, or disruptions to the body's normal balance, which can manifest in bones and teeth when chronic. Yet, because skeletal responses are limited, researchers must interpret disease and stress cautiously. Despite these challenges, studying ancient pathologies provides valuable insights into past epidemics, health inequalities, and human adaptation. For example, comparing historical plagues and modern pandemics like COVID-19 helps illuminate how social structure, environment, and medical practices

shape disease patterns—offering lessons for understanding both ancient and contemporary public health.

Mechanically demanding or repetitive activities can leave distinctive traces on the skeleton, offering clues about a person's lifestyle, occupation, and social position. Because bone is dynamic tissue that responds to mechanical stress, repeated movements can cause either degenerative changes, such as osteoarthritis, or biomechanical adaptations, such as the enlargement of muscle attachment sites known as **enthesees**. These markers, along with others like **dental wear** and skeletal lesions, help bioarchaeologists infer activity levels and stress experienced during life, though they cannot always be linked to specific tasks. Teeth also preserve evidence of early-life stress through permanent defects such as linear enamel hypoplasia (a developmental defect that affects the enamel, the hard outer layer of teeth), while skeletal features like porotic hyperostosis (the expansion of the bone marrow, resulting in a porous or spongy appearance of the bones) or cribra orbitalia (small, porous holes in the roof of the eye sockets) can indicate childhood anemia or nutritional stress. Overall, these indicators reflect how the body adapted to both physical demands and environmental or social pressures across an individual's lifetime.



Front view depiction of the shoulder bones: clavicle ("collar bone"), scapula ("shoulder blade"), and humerus (upper arm bone), as well as some ligaments (bone-to-bone soft tissue connections) and tendons (muscle-to-bone connections). Repeated regular use of certain shoulder muscles impacts the formation of the bone specific to those tendon attachments over the individual's lifetime. This drawing comes from the famous anatomical reference book *Gray's Anatomy* by Henry Gray and illustrated by Henry Vandyke Carter. (Source: Public Domain, [Wikimedia Commons](#))

Skeletal evidence of trauma, combined with archaeological and mortuary data, allows bioarchaeologists to reconstruct past **violence**, whether in the form of warfare, raids, or structural inequalities. Patterns of injury, disease, and malnutrition across social groups can reveal not only interpersonal conflict but also institutionalized forms of harm rooted in social and economic marginalization. Modern investigations can also demonstrate how studying historical trauma

can bring justice and visibility to communities affected by violence, showing how the analysis of past suffering can help confront ongoing social injustices.

GROWTH, DIET, AND DEVELOPMENT

Bioarchaeologists study growth and development in children to understand how stress and disease affected past populations. By analyzing long bone lengths and widths and bone fusions they can estimate physiological age, while dental eruption provides a more precise chronological age. Stress markers and periosteal reactions allow researchers to examine the impacts of childhood stress on adult health and mortality, revealing how environmental, nutritional, and social factors influenced growth and development in different cultural contexts.

Reconstructing diet provides additional insights into health and development. Bioarchaeologists use plant and animal remains, food residues on tools, and coprolites to study ancient diets, but chemical analyses of stable isotopes in bones and teeth have become a central method. Carbon and nitrogen isotopes reveal dietary sources, while oxygen and strontium isotopes indicate geographic origins and migration. Dental surfaces and calcified plaque (dental calculus) preserve microfossils such as phytoliths, pollen, starch, and even DNA from oral bacteria, enabling direct reconstruction of diet, food processing, and trade networks. For example, cotton fibers in prehistoric dental calculus across North America indicate long-distance trade.

Dietary analysis also illuminates cultural patterns and social organization. Transitions from foraging to farming often altered nutrition, health, and disease patterns, as seen in North American maize consumers with higher rates of dental and infectious disease, whereas rice-consuming agriculturalists in Southeast Asia showed different dental outcomes. Isotopic and dental analyses can also reveal differences by sex, age, social class, or life stage, while migration studies using strontium isotopes, such as research on "vampire" burials in Poland, show that social fears were not necessarily linked to outsiders. By combining growth, diet, and migration studies, bioarchaeologists can reconstruct the lived experiences, health, and cultural practices of past populations.

FEATURE ANALYSIS

In archaeology, features are non-portable elements of a site that are typically studied **in situ**, meaning they must be analyzed during excavation or based on data collected rather than removed to a laboratory like artifacts or ecofacts. Features include structures, hearths, postholes, burials, pits, and other modifications to the landscape that provide information about how people organized and used space. Because features cannot be separated from their physical context without destroying them, careful documentation through mapping, photography, stratigraphic recording, and soil analysis is essential. Their spatial relationships to other site components often hold as much interpretive value as the features themselves, helping archaeologists reconstruct the layout and function of ancient activity areas.

Analysis of features begins in the field with the identification of soil color, texture, and inclusions that differentiate natural from cultural

deposits. Archaeologists use tools such as color charts to record soil hue and note variations that may indicate past burning, construction, or refuse disposal. In some cases, microscopic or chemical analyses of soil samples—such as phosphate testing or pollen recovery—can further reveal the presence of organic activity or environmental conditions surrounding a feature. The data collected from these analyses help interpret the feature’s function, whether it served as a domestic hearth, a storage pit, or a burial site, and how it relates to broader settlement and subsistence patterns.

Because features are embedded in stratigraphic layers (something we will explore in more detail in the next chapter), their relationship to surrounding deposits is key to understanding site chronology and human behavior. **Stratigraphic profiles** allow archaeologists to identify sequences of construction, destruction, reuse, and abandonment. For example, overlapping postholes might indicate successive rebuilding of structures in the same location, while filled-in pits can suggest intentional decommissioning of spaces. The spatial arrangement and density of features can reveal social organization, including distinctions between domestic and ceremonial areas or elite and commoner spaces. In this sense, features serve as physical records of human choices and cultural routines that shaped the lived environment.



Excavated Hohokam pit house depicting hearth and post holes.
(Source: CC-BY-SA, [Richard N Horne, Wikimedia Commons](#))

Finally, interpreting features requires an integrative approach that **combines data** with information from artifacts, ecofacts, and historical or ethnographic records. Hearths may be studied alongside charcoal and faunal remains to reconstruct cooking practices, while burial features are analyzed with skeletal and artifact evidence to infer ritual or social identity. Advances in remote sensing and 3D modeling have further enhanced the study of features by allowing archaeologists to digitally preserve and visualize them for future analysis. In sum, while artifacts and ecofacts reveal what people made and used, features capture the places and activities that structured their daily lives, offering a spatial and contextual foundation for interpreting the human past.

CONCLUSION

This chapter has explored the methods archaeologists use to analyze **material culture**—the physical traces of human activity preserved

in the archaeological record. From lithic tools and ceramics to bone artifacts and textiles, from plant and animal remains to human skeletal evidence, each category of material culture requires specialized analytical approaches. Whether examining the microscopic wear patterns on a stone blade, the chemical composition of ancient bronze, or the isotopic signatures in human teeth, archaeologists employ rigorous scientific techniques to extract meaningful information from physical remains. These analyses reveal what ancient peoples made and used, how they lived, what they ate, how they organized their societies, and how they understood their world.

By studying artifacts (portable objects made by humans), ecofacts (natural materials used or modified by humans), and features (non-portable structures and modifications to the landscape), archaeologists can reconstruct detailed pictures of past human behavior, technology, subsistence practices, health, and social organization.

The methods described in this chapter—from lithic and ceramic analysis to zooarchaeology, paleoethnobotany, and bioarchaeology—demonstrate that archaeology is an *interdisciplinary* science. Understanding ancient pottery requires knowledge of chemistry, geology, and art history. Interpreting animal bones draws on zoology, ecology, and anatomy. Analyzing human remains integrates medicine, genetics, and social theory. Even approaches like ethnoarchaeology and experimental archaeology show how archaeologists must look beyond the archaeological record itself, drawing on observations of living peoples and hands-on replication of ancient techniques to test their interpretations. This integration of multiple fields and methods allows archaeologists to approach the same evidence from different angles, building more complete and nuanced understandings of the past while acknowledging the limitations and biases inherent in any single approach.

However, it is important to remember that artifacts, ecofacts, and features do not exist in isolation. The Apollo moon rock gains its **cultural significance** not from its physical properties alone, but from its **context**—where it came from, who collected it, and what it represents to the society that values it. Similarly, all archaeological materials derive their meaning from their *relationships to each other and to the deposits in which they are found*. A ceramic pot tells us something about ancient technology and aesthetics, but its location within a house, its association with particular food remains, and its position in a stratigraphic layer tell us about daily life, diet, social practices, and chronology. The next chapter will examine how archaeologists approach this crucial concept of **context**: how sites form, how archaeologists excavate them while preserving contextual information, and how spatial and temporal relationships between different elements of material culture allow us to interpret not just individual objects, but entire cultural systems and ways of life.

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4.2: EXCAVATION AND CONTEXT

CONTEXT

Despite what is shown in movies and on TV, most archaeological finds are not golden treasures or priceless pieces of antiquity. Most are items that were used on a regular basis and then discarded due to wear, damage, or loss. This chapter introduces you to the types of materials archaeologists frequently uncover and the settings in which these materials are most often found.

We tend to think of archaeologists as primarily studying objects made by humans (artifacts), but there is much more to archaeological investigations. Archaeologists are most concerned with **context**—how an artifact or other type of archaeological data was found in relation to everything else at the **archaeological site**. A site is a distinct clustering of artifacts in a location that demonstrates human activity, and the number of artifacts needed to qualify a location as a site varies based on the context and, at times, excavation funding. An artifact's context includes its **provenience**, exactly where the object was found (horizontally and vertically) in the site; its **association** in terms of its relationship and positioning with other objects; and the **matrix** of natural materials such as sediments surrounding and enclosing the object in place. When a site is looted or excavated by amateurs, the context of the artifact is lost even if the artifact is left behind. Excavation strips the site of much of its most important information, components that tell a fuller story of the object and the site, leaving behind an item with no story left to tell. Ideally, items found during an excavation are left *in situ*, which is Latin for “still,” meaning they are in their original place of deposition. This is why archaeologists tell you to leave any item you find, especially on public land, untouched no matter how tempting it is to pick it up, look at it, and put it in your pocket to show your archaeology professor!

As previously discussed, **artifacts** are objects that were used, modified, or made by people. They are also defined as portable and could have been carried by humans from place to place. Common examples of archaeological artifacts are projectile points (arrowheads), ceramic pots, baskets, nails, and glass bottles. Of course, there is a natural preference for complete artifacts since many objects at sites were discarded and were broken before being found, entering the archaeological record because they were thrown in the trash. As a discipline, however, archaeology must analyze all types of artifacts to get the most complete picture of human occupation and behavior. It is also easy to miss single-use artifacts such as a rock used to pound a tent stake in place because no one packed a hammer or mallet. Archaeologists spend much of their time thinking about and analyzing artifacts because the items were made or used by humans and correlate directly to human behavior. Thus, many features of artifacts can be analyzed, such as the material from which they were made, their artistic or functional style, and their design. Archaeologists also create **typologies**, which provide a way to understand how an artifact such as a pot changed over time in shape, form, and use. Typologies also provide useful estimates of the period in which the artifacts were made.

Besides artifacts, archaeological sites provide **ecofacts**: organic and environmental remains such as animal bones, plant remains, and soils that occur at archaeological sites but were not made, modified, or used by humans. Ecofacts can reveal much about human behavior. For example, plant and animal remains can allow archaeologists to reconstruct the environment when humans lived there, effectively telling researchers what types of plants or animals would have been available for humans to use. Another type of object found at sites is a **manuport**, which is an object brought to the site by humans but not modified by them. For example, an unusual stone material known for its excellent heating properties could be found in a **hearth** or fire pit. A **feature** is an artifact such as a hearth, storage pit, **midden** (trash pile), house, or other structure that is not portable. Together, all of these pieces of evidence observed at and collected from an archaeological site make up an **assemblage**.

Archaeological sites, which are reflections of human behavior and activities, come in many varieties. At the most basic level, they can be broken down into open sites and natural shelter sites. An **open site** is one that had no protection from the elements while **natural shelter sites** such as caves and rock overhangs provide protection from the elements. A **cave** is technically defined as an opening in a cliff or rock face that is deeper than it is wide, setting it apart from a **rock shelter**, which is typically a shallow rock overhang or cliff. Site type provides important information for archaeologists. It indicates the likely function of the site and allows archaeologists to predict the types of artifacts and ecofacts likely to be uncovered. An open site, for example, will rarely contain well-preserved perishable artifacts or features because of damage from wind, rain, heat, and cold. Caves, on the other hand, are excellent places to find preserved perishable items such as wooden artifacts and basketry.

Archaeologists also pay attention to the potential functions of a site—how the site was used by humans. Naturally, an important function of many sites is **habitation**; artifacts are concentrated where people lived for more than a few days or weeks. Sites of short-term habitation such as encampments typically offer few archaeological remains simply because of the short time humans were there. Sites where food was acquired and, in particular, processed are important parts of the archaeological record. They include **processing sites** where humans prepared plants or animals for consumption, such as **animal kill sites** and **butchering sites**; **storage sites** where items such as grains were kept for long periods of time; **hunting blinds and traps** humans used to catch and kill animals; and **agricultural sites** where humans cultivated crops for food and other uses.

Archaeologists are interested in many other types of sites as well, including **quarries** where humans harvested stones for tools and building and **lithic scatters** (sometimes at quarries) where they made and repaired stone tools, which are called **lithics**. Other sites provide information about human cultures and uses of symbolism, such as **rock art** sites at which humans painted **pictographs**, carved or etched **petroglyphs**, and scraped rocks and the soil to make **geoglyphs**. **Cemeteries** also yield important information about a

people, even without exhuming the bodies. Finally, more recent excavations dealing with historic archaeology have focused on travel routes such as historic and prehistoric **trails** identified by shallow linear depressions over the ground and rock faces. **Industrial and commercial sites** are also an important part of historic archaeology and have a profound impact on our understating of economies of the past.

Context at a site is critical to understanding the archaeological data fully. Archaeologists need to understand the types of artifacts and sites they encounter, how such remains can enter the archaeological record, and what can happen to them after they are deposited by humans. The study of what happens to archaeological remains after burial or deposition is called **taphonomy**. Taphonomy is important because it is likely that buried and deposited objects are not *in situ* when uncovered by archaeologists. Determining who or what could have caused the item to move from its original depositional location to the current location is important to understanding the complex contextual information presented at the site. For example, a plow in a field could churn the soil, disturbing an unknown archaeological site and redistributing the artifacts. This type of action, caused deliberately or accidentally by human activities, is called a **cultural formation process**. Natural events, such as a wind storms, floods, volcanic eruptions, and even the effects of plant roots and animal burrowing, are called **natural formation processes**. When archaeologists understand what forces and events could have had an impact on the position of archaeological remains, they are better equipped to answer questions about whether marks on a bone came from animal gnawing or are signs of early human tool use and whether a collection of artifacts was deposited haphazardly or was affected by a mudslide.

Archaeological **excavation** is the systematic and controlled process of digging at a site to recover and record evidence of past human activity. It is a destructive process, so it is done with meticulous care, involving careful documentation of finds and their context through notes, maps, and photographs to answer specific questions about history. It may surprise you to learn that, while the techniques used to interpret particular types of materials came about separately over time, the processes of excavation and interpretation of broader contexts for those materials (archaeological theory) has changed a great deal over the last two centuries.

CHANGING FRAMES OF INTERPRETATION

It seems that people have always been curious about cultures of the past, but not all of those efforts were purely scientific. Evidence of the evolution of techniques for studying the past goes back at least as far as New Kingdom Egypt when officials preserved monuments from the Old Kingdom. King Nabonidus of Babylon dug into the temples of his predecessors in search of objects belonging to earlier time periods, which we call **antiquities**. What today would be called **pothunting** or **looting**—digging up items for their value rather than as part of a scientific endeavor—was a widespread and accepted practice used for thousands of years to acquire antiques and relics for personal collections.

These excavations began to take on some elements of scientific study as people who were specifically interested in the past began to

excavate sites to learn more about past cultures and peoples, but the scientific method was not employed. Such early projects included excavations in 1709 at the ancient Roman town of Herculaneum, where artifacts were collected but not analyzed. Generally, historians excavating sites at the time found it difficult to conceive of times and peoples such as the ancient Greeks, Romans, and Egyptians. Some of what we consider to be great historical sites, such as Stonehenge, were attributed to the work of elves, trolls, and witches.

Why did those early excavators attribute their finds to mythological creatures and not to humans? Largely because of their limited frames of reference and perspectives, their **paradigms**, which guided their research. During this early period of archaeology, researchers and the general public in Western Europe and the United States believed that the Bible was a literal, historical document. Consequently, they understood that humans did not exist before Biblical times (in which Adam and Eve were the first humans), restricting human history to approximately 4,000 years. Anything discovered that appeared to be incongruent with this strict interpretation of the Bible, such as “primitive-looking” stone tools and structures, was attributed to non-human sources.

Scientists, however, began to challenge those beliefs with research and data. Geologists, biologists, and botanists discovered evidence that showed that humans had existed far longer than had been interpreted from the Bible. Scientists were also challenging other literal Biblical translations and were drawing new conclusions. Their evidence accumulated, culminating in Charles Darwin’s work on evolution via natural selection, which described how species had changed over time. This became established as part of the realm of science and general public knowledge. Darwin’s work fundamentally changed the study of biology and human history. Researchers tried applying his premises to other fields, including the study of human civilizations. Herbert Spencer, E.B. Tylor, and William Henry Morgan independently applied Darwin’s principles to the study of civilizations across the globe, developing approaches that collectively became known as **Progressive Social Evolutionary Theory (PSET)**, in which human civilizations were seen as points on a continuum and as having progressed in a linear fashion along this continuum from savagery to barbarism and, ultimately, to enlightened, civilized society. It was assumed that all cultures had originally been primitive and were in the process of becoming more civilized—more evolved. These theorists placed cultures along the continuum using particular diagnostic characteristics that included adoption of agriculture, development of a writing system, tool technologies that relied on metallurgy, and belief systems focused on a single god. Proceeding along the continuum (toward civilization) indicated how “developed” a culture was. We know today just how incorrect this was.

Perhaps it is not surprising that the traits of civilized society essentially described the Western European culture of the theorists and developments made possible by the environmental conditions in those areas. Metallurgy, for example, was possible because Western Europe was endowed with many natural ores. However, the data they collected did not always fit the model. They labeled many early cultures such as the Maya, Aztecs, Incas, and North American tribes as having “devolved”—moved backward on the continuum—

because they found evidence that those cultures had possessed “civilized” traits at one time but no longer did.

These and other challenges to the PSET framework were initially ignored, particularly because a large body of research, such as work by Danish archaeologists Christian Thomsen and J.J.A. Worsaae, seemed to support it. Independently, Thomsen and Worsaae had noted that artifacts found in layers in bogs, burials, and village trash collections called **middens** were deposited in a sequence: stone artifacts at the bottom oldest level, followed by bronze artifacts in the middle level, and iron artifacts in the top youngest level. This ordering of cultural developments became known as the **three-age system**, and it worked well in places in which early peoples used all three materials over time to make various tools. However, in other parts of the world, such as Africa and North America, people did not use those tool technologies in the same sequence, and some didn’t use one or more of the technologies at all. Many of the historians and researchers at the time chose simply to ignore this problem and even forced the data to fit the theory.

The problems associated with the three-age system and PSET were not addressed by North American theorists and researchers until Franz Boas, now known as the father of American anthropology, rejected theorizing from incomplete data sets and developed what is known as the **classificatory-historical paradigm** (sometimes called **Historical Particularism**). Boas demanded that anthropology be conducted in a scientific manner. Therefore, theories could be developed only after precisely collecting, classifying, and analyzing artifacts. He argued that too little was known about the diversity of human cultures—past and present—and that PSET had been formulated too early and was based on too little actual evidence. Boas and others established collection of data as the fundamental task of anthropology (rather than applying a particular explanatory theory), marking the point at which archaeology became a fully scientific endeavor. This new paradigm recognized that observation must be the first step to inform the scientific method since it allows one to formulate relevant questions to pursue in subsequent steps. Theory does not start the process of scientific inquiry but rather comes out of extensive study of the natural world. Boas and his successors realized that the anthropological technique of ethnography, which involved careful observation of living peoples and their cultures, could be applied to cultures of the past via archaeology.

Boas also realized that little time was left to study traditional Native American cultures before colonization, genocide, and realization of America’s ideals of Manifest Destiny destroyed many of them. The effects of these processes were already under way. Native American populations were rapidly declining in number, being forcibly moved from their ancestral lands, and experiencing massive cultural upheaval. This motivated Boas and others to focus on Native American cultures and to collect every conceivable type of anthropological data and artifact—a true holistic study.

Their extensive research and data collection identified broad adaptive patterns shared by various cultures in regions such as the Plains, Southwest, California, and Northeast. The cultural traits of the groups in these regions were not identical but they were broadly

similar. In California, for example, pottery was common, and most groups hunted and gathered their food rather than cultivating agriculture. In some cases, the regions were further subdivided when broad patterns warranted it. The Great Basin in the Southwest, for example, was subdivided into three cultural groups—the Paiute, Shoshone, and Ute. Though **culture areas** sometimes involve overlaps and do not describe the various cultures perfectly, they are still used today to help archaeologists better understand and compare Native American cultures and ways of life.

Within the classificatory-historical paradigm, archaeologists worked with data from these cultural areas to develop chronologies and spatial orderings of artifacts, a **culture history**, specific to each region. For example, W.C. McKern developed the **Midwestern Taxonomic System**, an artifact sequence for cultural sites in the Midwest. These chronological works were important since, at the time, there were few methods for dating artifacts and, consequently, the archaeological sites from which they came.

Prior to the 1960s, the pendulum of archaeological research had swung from one extreme to the other, at least in the United States. Early work in archaeology had viewed archaeological data through an evolutionary lens and tried to fit the three-age system that worked so well in Europe to data from North America. However, anthropologists such as Franz Boas began to realize that the three-age system and PSET did not fit the cultures of North America in general and Native American archaeology in particular. In response, they developed the classificatory-historical paradigm for archaeological research, which emphasized gathering data and conducting research over applying established theories. This new paradigm worked well and provided archaeologists with vast amounts of comparative data, but it was somewhat limiting as gathering data and analyzing artifacts did not give archaeologists the opportunity to explore broader human behavioral patterns.

Frustrated by the limits of the classificatory-historical paradigm, archaeologists began to introduce a third paradigm, **processual archaeology**, in the 1960s. They wanted to examine human behavior more broadly rather than just recover artifacts, so the primary idea underlying processual archaeology is that artifacts and data can be used to explain the past, not just describe it. At the same time, new technologies such as computing and absolute dating techniques were providing researchers with new kinds of data and analytical capabilities that simply did not exist before.

Lewis Binford, an American archaeologist who is often cited as the father of processual archaeology, advocated for the importance of theory using a new technique, **ethnoarchaeology**, which applies ethnographic techniques used by cultural anthropologists when comparing living peoples to the archaeological record. This approach relies on **ethnographic analogy**, or interpreting the archaeological record based on similarities observed in ethnographically described cultures. Binford, for example, accompanied Inuit hunters and studied the debris they left behind at hunting stands. He then used that contemporary data to predict what Inuit hunting stands of the past would have looked like and to interpret hunting artifacts found in Inuit excavations.

Since the focus of processual archaeology was on theoretical interpretations of data, several theoretical approaches developed over time that made explicit the connection between the specifics of archaeological data and the broad theoretical applications. **Middle range theory (MRT)**, for example, was based on the idea that linking archaeological data to theories is a matter of linking artifacts made by people to the behaviors that created the artifacts. American archaeologist Kent Flannery advocated use of **systems theory**, which was designed to help researchers see the complex whole as a series of smaller subsystems that could be pulled apart and analyzed independently along with the whole. Ultimately, these theories were deemed to be unnecessarily complicated and unworkable with actual data. Once again, broad theoretical applications were found to be suitable only in some situations and to be too broad to have general scientific value.

Processual archaeology was not scrapped despite failing to meet many of its lofty goals. Quite the opposite; it is still actively used today. Processual archaeology's lasting contribution is its use of data and scientific methods to support theoretical applications and analysis, and some of the theoretical approaches proposed, such as predictive human behavioral models, continue to be used in **evolutionary ecology** to predict and interpret past human behavior. These models, common in economic analyses, use data to identify optimal human behavioral patterns: which food items to include in their diets, patches in which to forage, how far to travel to hunt, etc. The resulting description of optimal behavior does not necessarily reflect what past humans did but does predicts the choices humans would have made if they could rationally optimize their choices. Surprisingly, some of the most interesting results occur when the model predictions do not match the archaeological data. For example, California archaeologists have used this approach to understand why acorns, which were a time-intensive, low-calorie food source, were widely used by many of California's Native American groups. Those groups were not acting "optimally," but the sheer abundance of acorns combined with declines in "more optimal" food sources made acorns a practical "best" solution.

The most common optimal behavior models used in archaeology today are **diet breadth** (also called **prey choice**), which predicts what humans should have included in their diets in given areas based on how long it would have taken to find a food item and prepare it for consumption relative to the food's caloric return; **patch choice**, which evaluates how productive a given environment would have been and predicts how long a group would have stayed in one area before moving on; and **central place foraging**, which predicts how much of an animal would have been brought back to the group's home base given the distance to that base (the longer the distance, the less animal brought back).

Many archaeologists viewed processual archaeology as having limited value, and beginning in the late 1970s, in the midst of the feminist and postmodern movements in other disciplines, began formulating a new approach called **post-processual archaeology**. This paradigm stressed the potential for multiple interpretations of the archaeological record and recognized that every interpretation is affected to some degree by researchers' biases. Its proponents argued that something as complex as human behavior could not be

investigated by testing hypotheses. Instead, their goal was to obtain as broad a perspective of the past as possible by interpreting the data from various vantage points and trying to see the artifacts and data from an "insider's" perspective (emic). The post-processual paradigm also placed a greater emphasis on obtaining information about a culture's religion, symbolism, world view, and iconography from the archaeological record. Post-processual archaeology brought a stronger focus on the role of women, children, and minorities in the past because it encouraged archaeologists to analyze data that previously would have been ignored.

Today, both processual and post-processual paradigms are used in archaeology. This is a unique situation since, in the past, new paradigms replaced old ones. These two paradigms are quite different and, typically, college and university archaeology faculties rely on only one of the paradigms. It is rare for a faculty to be composed of researchers who use different paradigms. The same data can be analyzed from each of these vastly different perspectives to bring distinct interpretations to the data.

ARCHAEOLOGICAL TECHNIQUES

In archaeology, the first step in conducting field research is to do a survey of an area that has the potential to reveal surface artifacts or cultural debris. Surveys can be done by simply walking across a field, or they may involve using various technologies, such as drones or Google Earth, to search for unusual topography and potential structures that would be difficult to see from the ground. Cultural artifacts that are found may become the basis for an **archaeological excavation** of the site. A random sampling of excavation units or test pits can determine a site's potential based on the quantity of cultural materials found. GPS coordinates are often collected for each piece of cultural debris, along with notes on specific plants and animal found at the site, which can be indicators of potential natural resources. **Features** such as trails, roads, and house pits are documented and included in a full set of field notes. Government agencies have different protocols about what constitutes an archaeological site; the standard in many areas is six cultural objects found in close proximity to one another.

When preparing a site for excavation, archaeologists will map the entire area and divide the site into square sections using a grid system, which involves roping off measured squares over the surface of the site. This grid system enables archaeologists to document and map all artifacts and features as they are found in situ (in the original location). All objects and features uncovered are assigned catalog or accession numbers, which are written on labels and attached to the artifacts. These labels are especially important if artifacts are removed from the site.

MAPPING, STATISTICS, GEOGRAPHIC INFORMATION SYSTEMS (GIS), AND REMOTE SENSING

It is worth stepping aside before discussing materials in relation to one another to better understand how archaeologists begin by determining those relationships. In archaeology, relationships range from global and regional (such as the trade of artefacts or the geologic makeup of a region inhabited) all the way down to

microscopic ecofacts (pollen or food residues on tiniest chips of pottery).

Somewhere in-between, the blending of traditional mapping with modern technology has resulted in the emergence of Geographic Information Systems (GIS) and Geographic Information Science (GIScience). The GIS focuses more on the software and hardware used, while GIScience focuses more on the applications of those technologies to scientific disciplines. For simplicity, this chapter will use GIS as a generic term to refer to both the systems and science. GIS is not a single method, concept, or program. Instead it is a way of organizing, displaying, and analyzing data that has some type of geospatial component. This interdisciplinary science has been applied to fields from cultural anthropology to urban planning, wildlife management to mining, and economics to anthropology, among others. In today's world, GIS is often intimately tied with Remote Sensing (RS), which is a set of methods that allows for the collection of data without anyone being physically present at a location and without needing to directly observe the objects being studied.

Pedestrian surveys are a cornerstone of archaeology, relying on teams of archaeologists and volunteers who walk sites in specific patterns by lining up approximately two meters apart at one end of an area and slowly scanning the ground for artifacts, pausing to examine finds, record GPS coordinates, and complete standardized "tag and bag" forms with date, location, identifier, and contextual information, though spacing varies by research design, ground cover, and project logistics—CRM projects on tight budgets may use 10-to-20-meter spacing depending on state requirements, while well-funded excavations at known protected sites maintain the two-meter rule since finding important artifacts is more certain. Pedestrian surveys are often accompanied by **systematic shovel test pits (STPs)** arranged in grid patterns over surveyed areas, where excavation tools dig test holes typically 30-to-50 centimeters in diameter and up to one meter deep (adjusted based on site specifics and artifact age), with screens sifting excavated material to catch small artifacts and systematically assess where further excavation is needed, though CRM contexts may use STPs in areas with ground cover obscuring pedestrian surveys or where legally required, while skipping them in low-probability areas to save time or where conditions like exposed bedrock or recent lava flows prevent digging. **Mapping** is essential for archaeologists who must interpret cartographers' maps and create their own, beginning by determining orientation through north arrows or compass roses, then understanding scale—the ratio showing how much the world has been reduced to fit the image, such as 1 centimeter on a map representing 100 meters in reality.

Rough hand maps made during surveys help archaeologists envision site activity and are digitized through photos or computer applications, though these sketches are typically rough and not to scale since few archaeologists are artists, making them vital for field notes but requiring technology to produce accurate, presentable versions. Once survey and STP data are collected and artifacts curated, archaeologists convert pen-and-paper records into digital spreadsheets eventually compiling them into databases with data entered in specific columns in numeric format for compatibility with

other programs, though many archaeologists now skip conversion by recording data directly in the field using applications or specialized mobile apps that organize information into columns and rows.

Statistical analyses are essential for most archaeological work, ranging from identifying surface feature differences to detecting artifact frequency changes, and can involve simple counting or advanced calculations like t-tests and ANOVAs, with spreadsheet programs handling the mathematics. Common statistical programs include IBM's SPSS (affordable for students at around \$80/year but expensive for professionals at \$100/month as of 2024) and its free open-source alternative PSPP, which offers similar graphical interfaces and coding options while promoting research equity, as well as R programming language with RStudio's GUI for running statistical tests, though it requires coding knowledge.

After entering data into spreadsheets and running necessary statistics, archaeologists import data into Geographic Information Systems (GIS) software—typically ArcGIS (the paid industry standard) or QGIS (the free open-source alternative)—in .csv or other spreadsheet formats, then use tools to convert raw data, often GPS coordinates from pedestrian surveys or STPs, into displayable layers that overlay data onto backgrounds for visual inspection. Archaeologists create multiple maps through cartography to display information differently for various audiences and highlight specific findings, such as showing survey paths on one map and artifact counts per STP on another. Beyond creating maps, GIS programs are powerful tools used throughout the archaeological process for planning pedestrian surveys, creating buffers around features like houses or roads, analyzing topography to predict artifact locations, and conducting data analysis and peer review, with modern applications now closely integrated with aircraft and remote sensing technologies.

GIS programs rely on GPS satellites that provide meter-level accuracy for public use (approximately 5 meters on consumer devices) and millimeter precision with specialized systems, though accuracy is better in countries like the United States with government program ties but reduced in remote areas and the Global South due to fewer satellites. NASA and USGS's Landsat program (ninth iteration launched September 2021) offers publicly available imagery with 900-square-meter pixel resolution useful for surveying large areas but insufficient for identifying structures due to atmospheric distortions that bend light and prevent high-resolution satellite imagery. Aerial photography from airplanes and helicopters, used by archaeologists for site mapping and discoveries like Peru's Nazca lines, offers superior resolution at lower cost, with USGS's EROS archive providing 1-meter to 15-centimeter pixel resolution for the continental United States, though limited by charter costs and airport distances.

The past 20 years have seen the rise of Unmanned Aerial Vehicles (UAVs or drones), which consume significantly less fuel than airplanes—many running only on batteries—enabling cheaper, more frequent imaging tailored to specific concerns, with the FAA's "Part 107" pilot license allowing anyone over 16 to fly UAVs professionally and gather their own imagery. The ability to target specific field sites multiple times across multiple days allows

archaeologists to gain aerial imaging benefits without satellite launch or airplane charter costs, with weather being less of a concern, and detailed data collections combined with GIS and remote sensing software create detailed maps, 3D models, and virtual reality experiences like the Vanderbilt Initiative for Interdisciplinary Geospatial Research's Andean archaeological sites, which uses data from researchers via the Geospatial Platform for Andean Culture, History, and Archaeology. Remote sensing techniques use electromagnetic waves, sound waves, electrical fields, magnetic fields, or seismic waves to detect objects beyond human senses, including sonar (SOund Navigation And Ranging) developed for ship navigation that sends sound wave "pings" and listens for echoes to calculate distance and detect motion through doppler shift, helping archaeologists find sunken ships and buildings from the surface using Remotely Operated Vehicles (ROVs) equipped with sonar and radar to map the ocean floor.

Radar (RADio Detection And Ranging) uses radio waves bouncing off objects to detect size, position, and motion through doppler shift, familiar from traffic speed detection and weather monitoring, with ground-penetrating radar (GPR) allowing archaeologists to image beneath dirt or solid rock without digging by using radio waves that move through soil but reflect off larger objects, saving time and energy by revealing exactly where to dig. **LiDAR** (Light Detection And Ranging) works similarly by sending laser pulses toward objects and measuring reflection time to determine distance, with thousands of detections creating three-dimensional environmental maps offering increased speed and precision due to light's much shorter wavelength than sound (LiDAR ~900-1,050 nanometers versus sonar ~1.5 centimeters to 1.5 meters), extensively used to discover sites in otherwise inaccessible places. Archaeologists use publicly available NASA and USGS satellite data like Landsat 9's 11 bands capturing specific electromagnetic spectrum segments (including thermal imaging) to detect landscape features, combining bands into true-color images (representing human vision) or false-color images (showing invisible wavelengths) that highlight specific objects like Maya ruins covered by jungle, with the Normalized Difference Vegetation Index (NDVI) measuring plant health and uncovering ancient Mesoamerican cities. On-site nondestructive techniques include Acoustic Reflectance (sending sound waves through dirt with sensors at regular intervals to create three-dimensional views), Electrical Resistivity Imaging (measuring how easily electricity passes through materials via electrodes placed at regular intervals), and **magnetometry**, which uses magnetometers to sense magnetic fields generated by artifacts like iron nails or steel swords measured in Gauss (G), creating three-dimensional images or detecting indirect evidence like fasteners to infer locations of wooden objects, though archaeologists must predict site materials since vegetation can hinder ground-penetrating techniques and sites from pre-iron periods lack magnetic fields for magnetometry detection.

Digitizing archaeological sites and data is becoming increasingly necessary for archaeologists. In the past, data may come from pedestrian surveys, shovel test pits, or full-sale excavations which simultaneously provide data and destroy the site we are studying. Modern techniques like remote sensing, acoustic reflectance, and

magnetometry help archaeologists gather data and target excavations for specific purposes. UAVs help us further target remote sensing and LiDAR to build extremely detailed 3D models of sites prior to and during excavation. Once collected, data are then entered into digital format and analyzed using statistical programs. This helps archaeologists quantify sites and perform in-depth research within single sites and across multiple sites and geographic scales (from villages to continents). From there, data are put into a GIS program to create maps, identify features, and use advanced statistics to identify features that aren't otherwise visible. These approaches are increasingly important in our digital world, as models are frequently made available to other researchers and to the general public—a vital component to both public outreach and to preserving cultural heritage.

PRIMARY & SECONDARY CONTEXTS

While remote sensing and mapping can assist excavation (and, in some cases, may be the only data available for a site that is somehow inaccessible), excavation remains the primary source of archaeological data. Excavation is a slow process. Archaeologists work with trowels and even toothbrushes to carefully remove earth from around fragile bone and other artifacts. Soil samples may be collected to conduct pollen studies. **Ecofacts**—objects of natural origins, such as seeds, shells, or animal bones—found at a site may be examined by other specialists, such as **zooarchaeologists**, who study animal remains, or **archaeobotanists**, who specialize in the analysis of floral (plant) remains with an interest in the historical relationships between plants and people over time.

Every cultural and natural object and feature is fully documented in the field notes, with its exact placement and coordinates recorded on a map using the grid system as a guide. These coordinates represent an object's **primary context**. If uncovered objects are moved before documentation takes place, the archaeologist will lose the **archaeological context** of that object and its associated data. Archaeological context is the key foundation of archaeological principles and practice. In order to understand the significance and even age of artifacts, features, and ecofacts, one needs to know their context and association with other objects as they were found in situ. Objects that have been removed from their primary context are said to be in a **secondary context**.

Careful and proper documentation is vitally important. This information becomes part of the archaeological record and guides and contributes to future research and analysis.



This dig site in Vindolanda, England has yielded thousands of artifacts left behind by Roman occupiers in the years 85 – 370 CE. (credit: "Digging Archaeology 4" by Son of Groucho/flickr, CC BY 2.0)

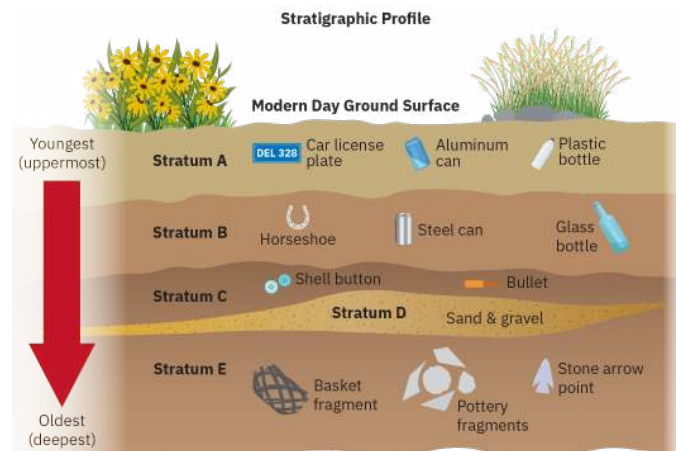
ARCHAEOLOGICAL DATING METHODS

Establishing the age of cultural objects is an important element of archaeological research. Determining the age of both a site and the artifacts found within is key to understanding how human cultures developed and changed over time. Other areas of science, such as paleontology and geology, also use dating techniques to understand animal and plant species in the ancient past and how the earth and animal species evolved over time.

The earliest dating methods utilized the principles of **relative dating**, developed in geology. Observing exposed cliffsides in canyons, geologists noted layers of different types of stone that they called **strata** (**stratum** in the singular). They hypothesized that the strata at the bottom were older than the strata higher up; this became known as the **law of superposition**. According to the law of superposition, not just geological layers but also the objects found within them can be assigned relative ages based on the assumption that objects in deeper layers are older than objects in layers above. The application of the law of superposition to archaeological fieldwork is sometimes called **stratigraphic superposition**. This method assumes that any cultural or natural artifact that is found within a stratum, or that cuts across two or more strata in a **cross-cutting relationship**, is younger than the stratum itself, as each layer would have taken a long time to form and, unless disturbed, would have remained stable for a very long time. Examples of forces that might cause disturbances in strata include natural forces such as volcanos or floods and the intervention of humans, animals, or plants.

The law of superposition was first proposed in 1669 by the Danish scientist Nicolas Steno. Some of the first applications of this law by scholars provided ages for megafauna (large animals, most commonly mammals) and dinosaur bones based on their positions in the earth. It was determined that the mammalian megafauna and the dinosaur bones had been deposited tens of thousands of years apart, with the dinosaur remains being much older. These first indications of the true age of fossil remains suggested a revolutionary new understanding of the scale of geological time.

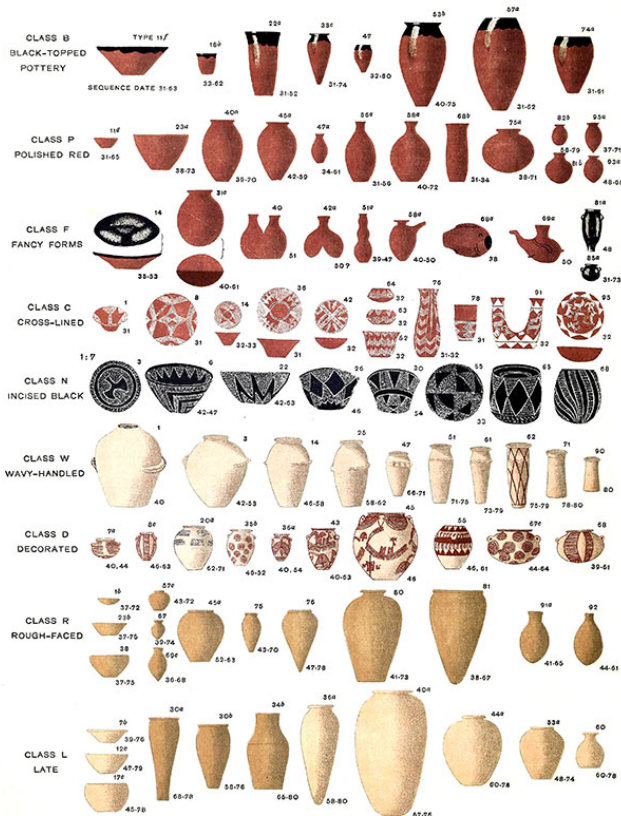
It was eventually determined that if a specific set and sequence of strata is noted in several sites and over a large enough area, it can be assumed that the ages will be the same for the same strata at different locations in the area. This insight enabled geologists and archaeologists to use the structures of soils and rocks to date phenomena noted throughout a region based on their relative positions. Archaeologists call this method *archaeological stratification*, and they look for stratified layers of artifacts to determine human cultural contexts. Stratigraphic layers found below cultural layers provide a basis for determining age, with layers above assumed to be more recent than those below.



According to the principle of superposition objects found at deeper layers (called stratum) are older than those found above. In this illustration, the pottery fragments in Stratum E can be assumed to be older than the shell buttons found in Stratum C. The objects nearest the surface (aluminum can, plastic bottle) are obviously most recent. (CC BY 4.0; Rice University & OpenStax)

Another method of dating utilized by archaeologists relies on **typological sequences**. This method compares created objects to other objects of similar appearance with the goal of determining how they are related. This method is employed by many subdisciplines of archaeology to understand the relationships between common objects. For example, typological sequencing is often conducted on spearpoints created by Indigenous peoples by comparing the types of points found at different locations and analyzing how they changed over time based on their relative positions in an archaeological site.

Another form of typological sequencing involves the process of **seriation**. Seriation is a relative dating method in which artifacts are placed in chronological order once they are determined to be of the same culture. English Egyptologist, Flinders Petrie introduced seriation in the 19th century. He developed the method to date burials he was uncovering that contained no evidence of their dates and could not be sequenced through **stratigraphy**. To address the problem, he developed a system of dating layers based on pottery (see the figure below).



Petrie's Egyptian pottery seriation method is built upon the observation that styles change with time. Petrie arranged pottery artifacts into similar groups based on stylistic features and placed them along a relative timeline based on these features. (credit: "Evolution of Egyptian prehistoric pottery styles, from Naqada I to Naqada II and Naqada III" by W. M. Flinders Petrie and A. C. Mace/Wikimedia Commons, Public Domain)

Typological sequences of pottery, stone tools, and other objects that survive in archaeological sites are not only used to provide dating estimates. They can also reveal much about changes in culture, social structure, and worldviews over time. For example, there are significant changes in stratigraphy during the agricultural age, or Neolithic period, at around 12,000 BCE. These changes include the appearance of tilled soils, pollens that indicate the cultivation of specific plants, evidence of more sedentary living patterns, and the increased use of pottery as the storage of food and grain became increasingly important. Archaeological evidence also shows a growing population and the development of a more complex cultural and economic system, which involved ownership of cattle and land and the beginning of trade. Trade activities can be determined when pottery types associated with one site appear in other nearby or distant locations. Recognizing the connections between objects used in trade can shed light on possible economic and political interrelationships between neighboring communities and settlements.

Chronometric dating methods, also known as **absolute dating methods**, are methods of dating that rely on chemical or physical analysis of the properties of archaeological objects. Using chronometric methods, archaeologists can date objects to a range that is more precise than can be achieved via relative dating methods. **Radiocarbon dating**, which uses the radioactive isotope

carbon-14 (^{14}C), is the most common method used to date organic materials. Once a living organism dies, the carbon within it begins to decay at a known rate. The amount of the remaining residual carbon can be measured to determine, within a margin of error of 50 years, when the organism died. The method is only valid for samples of organic tissue between 300 and 50,000 years old. To ensure accuracy, objects collected for testing are promptly sealed in nonporous containers so that no atmospheric organic substances, such as dust, pollen, or bacteria, can impact the results.

Dating systems that measure the atomic decay of uranium or the decay of potassium into argon are used to date nonorganic materials such as rocks. The rates of decay of radioactive materials are known and can be measured. The radioactive decay clock begins when the elements are first created, and this decay can be measured to determine when the objects were created and/or used in the past. Volcanic materials are particularly useful for dating sites because volcanoes deposit lava and ash over wide areas, and all the material from an eruption will have a similar chemical signature. Once the ash is dated, cultural materials can also be dated based on their position relative to the ash deposit.

The technique of **dendrochronology** relies on measuring tree rings to determine the age of ancient structures or dwellings that are made of wood. Tree rings develop annually and vary in width depending on the quantity of nutrients and water available in a specific year. Cross dating is accomplished by matching patterns of wide and narrow rings between core samples taken from similar trees in different locations. This information can then be applied to date archaeological remains that contain wood, such as posts and beams. Dendrochronology has been used at the Pueblo Bonita archaeological site in Chaco Canyon, New Mexico, to help date house structures that were occupied by the Pueblo people between 800 and 1150 CE. The Laboratory of Tree-Ring Research, based in Tucson, is the world's oldest dendrochronology lab.

The most effective approach for dating archaeological objects is to apply a variety of dating techniques, which allows the archaeologist to triangulate or correlate data. Correlating multiple methods of dating provides strong evidence for the specific time period of an archaeological site.

THE ARCHAEOLOGICAL PROCESS

The archaeological process is a generalized series of steps or tasks an archaeologist takes to develop, conduct, and complete archaeological projects, but the archaeological process is not a one-size-fits-all set of rules that can simply be applied to any archaeological project. Because each project is unique and has its own goals, requirements, and challenges, not every aspect of the archaeological process is required for all projects (though some steps are more important than others and will always be part of any project). The archaeological process is fluid. The steps in an archaeological project may not proceed in a simple, linear fashion. In many cases, the steps of the archaeological process and the order in which they occur depend on the context the project has arisen from as well as available time and money, ethical concerns, relevant laws and required permits, the needs and concerns of other people, institutional and financial delays, and more. Additionally, sometimes

certain steps of the archaeological process will bleed into or become intertwined with others.

Most importantly, excavation is an important piece of the overall puzzle of archaeology, but it isn't all archaeologists do. And archaeology isn't just about digging things up!

The vast majority of archaeological work that takes place in the United States (and in many other countries) is a result of either 1) **research projects** (often conducted by archaeologists who work at universities or research institutions); or, more commonly, 2) **cultural resource management (CRM) projects**. Archaeological research projects, as with research projects in other scientific disciplines, begin with a question or a problem. The question or problem usually depends on the researcher's interests and expertise. Some questions and problems are simple. For example, the question "What people or cultures lived in this area and when did they live here?" is commonly asked when minimal archaeological work has taken place in a particular area or region. This type of question must be answered before archaeologists can formulate other questions. Some research questions are more complex. A researcher may want to know, for instance, when a group of people became sedentary or how people at a particular settlement constructed a collective identity.

Beginning in the second half of the 20th century, an increasing number of archaeological projects were conducted under the umbrella of CRM archaeology. This was because of the increased need for infrastructure all over the world. As a result of this need, a formal effort was made to establish cultural resource laws to protect important places, landscapes, buildings, artifacts, and so on from destruction during these infrastructure projects. Today, most archaeological work performed throughout the world takes place as CRM projects.

Based on the details of the planned infrastructure project, CRM archaeologists develop a plan to identify, evaluate, protect, and excavate the sites and/or resources that includes an estimate of how much money will be needed to perform these tasks. Because they do not choose what kinds of sites or time periods they investigate, CRM archaeologists investigate all sites, artifacts, buildings, monuments, landscapes, and so on within the project area and parameters and should always strive to make thoughtful, accurate recommendations to the developers about how to best conserve, record, or mitigate archaeological remains.

Some projects are more accurately called **salvage archaeology**, also known as **rescue archaeology**. This is when archaeologists conduct archaeological work at a site that was partially destroyed or damaged or is about to be destroyed or damaged due to development, erosion or other natural processes, natural disasters and extreme weather events, civic and economic unrest, war, neglect, or looting. These projects are often necessary because not all CRM laws are created equal—some only protect certain kinds of archaeological and historical sites or sites on certain types of land. Additionally, laws are often not enforced due to limited time and resources. Even when CRM laws are enforced, the penalties for breaking these laws are not always severe enough to compel developers to comply with them. In the United States, for instance,

CRM laws in some states do not protect archaeological sites on private property. Thus, landowners can legally destroy sites and do not have to pay for archaeological evaluation or excavation before they make changes on their property. Fortunately, most states have laws that protect human remains and sites with human remains, regardless of who owns the land.

Perhaps the most crucial (yet often overlooked) aspect of beginning an archaeological project is a discussion of ideas and possibilities with communities, individuals, and representatives who have an interest in or ties to the sites, objects, and time periods in question. In the United States, these communities and representatives include tribal historic preservation officers, historical societies or organizations, and communities or groups with ties to an archaeological site. Ideally, archaeologists should develop research questions and projects in collaboration with these communities and individuals so their interests, concerns, and interpretations are represented. Even CRM archaeologists, who generally do not choose where a project occurs or what sites are investigated, should actively reach out to interested parties, especially descendant communities, to inform them of the project and to get their perspective on what sites, objects, and landscapes are important to them and why. These discussions and collaborations should continue throughout all steps of the archaeological process, regardless of the order, to the extent that is possible.

BACKGROUND RESEARCH

Background research is a crucial, time-consuming component of archaeology that accounts for the *majority* of archaeological work. Both CRM and research archaeologists must conduct thorough literature reviews covering the project area's geology, environment, flora and fauna, previous archaeological findings, site history, past excavations, property records, and landscape modifications. This information comes from diverse sources including archaeological reports, maps, census data, newspapers, and interviews with local residents or landowners. Research archaeologists additionally need to review scholarly literature on their specific topic—such as farming practices, tools, or plant domestication in a given region. Most importantly, all archaeologists must familiarize themselves with the culture, beliefs, history, and relevant scholarship of the groups they study, whether Indigenous peoples, African Americans, or other communities, as this contextual knowledge enables more informed interpretations and meaningful research questions.

METHODS & RESEARCH DESIGN

Archaeological methods encompass the procedures, techniques, and instruments used to complete projects, ranging from basic field methods like pedestrian surveys, shovel testing, and hand excavations to more specialized approaches like remote sensing with various techniques requiring specific knowledge, tools, and software. A **research design** *formally outlines project goals, methods to achieve them, and underlying theories*. For research projects, methods depend on the research questions—for example, studying settlement distribution requires surveys and diagnostic artifact collection, while diet changes necessitate excavations at food preparation sites. CRM projects use similar methods but vary by phase: Phase I involves literature reviews and surveys to identify

sites, Phase II requires intensive testing like unit excavations, and Phase III may involve complete site excavation, with all phases including material analysis to evaluate site type, chronology, and significance.

Method selection depends on available funding, time constraints (such as during salvage excavations), and the principle of using the least destructive approach that still meets project goals—examining existing museum collections is preferable to new fieldwork, and limited test units are better than extensive excavations when adequate for answering research questions. Since the archaeological record is finite and excavations are destructive and expensive, archaeologists minimize site impact, though complete excavation may be necessary if a site faces destruction. Crucially, collaboration with descendant communities is essential when developing methods, as some places may be sacred or culturally significant to communities who prefer noninvasive techniques over excavation or alteration of these sites.

BACKGROUND DATA & INFORMATION

Funding is critical for all archaeological projects but obtained differently for CRM versus research work. CRM projects are typically funded by employers who select companies based on cost estimates, qualifications, and reputation, though this competitive bidding process can encourage low estimates that sometimes result in incomplete work. Research archaeologists, usually academics, must obtain outside funding primarily through grants from federal sources like the National Science Foundation and National Endowment for the Humanities (funded by taxpayers) or professional organizations like the Archaeological Institute of America and Wenner-Gren Foundation (funded by donations and fundraisers), making funding highly competitive since these organizations support global projects. The required funding amount depends on project goals and scale—small projects can seek less competitive local grants while large projects need major funding—and on the type of work involved, with excavations and specialized analyses being more expensive than surveys, requiring archaeologists to carefully budget for fieldwork, lab work, specialized tests like radiocarbon dating, material curation, and publication costs.

Obtaining **permission** is essential for all archaeological projects and typically occurs alongside securing funding. Archaeologists must understand and comply with cultural resource laws that protect archaeological materials and sites, applying for permits from government agencies by submitting project descriptions, timelines, methods, qualifications, and intended outcomes—a process that ensures quality control by limiting work to qualified professionals but can be lengthy, requiring early application. For projects on private land, archaeologists must obtain landowner permission, which may or may not require government permits depending on local laws but is always necessary and can be challenging since landowners range from enthusiastic supporters to openly hostile, making it crucial for archaeologists to build trust through friendly, patient relationship-building that demonstrates genuine interest in community well-being beyond just the archaeology. Lab-based projects similarly require permission from museums or collection

curators, with more complex permit processes for destructive analyses like radiocarbon dating or DNA studies, and regardless of legal requirements, consultation with descendant communities about project goals, methods, and material handling is an ethical obligation for all archaeological work.

FIELDWORK

Fieldwork, often called **data collection**, is where 'actual' excavation takes place. It is perhaps the most variable step in archaeology and typically takes the least time compared to other phases, though it receives the most public attention through documentaries and articles showcasing dramatic discoveries like identifying King Richard III's skeleton or detecting Maya architecture through remote sensing. While fieldwork captures public imagination and many archaeologists enjoy visiting new places, seeing artifacts, and reconstructing history as it emerges—despite real hazards like injuries, heat illness, wildlife encounters, and other dangers that must be addressed in research designs—this romantic view problematically overshadows fieldwork's true purpose of recovering information to interpret the past and the methodical, often mundane techniques involved like detailed context descriptions, mapping, photographing, soil analysis, and artifact bagging. **Field schools**, while important and often required for undergraduate archaeology students as training for jobs and professional development, can perpetuate the overemphasis on fieldwork at the expense of understanding that archaeology is a comprehensive process where fieldwork represents only a small portion, with equally important work occurring in libraries, labs, and museums.

INTERPRETATION

Data processing, analysis (as in the previous chapter), and interpretation typically consume the most time in archaeology, with a realistic estimate of at least three months of work for every month spent in the field, though timing varies by project type and analytical methods required. Processing begins with washing, sorting, and labeling artifacts with contextual information like site name, feature, and level, then re-bagging them in curation-standard containers that meet legal requirements and storage facility standards—a seemingly tedious but educational task often assigned to beginning archaeologists in field schools to teach artifact identification and handling. Beyond artifacts, archaeologists must complete, verify, and digitize field notes, maps, and paperwork for backup and space efficiency, while other data types like remote sensing results, GIS data, and residue analysis must be organized, cleaned, and formatted into appropriate software or visual presentations. Analysis methods depend on project goals and research questions, with CRM projects typically requiring chronology determination through diagnostic artifact analysis (pottery, lithics) or absolute dating techniques like radiocarbon dating when diagnostic materials are absent, often sending samples to specialized labs, while research projects may involve more targeted analyses as specified in research designs and permits. Finally, interpretation addresses original research questions by blending theoretical approaches with collected data, often testing hypotheses—proposed explanations with if-then statements linking evidence to conclusions—though these hypotheses may not be explicitly stated in publications, archaeologists always interpret

results by integrating questions, theory, and data to reconstruct and explain the past.

CURATION & DISSEMINATION

Curation—the cataloging, preserving, storing, and caring for archaeological collections and data—is one of archaeology's most important yet underappreciated and neglected steps, essential for making physical remains (artifacts, samples, paperwork, maps) and digital data (photographs, scanned documents, GIS data, 3D scans, geophysical data) available to researchers and the public for future study, displays, and education. Every archaeological project plan must include arrangements and funding for permanent curation before work begins, requiring archaeologists to contact curators at accredited facilities to confirm space availability and willingness to store estimated data volumes, comply with cultural resource laws that may mandate specific repositories, and create written agreements detailing parties involved, collection types, transfer dates, costs, and preparation standards like artifact washing, labeling, and digital formatting. Due to the curation crisis—an ever-growing shortage of storage space for properly maintaining archaeological collections—museums often reject "redundant" artifacts like fire-cracked rock, rubble, and unmodified stones that provide repetitive information without adding interpretive value, making it crucial for archaeologists to collaborate with curators early to understand facility policies and prepare collections appropriately for long-term storage.

Dissemination—sharing project results through reports, articles, presentations, and outreach—is one of archaeology's final and most crucial steps, representing the culmination of a project and fulfilling archaeologists' ethical obligation to share knowledge widely since nobody "owns" the past. CRM archaeologists typically publish legally required reports containing project results, site significance, and infrastructure recommendations that often become gray literature accessible mainly to other CRM professionals and employers, while research archaeologists publish in peer-reviewed journals and books addressing larger theoretical and methodological questions, with both groups presenting at professional conferences and sometimes contributing to textbooks. However, since these formats reach limited audiences and academic publications can be costly or difficult for the public to access—though open-source journals are improving accessibility—archaeologists must engage in broader outreach through public lectures at libraries and historical societies, school presentations, event booths, artifact identification events, site tours, museum displays, blogs, videos, social media posts, and interviews with radio, newspapers, and TV networks, though media interviews require careful, concise communication and proofreading to ensure accuracy. While public dissemination is vital, archaeologists must protect sites by withholding sensitive location information from public presentations, stripping location data from digital photos, and requesting reporters not disclose exact site locations to prevent looting, damage, or illegal investigations, prioritizing both public education and site preservation.

EXCAVATING ARCHAEOLOGICAL SITES

This chapter has been a bit of a tease referring to excavation as much as it has but spending more time discussing remote sensing, context, the history of interpretations, and research design, but this is exactly because this is how archaeology is! The picture in our heads (which is *cultural*, by the way) of an archaeologist almost always has them digging—but this is just a tiny fraction of what an archaeologist does. That said, just because it is a tiny fraction of their *time*, does not mean it isn't an important part of archaeological science. Let's now take a look at the excavation strategies and techniques archaeologists do use when 'digging.'

xxx 303168 Archaeological excavation comes with three **warnings**:

1. As above, excavation is only a very small part of what practicing archaeologists actually do—and some archaeologists never go near a trowel. Background research, surveying, mapping, lab work, and analysis are all equally important components of the archaeological process.
2. When you excavate an archaeological site, **you are destroying it**. You can't excavate the same ground twice—and this means that it is essential to carefully record everything that you do.
3. There are important **ethical concerns** about who has (or should have) authority over sites, artifacts, and landscapes of the past. This includes the power to make decisions about whether archaeological sites should be excavated—and if so, when, and by whom.

EXCAVATION STRATEGY & SAMPLING

Excavations begin by carefully deciding where to dig based on research goals, available funding, time constraints, and legal/ethical concerns rather than digging haphazardly. Research goals drive excavation strategy—CRM excavations test site integrity and National Register eligibility on a small scale or involve full data recovery, whereas academic projects are guided by specific research questions like investigating subsistence strategies versus burial practices, with excavation locations chosen accordingly. Funding often limits excavation planning, with CRM companies balancing competitive bids against adequate resources to pay staff and follow proper research designs while facing pressure for quick, cheap completion, and academic archaeologists seeking grants from institutions, private organizations, federal sources, state/local governments, or developing field schools where student fees fund research. Time constraints affect both CRM archaeologists who must meet scheduled deadlines under developer pressure and academic archaeologists who typically work summers only between teaching semesters, often traveling internationally and navigating bureaucracy, resulting in intense field seasons with long days and minimal time off while spending the rest of the year preparing for potentially just a couple months of fieldwork. Legal and ethical considerations are crucial, requiring appropriate permits under laws that mandate coordination with State Historic Preservation Offices, Tribal Historic Preservation Offices, landowners, and other parties, with similar international requirements and protocols necessitating prolonged discussions and genuine consultation with local communities and descendant groups before any excavation begins.

Once archaeologists consider goals, funding, time, and legal/ethical factors, they select a sampling strategy, typically not excavating entire sites to preserve portions in situ for future researchers since excavation is destruction, beginning by mapping a grid to track features, unit placements, and spatial relationships using random (using random number generators for basic site information), stratified random (ensuring proportional coverage of different site sections like ritual versus domestic areas with random unit placement within each), systematic (excavating in consistent patterns for even coverage but potentially missing high-probability areas), or judgmental sampling (choosing specific dig locations to prioritize important areas but risking researcher bias), with most real-world strategies balancing these approaches, such as making judgmental decisions to excavate around mapped structures combined with stratified random sampling across different site sections. Excavation strategies also vary between vertical excavations—deep "telephone booth" style units useful for highlighting stratigraphy, seeing soil layers and occupation contexts in unit walls, reaching early time periods under deep deposits, and understanding chronology, though taking longer and providing only small occupation layer snapshots—and horizontal excavations designed to bring entire sections down to single occupation layers, showing how site parts related spatially and allowing researchers to follow walls or buildings in their entirety, though prioritizing one occupation over others by digging through and destroying later occupations to reach the target layer while potentially never reaching earlier ones.

METHODS & TOOLS

Archaeological units—the areas dug for excavation—are usually square (typically 2×2 meters) to maintain excavation control and aid mapping, tied into the overall site grid and oriented to cardinal directions with carefully dug straight walls showing stratigraphic profiles that archaeologists protect intensely. The trowel, particularly the pointed Marshalltown masonry trowel inspiring brand loyalty among U.S. archaeologists, is the most important and symbolic tool, with field archaeologists maintaining sharpened personal trowels for years and using them for multiple purposes including cutting roots, while margin trowels with rectangular blades help shape unit corners. Other essential tools include compasses for orientation, measuring tapes to ensure correct unit size (using the Pythagorean theorem to verify 2.83-meter hypotenuses for proper right angles in 2×2-meter units), nails to mark corners wrapped with string to show wall boundaries, and datum strings with line levels hung to measure excavation depth and artifact locations.

Digging may begin with backhoes (when archaeological materials lie deep under plowed fields with monitors watching for unexpected finds), pickaxes (for compact soil), or sharpened flat-edged shovels to remove thick topsoil, then switching to hand tools once reaching archaeological levels—trowels scraping dirt into dustpans dumped into buckets, clippers cutting intrusive roots, brushes cleaning artifacts in situ, and specialized tools like bamboo implements for excavating bone without scratching. All excavated dirt passes through screens of varying sizes and styles—individual hand screens, two-person rocking sifting screens with ground legs, or

larger table screens and tripod-hung screens for long-term excavations—with ¼-inch standard U.S. screen size allowing dirt through while catching most artifacts/ecofacts, though smaller ⅛-inch screens may sample for tiny items like fish bones that slip through standard screens.

DIGGING & DATA COLLECTION

Excavation proceeds in controlled levels using slow, scraping trowel motions to take down entire units evenly rather than creating uneven holes, pausing for notetaking, sketching maps, and separating artifacts/ecofacts by depth, with specific features like pits, hearths, or postholes excavated separately to keep context-specific items together for later dating analysis. When possible, artifacts remain in place until directly mapped on XY axes within the unit and measured for depth to understand relationships to other artifacts and site geology, though GPS coordinates may supplement mapping but lack necessary accuracy at archaeological scales in some regions.

Excavation follows either arbitrary 10-centimeter levels (useful when geology is unknown or soil lacks clear distinctions between occupations) or natural soil levels when clearly distinguishable layers help distinguish deposition events for better chronological control, with both techniques providing vertical control to track artifact origins and prevent mixing materials from different depths, while archaeologists maintain straight, clean unit walls to better identify stratigraphy crucial for determining chronology. After completing excavation and notetaking, excavators carefully backfill units to protect unexcavated site portions and avoid leaving fields full of holes. Throughout the process, careful notetaking is most important since excavation is never fully replicable—once soil and artifacts are removed, they cannot be replaced exactly as found, making archaeological excavation unique among sciences as it destroys the site, and without meticulous documentation at every stage, information is irretrievably lost.

Note-taking styles vary widely among archaeologists, with some recording excessive details including weather, mood, and meals that make important data difficult to find, while overly sparse notes frustrate researchers when needed information was never recorded, leading most excavations to use standardized forms or context sheets with spaces for essential information like site name, excavation date, unit number, level/feature number, depth and size, soil color and texture, artifact/ecofact/feature numbers and types, preliminary interpretations, and sketches. Good documentation also requires collecting quality images through photographs taken at regular intervals, supplemented by multispectral imaging or UAV aerial photos on some projects, and archaeological illustrators who record details invisible to cameras and create site or artifact reconstructions, though even non-artistic archaeologists must draw basic sketches including plot maps of unit floor levels, profile walls, and locations of features and in situ artifacts/ecofacts. The most important aspect of any excavated artifact is its provenience—how it relates to other artifacts, features, and local geology—as knowing where an artifact comes from is absolutely essential for interpreting its meaning during analysis.

After completing notes, excavators collect lithics, ceramics, metals, bone tools, other animal bone, human bone, and other human-made

or used objects in paper or cloth bags carefully labeled by context to track provenance for lab analysis, along with burnt wood or carbon samples wrapped in aluminum foil without hand contact to prevent contamination for radiocarbon dating, and soil samples from relevant contexts for flotation or specialized analyses. Collection criteria depend on project design and local standards, with field identification sometimes difficult—objects appearing as lithic débitage may prove to be unmodified rocks after lab cleaning—making it better to err on caution since unmodified rocks can be discarded in labs but artifacts left behind are lost forever, though archaeologists must consider storage in high-quality curation facilities for future research despite facility shortages. However, some objects cannot or should not be collected if they're too large to move, part of structural features that would lose integrity if removed, better preserved in situ than in labs/repositories, or must remain in place according to local or descendant community wishes for spiritual or political reasons, particularly in mortuary or religious contexts, with all collection decisions requiring adherence to clear archaeological ethics standards throughout excavation.

ETHICAL CONSIDERATIONS

Archaeological ethics governed by standards like the Society for American Archaeology's Code of Ethics (covering stewardship, accountability, commercialization, public education, intellectual property, publication, preservation, training, and safe environments) establish archaeologists' responsibilities to colleagues, the archaeological record, descendant communities, and students during excavation. We will consider ethical considerations in more detail in the next chapter. For now, here is a high-level overview of what archaeologists must keep in mind during excavation.

Field sites must be physically safe—avoiding dangerously deep units, preventing falls and tool accidents, maintaining first aid kits with knowledge of nearest health facilities—while addressing environmental hazards like heatstroke, frostbite, allergies, animal attacks, snake/insect bites, bacteria, parasites, hazardous waste, and unexploded ordinances, but also must be free from sexual harassment, discrimination, and assault, which surveys reveal are unfortunately common problems for female scientists and people of color in field-based sciences including archaeology's predominantly white discipline.

Stewardship requires preserving and protecting the archaeological record from looters and commercial interests by excavating judiciously only when learning more than preservation would provide or when preservation is impossible due to development or climate events, leaving portions unexcavated for future researchers with new technologies and questions, avoiding public sharing of

exact coordinates unless sites are protected, properly curating and storing excavated objects, and never providing price estimates or engaging in commercial artifact activities.

Accountability to descendant communities and stakeholders is essential, particularly regarding human remains or religious sites, requiring coordination and collaboration with community members and landowners beyond state/national legislation, respecting that some sites should never be excavated and certain protocols may be necessary—even such as preparing offerings for rituals performed by community specialists before excavation, similar to agricultural or construction "earth-breaking" ceremonies. Many indigenous communities recognize land and landscape features as living community beings.

Archaeologists must share findings first with descendant communities and stakeholders, *then* the broader public through peer-reviewed journals, popular magazines, blogs, documentaries, webpages, outreach events, and open educational resources to combat pseudoarchaeology and educate the public, making comprehensive field notes valuable only when published rather than stored privately.

Finally, training new archaeologists requires safe practice environments since sites cannot be re-excavated—such as burying fake "sites" on campus for students to practice unit setup, excavation, and artifact mapping—though actual archaeological field schools taught over summers provide invaluable hands-on learning opportunities while earning college credits.

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4.3: INTERPRETATION AND ETHICS

As the goals, foundational theories, and research techniques of archaeology have changed over the last two centuries, so too have the role of interpretation and ethics. From an origin in 'antiquities' and collecting through 'naturalism' and into theories of 'linear cultural evolution,' archaeology—with help from the other three subfields of anthropology—has likewise come to a set of interpretations based on the understanding that all humans are simply doing their best to adapt to their environments and situations. Today's archaeologists, as scientists, understand that their conclusions are subject to change given new evidence or the refutation of hypotheses. And, a far cry from origins that were sometimes difficult to distinguish from grave robbery, today's archaeologists are careful to incorporate the voices and cultures of indigenous peoples and descendent communities.

CONSERVATION, NATURALISM, AND LATER VOICES

ANTIQUITIES

Archaeology emerged from the Renaissance fascination with classical antiquity (Rome, Greece, and their associated areas of the world, like Egypt). Wealthy European collectors began amassing Greek and Roman artifacts as symbols of cultural refinement and social status. These early "**antiquarians**" were less concerned with systematic study than with acquiring beautiful objects—marble sculptures, inscribed tablets, painted ceramics—that could adorn private cabinets of curiosities or grand estates. The practice intensified during the 17th and 18th centuries as aristocrats sponsored **expeditions** to Mediterranean lands, often removing entire friezes and statuary from ancient sites. This era of collecting treated the past as a treasure trove to be plundered, with little regard for the contexts in which objects were found or the information their original positions might reveal about ancient life.

The 19th century saw this collector's mentality reach its apex with spectacular discoveries, yet these very triumphs exposed the limitations of treasure-hunting approaches. Museums filled with decontextualized objects that could tell fragmented stories at best, while promising archaeological sites across Europe and the Near East showed evidence of destructive digging techniques that obliterated as much information as they recovered. The removal of artifacts to distant European capitals also sparked early debates about cultural ownership and the ethics of displacing heritage from its place of origin.

Yet even as the great museums swelled with antiquities, new intellectual currents were beginning to transform archaeology's mission. The rise of **geological** thinking and Darwin's **evolutionary framework** suggested that systematic observation of context and careful documentation might reveal patterns of human development over time. A younger generation of excavators began to argue that the soil itself, the arrangement of objects, and even the refuse of daily life could speak as eloquently about the past as any marble masterpiece—if only archaeologists learned to read these subtler

texts with the patience of naturalists studying the archaeological record.

EARLY EFFORTS

The conservation movement began in the 19th century as people in Europe and America began to realize that human settlement and the exploitation of the world's natural resources had led to the destruction or endangerment of numerous animals, plants, and significant environments. Efforts began in the 1860s to understand and protect the remaining natural landscapes and habitats. These efforts were partly motivated by concern for wildlife and natural areas. Also significant were the concerns of sporting organizations and recreationists. The primary aim of early conservation efforts was to preserve significant natural ecosystems for parks or wilderness areas *so that sportspeople and outdoor enthusiasts would have places to hunt, fish, and explore*. Many areas preserved by these early efforts are still protected today, such as Yellowstone and Yosemite National Parks in the United States.

An element of this early period of conservation was the effort to collect **specimens** for display in natural history museums. This collection effort was part of a movement known as **naturalism**, which seeks to understand the world and the laws that govern it by direct observation of nature. The late 19th and early 20th centuries saw a marked growth in naturalist collections worldwide as many cities and nations sought to establish and fill their own natural history museums. These collections have been particularly useful to zooarchaeologists and archaeobotanists, who use specimen collections of mammals, birds, fish, and plants to identify natural objects and animal remains found at human burial sites. Many archaeology labs have collections of animal skeletons for comparative anatomy, analysis, and identification.



Collections of bones, such as this collection of specimens from various animal species housed at the Wildlife Forensics Lab in Ashland, Oregon, serve as a useful resource for zooarchaeologists. (credit: "Wildlife Forensics Lab" by US Fish and Wildlife Service Headquarters/flickr, Public Domain)

In addition to animal specimens, Native American baskets and other Indigenous art objects were collected and placed in natural history museums. When visiting the Auckland Museum in Auckland, New Zealand, visitors today encounter two large totem poles in the foyer. Northwest Coast totem poles are common in most older museums

throughout the world. These totem poles were gathered from America's Northwest Coast in the late 19th and early 20th centuries as part of the worldwide conservation and naturalism movement. Most museums sought to purchase such artifacts, but in some cases, artifacts were stolen when Indigenous owners were unwilling to sell them. Many natural history museums also established dioramas depicting both Indigenous peoples and animals in their "natural" world. The practice of installing dioramas of Indigenous people is now heavily criticized because of the implication that Indigenous peoples are akin to animals and plants. Many museums have stopped this practice and have even dropped the phrase *natural history* from their names. However, the Smithsonian Institution's National Museum of Natural History in Washington, DC, and the American Museum of Natural History in New York both maintain the designation and still display dioramas of Indigenous peoples.



This diorama of Native Americans is on display in the Indiana State Museum in Indianapolis, Indiana. Such dioramas have come under criticism for the way that they depict Indigenous peoples and cultures. (credit: "Native Americans – Indiana State Museum – DSC00394" by Daderot/Wikimedia Commons, Public Domain)

SALVAGE ANTHROPOLOGY

Connected to the collecting of Indigenous artifacts is a practice known as **salvage anthropology**. Salvage anthropology was an effort to collect the material culture of Indigenous peoples in the United States and other parts of the world who were believed to be going extinct in the later 19th century. During this period, many anthropologists dedicated themselves to collecting material objects, stories, language lists, and ethnographies from tribal peoples worldwide. Many collections were made through legitimate means, such as purchasing objects or sitting down with collaborators (called *informants* in older anthropological vernacular) to record traditional stories, but some collecting involved the theft of tribal cultural items or purchases from intermediary traders.

Many of these anthropologists were hired by the Bureau of American Ethnology (BAE), a division of the Smithsonian Institution, and spent considerable time living with Native peoples on the reservations that were by then home to most Native Americans. Language was a special research focus for linguists and anthropologists, as many Native languages were rapidly going extinct. Through analysis of language, an anthropologist can

understand the meaning of words and their context as well as gain a sense of a culture's philosophy and worldviews.

Anthropologists were not paid well to do this work for the BAE. Some began supplementing their income by buying cultural objects at a low cost from the people they studied and selling those objects at a much higher rate to museums. This practice is now acknowledged as unethical and exploitative. The anthropological research of this period has also been criticized for focusing solely on cultural knowledge while ignoring the hardships faced by the culture. For example, few anthropologists chose to help their subjects address the circumstances of living in poverty on the reservations.

Leonard J. Frachtenberg was an anthropologist working during the salvage anthropology period who did take action to help the people he was studying. Around the turn of the 20th century, Frachtenberg was conducting research to collect the languages of the people living on the Siletz Reservation, in Lincoln County, on Oregon's coast. He worked extensively with collaborators from the Coos, Coquille, Lower Umpqua, and Alsea tribes—some of whom were living at the Siletz Reservation and some who had returned to their native lands—and published a series of **oral histories** based on his research. He also helped the tribes locate lost unratified treaties from the 1850s and use those treaties to successfully sue the federal government. In the treaties, the government had promised to pay the Indigenous peoples of Oregon's coast for their ancestral land if they peacefully relocated to the Siletz Reservation. The people upheld their part of the bargain, but they never received any payment. Frachtenberg helped a Coquille man named George Wasson travel to Washington, DC, and locate copies of the treaties in the National Archives. In 1908, the tribes began the process of successfully suing the federal government for payment for their lands. This process took some 40 years to complete for many tribes, and not all tribes have been fairly paid to this day.

MUSEUM COLLECTIONS

Most of the materials collected by anthropologists during the period of salvage anthropology ended up in museums and university archives. Many natural history museums now display large dioramas featuring the material objects of numerous tribes. Museum research libraries house extensive collections of manuscripts and ethnographies. Archaeologists have contributed to these collections as well; many museums contain large collections of human remains. Indigenous peoples have criticized these collections, especially the gathering of **human remains**, which is seen as sacrilegious. Today, there are millions of sets of human remains (some full skeletons, but most single bones) in museum repositories that have never been studied and perhaps never will be.

Anthropologists spent so much of their time in the early period collecting that they had little time to study or analyze what they found. Many collections were put in storage after the anthropologists who had gathered them moved on to a new project or passed away. There are currently millions of material artifacts and ethnographic manuscripts that have never been fully studied. These archived materials offer research opportunities for anthropologists as well as for Indigenous peoples, who are making use of these collections to

help recover parts of their cultures that were lost due to the assimilation policies of the past 200 years.

INTERPRETATION AND VOICE

There is increasing acknowledgement of the role of **interpretation** in the study of the human past. Although ideally grounded in well-conducted research and the best evidence available at the time, all conclusions about what might have been are *based on the interpretations proposed by the authors of history*. The backgrounds and viewpoints of those conducting research and publicizing findings play a significant role in the conclusions they reach and share with other scholars. Interpretation and perspective are affected by many factors, including racial category, nationality, religious beliefs, social status, political affiliation, ambitions, and education. For many years, anthropological studies were almost always conducted by White, male scholars who grew up in the Northern Hemisphere and were educated in the same system. These common backgrounds represent a significant **interpretive bias**.

After being accessioned into museums, many collections of cultural artifacts have not been altered in more than 100 years. When these material objects were initially placed on display, choices about their arrangement and the written descriptions that accompanied them were made by museum curators. Most of these curators did not reach out to the originators of the artifacts or their descendants for input, and many exhibits do not accurately depict or describe the objects on display. Museum exhibits have been found to contain inaccurate information about objects' material composition, makers, tribal cultures, collection sites, and proper use. Many other display objects are lacking this information altogether.

Several museums are now seeking the help of indigenous people to better understand and more accurately tell the story of their collections. These indigenous perspectives are correcting misconceptions about the meaning and context of cultural artifacts and providing correct information about basic things such as the materials and processes used in the objects' production. Native input is also guiding museums in making choices about how objects are arranged and displayed. This input has been invaluable in helping museums more accurately tell the stories and display the context of the peoples who originally created the objects on display.

INTERPRETATION & SOCIAL ARCHAEOLOGY

Based on a Euro-American bias, early archaeologists' interpretations focus on the social lives of the past peoples they studied often centered on attempts to demonstrate their 'place' on some chain of linear development or hierarchy. Today, archaeologists still classify peoples but do so more carefully. Today's archaeologists classify populations mainly so they can study some attribute comparatively. They are also careful that classifications do not *limit* cultures to those classifications. Rather than "copper age" and "iron age" peoples, societies are now described along lines which might be familiar to us from cultural anthropology: egalitarian or stratified, matriarchal or patriarchal, stationary or migratory, and so on. Using these descriptions more like attributes than classifications, are the basis for today's archaeological interpretation known as **social archaeology**.

Answering basic social questions requires that we consider two dimensions of social interaction—**how a site is integrated externally** with other sites (Is it politically independent? A base camp? A city within a larger empire?) and its **internal organization** (Does the site reflect egalitarian social interactions or was it stratified?).

POLITICAL ORGANIZATION

As we have seen, political organization describes how social groups organize themselves to identify "us" versus "them" and to make group decisions, such as establishing rituals and rules, choosing when to migrate to another site or area, and determining how to deal with internal and external conflicts, including incursions by groups from nearby territories. Archaeologists have long used traditional classifications of societies' political complexity such as tribes, villages, chiefdoms, and states to categorize sites in terms of how they were integrated into larger social organizations and to identify the largest group territorially with which they were associated using a system established by anthropologist **Elman Service**. These same categories are used to describe living societies that can be directly observed.

In reality, of course, societies often fall somewhere along a continuum of degrees of political organization and do not necessarily fit neatly into traditional categories—some societies even flip-flop between systems of organization as conditions change (such as seasonal shifts and access to resources). Archaeologists assess the complexity of a group's political organization by analyzing its settlement patterns and written records and by observing and inferring the political structures by comparing them with structures observed in other cultures. This process is known as **ethnographic analogy**.

One of the categories used by archaeologists and cultural anthropologists is the **band**, which refers to mobile hunter-gatherer groups that typically number less than 100 individuals and are rarely integrated politically with others. These relatively small societies tend to forage for food over a large area and are **nomadic**, moving frequently with the seasons and availability of various food resources. Consequently, their sites are some of the most difficult to identify archaeologically because they leave few artifacts behind in widely distributed archaeological deposits. The number of individuals and families making up nomadic bands varies with the season, as family and gender groups separate for a time and then rejoin in seasonal movements known as **seasonal rounds**. Usually, leadership in a band is informal and impermanent, and many decisions are made by the community, though individuals who are admired can have greater influence. One example of a society organized as a band is the Paiute from the Great Basin of the western United States, who were studied extensively by archaeologist **Julian Steward**. In the pre-contact era (before colonists from Europe came to North America), the Paiute lived in family bands and moved frequently to access various seasonally available food resources, including grass seeds, pinyon nuts, ducks, geese, and jackrabbits. Archaeological evidence uncovered from their occupation sites consists primarily of projectile points and other lithic artifacts and a few other items, such as tule reed and feather duck decoys that were

stored in **caches** in protected areas for future use. Bands typically leave behind little evidence of areas they occupy—occasionally, archaeologists find remains of temporary sites used for making projectiles and for butchering and preparing food.

A second political organization is the **tribe**, which consists of several small territorial populations that mostly act autonomously but sometimes interact with other groups linked to them by customs, kinship, and/or age for political or military purposes and sometimes send representatives to tribal gatherings. They usually join together in pursuit of a limited objective or gather informally in social customs. Tribes tend to be egalitarian and produce their own food by gardening (**horticulture**) and/or tending herd animals (**pastoralism**). They typically are more sedentary than bands, establishing relatively permanent settlements in which hundreds of individuals live. Tribal archaeological sites include villages containing numerous semi-permanent dwellings indicated by post holes, hearths, and/or food storage pits that reveal both longer-term occupations and the relatively coordinated labor of a greater number of individuals. Leadership in individual tribal groups typically consists of part-time leaders.

Chiefdoms represent a shift from the loosely organized political structure of tribes to more formal political structures involving multiple communities. The **chief** has greater authority and higher social standing (**rank**) than the rest of the communities' members, and the role is permanent and can be hereditary and passed on to children. Chiefdoms typically are densely populated and use intensive agriculture, horticulture, and/or pastoralism. Chiefs typically do not have the power to compel others to obey them but are highly respected, often as religious authorities, and redistribute goods, direct public behavior, and perform other leadership tasks. Societies organized as chiefdoms often erect large-scale monuments made possible by the coordinated labor of a large number of people. One such monument is Stonehenge in England. These early, relatively hierarchical social organizations also led to differentiated burials in which individuals were buried with items valued by their cultures that pointed to differences in status.

State societies represent an even greater level of integration; they are autonomous political units that link and govern many communities in a territory. States are characterized by centralized governments that have the power to collect taxes, draft people for labor and to fight wars, and enact and enforce laws. States typically rely on intensive agriculture and pastoralism for subsistence and therefore need additional territory as they expand. Consequently, colonialism was a common way to obtain access to needed resources. States tend to incorporate multiple communities, often separated by great distances. In addition, state societies are stratified, assigning individuals to classes or castes, and frequently construct large public monuments such as palaces, temples, and public buildings.

State societies typically leave behind abundant archaeological evidence, including terraced fields, highways, record-keeping devices (e.g., the Incan complex system of knotted string known as **khipu**), monumental buildings and cities (e.g., Machu Picchu and Cuzco in South America), and mummified human remains. These

elements of infrastructure and monumental works are characteristic of state societies because they are possible only when rulers can conscript thousands of human laborers and compel taxes.

Grave goods in state-level societies vary substantially because of social stratification in those cultures. A well-known, one-of-a-kind example of the grandiosity of grave goods often included in burials of state leaders is the burial of Qin Shi Huang, the first emperor of China, which included 6,000 life-size warriors molded from terra cotta and a depiction of the world in miniature, complete with stars above and rivers made of liquid mercury.

SOCIAL STRATIFICATION

Within a society there is an internal organization that typically is based on whether the advantages of the society are equally available to everyone or are available only to higher status individuals. There are three basic categories of advantages: **Economic resources**: things that are considered valuable in a culture, such as land, tools, money, goods, and wealth. **Power**: the ability to make others do things they do not want to do, such as slave labor. **Prestige**: particular honor or respect.

When some groups have greater access to these societal advantages because of their identities rather than having to earn them, the society is considered to have **social stratification**: unequal access to resources, power, and/or prestige. Evidence of social stratification first appears in the archaeological record at the same time as the development of agriculture. At the ancient Egyptian site of Gebel el Silsila, for example, the remains of four young children (between four and nine years old) showed evidence of mummification and were buried, likely in a wooden coffin, with multiple valued items as **grave goods**, including amulets, a bronze bracelet, and pottery. Since the children would not have earned the status associated with those items (**achieved status**) in their short lives, they likely inherited their status through kinship, which is called **ascribed status**.

The degree to which different social groups possess access to society's advantages is used to characterize the degree of social stratification in a society. In **egalitarian** societies, individuals are not grouped by access to economic resources, power, or prestige. They can individually achieve status in their lifetimes, but their status is not passed down to other members of their families. Everyone in an egalitarian society is born with an equal opportunity to attain society's advantages, and prestige is granted to anyone who earns it through exceptional skills or efforts. Most egalitarian societies were comprised of foragers, horticulturalists, and pastoralists. They relied heavily on sharing to attain needed items, which ensured equal access to economic resources and functionally separated actual wealth from recognition of skill. In these societies, there is no dominant leader, and the group uses **social levelling devices** to maintain equality. These devices consist of behavior such as ridiculing, teasing, and shunning of would-be leaders that reduce their status in the group and prevent them from becoming more powerful than others.

Rank societies, which are typically agricultural and sometimes pastoral, assign individuals to social groups that have unequal access to prestige (but not to wealth or power). Coastal fishing societies in

northwestern North America were rank societies. The abundance of salmon and their success in harvesting and preserving the fish allowed them to stockpile food resources that were subsequently given away in ceremonies known as **potlatches** that served to reinforce the host's social status as high ranking. Rank societies were often ruled by chiefs since no one had the ability to force people to work but could influence others to work by working hard themselves.

In **class** societies, social groups have unequal access to economic resources, power, and prestige. Some have greater opportunities in life simply because of the social group into which they are born. Class societies are also called fully stratified societies. They can be **open class societies**, in which individuals can move into a different class, or **closed class societies (caste societies)**, in which individuals can never change their class status. Because many past class societies have assigned classes based on specialized professions and crafts, archaeologists can infer the presence of a class society from dedicated sections of cities by occupation.

METHODS OF ANALYZING SOCIAL STRATIFICATION

Archaeologists use a variety of techniques to identify the social dynamics of the societies they study. **Settlement analysis** identifies patterns in how different groups of people use particular locations using surveys, remote sensing, and other techniques and then compares those patterns to patterns of settlement at other sites. Traded and other non-local items are useful when identifying multiple sites occupied by a single group at different times. For example, site surveys, some excavation, and ethnoarchaeology methods can be used to better understand how a hunter-gatherer group used a regional location in its seasonal rounds. All of these lines of evidence can be used by an archaeologist to determine if any and what type of social stratification was practiced by a particular group whose remains are being studied archaeologically.

Another approach used by archaeologists to analyze the social organization of a group is **burial analysis**, which examines human remains and analyzes the rank and status indicated by the grave goods that accompany them. They analyze the skeletons to reveal the age and sex of the individuals when they died, their causes of death (e.g., disease, dietary deficiencies), and whether the remains were buried individually or communally. Sex and age differences contribute to determining potential differences in wealth and status. If, for example, only some older adults were buried with status goods, archaeologists interpret those burials as reflecting achieved status, a marker of an egalitarian society. Status goods sometimes found buried with children and babies point to ascribed status, indicating a stratified society.

Monuments and public works are particularly useful when analyzing the type of stratification present in a society. The size, spacing, and construction requirements associated with public works such as roads, irrigation systems, earthen works, monuments, and large-scale buildings tell us a great deal about the social structure of the society that produced them. The larger and more involved the project, the more hours of labor required to construct it. Thus, large-scale projects require a greater level of social and political organization. The Great Wall of China, for example, represents

multiple generations of labor organized during a series of dynasties spanning 2,000 years. The oldest sections cover more than 13,000 miles, representing the labor of at least 400,000 people, many of whom died from the harsh conditions experienced during construction.

Naturally, a society's **historical records** (if available) provide important information about the social structure at the time. The ancient Egyptians and the Chinese during some of the earliest dynasties kept detailed records of family lineages and individual families' ties with past leaders. Other cultures have recorded business transactions, taxations, literature, and laws. Of course, many cultures did not keep written records, and many of the records that were kept were lost to time or poorly preserved. Inscriptions in clay and on stone buildings and stelae (inscribed upright stone markers) can potentially survive, but records made using papyrus and other perishable organic materials are only rarely preserved.

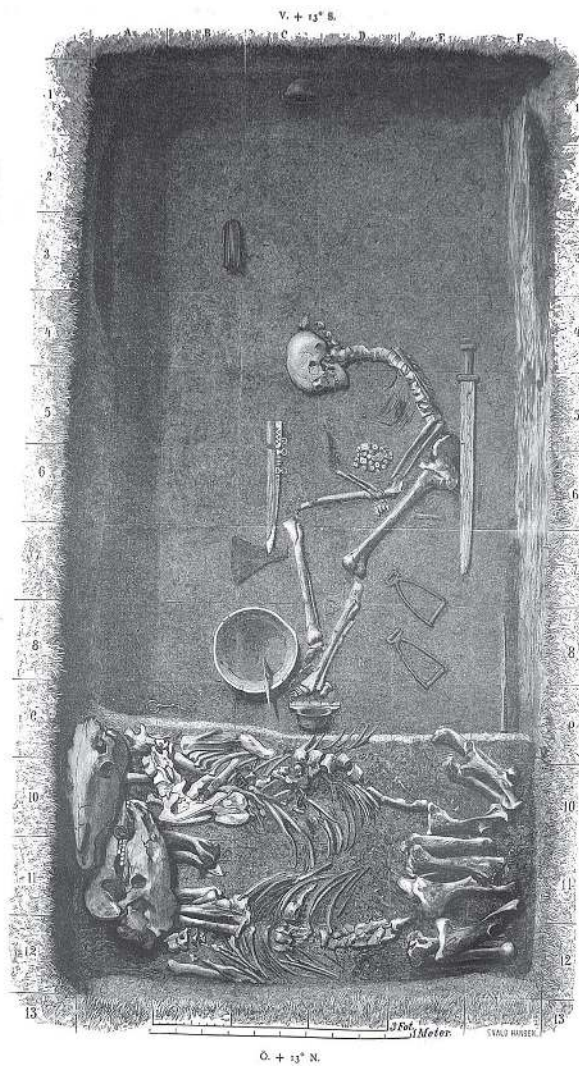
OTHER TYPES OF SOCIAL ANALYSIS

Ethnicity—one's membership in a particular cultural group defined by language, religion, and other cultural traits—can be challenging to identify in the archaeological record. One indicator archaeologists use is distinctive styles of pottery and other materials. For example, excavations in one section of the Mesoamerican city of Teotihuacan have uncovered distinctive pottery styles and burial practices associated with the Zapotecs in Oaxaca. Archaeologists believe that this site reflects a community of Oaxacan Zapotec immigrants living in Teotihuacan. Much of the information discovered so far about ethnicity has come from written records. But even when documents remain, it is difficult to infer much about people's ethnicities and potential differences in their social status unless there is some kind of obvious separation as there is in Teotihuacan.

Gender analysis is used by anthropologists and archaeologists to understand the social and cultural *roles* and relationships assigned to biological **sex** (male, female, and sometimes other sexes). We can often infer more about gender roles than about ethnicity from documents and representations of daily life and rituals for some ancient cultures, but much of that information is not preserved. Like other similar cultural elements, gender is not well preserved in the archaeological record because it lived mainly in people's heads. Think back to our exploration of the ethnic groups and gender identities present in world cultures today. What aspects of those identities could be preserved for future archaeologists to discover and what types of sites would those archaeologists study? What kinds of evidence of ethnic and gender identities likely would not be preserved?

Despite the challenges associated with interpreting the archaeological record to understand ethnic groups and gender roles of past cultures, the potential discoveries are worth the effort and benefit from new technologies. A Viking burial that was first excavated in the 1870s was recently re-analyzed, and archaeologists discovered that a highly ranked warrior uncovered during those early excavations was not a man, as had always been assumed, but was a woman. None of the items in the burial were typically associated with women in Viking culture. Some have speculated that this grave points to a transgender warrior, but researchers have cautioned

against trying to interpret the site through such a narrow lens. Archaeologists recognize that gender roles within a culture are unique and that we cannot apply terminologies and categories from Western cultures to ancient civilizations.



Sketch of archaeological grave found and labelled "Bj 581" in Birka, Sweden, published 1889. (Source: Public Domain, Wikimedia Commons)

PUBLIC OUTREACH

Most of what people know about archaeology comes from popular media, namely the Indiana Jones franchise, which presents archaeological objects as treasure instead of considering their cultural significance. The search for treasure then becomes more of a hobby rather than an actual profession. People assume that what archaeologists do is dig around in remote areas of the world to find pretty items that will line the shelves of museums and private collections or be sold. Popular media emphasize the monetary benefits of artifacts which can lead to the destruction and unlawful looting of archaeological sites. It is rare that members of the public know what it is that archaeologists actually do and how they impact our day-to-day lives with the important research they conduct.

Even when people don't actually know what archaeology is, they still tend to think of it in a vague way as a "cool" profession. However, if someone were interested enough to read the research about archaeological discoveries, they would not likely understand what they read. Research papers use so much **jargon** that sometimes even archaeologists can't understand a research article outside their area of interest. *Public outreach is a practice of translation.* Archaeologists need to communicate with the public in terms they understand because they want to learn. If archaeologists don't help them, either they will become discouraged and their interest will wane or (worse) they will misunderstand the research, which could lead to negative consequences.

People are interested in understanding their place in the world, and archaeology can provide them with some of that context. The public is particularly interested in evolution because people are searching for the healthiest ways to live or are looking for justification for behavior. However, once they grab hold of an idea—such as the paleo diet—they tend to run with it, ignoring the fact that scientific discoveries are made every day that change our understanding of what we know. For example, although the paleo diet considers ingesting grain products to be blasphemous, recent evidence shows that hunter-gatherers of the Paleolithic were making bread-like products around 14,000 years ago. It is unfortunate that most evolutionary scientists have done nothing to correct popular misconceptions about nutrition. Instead, they respond with disgust and condemnation to public understandings of the paleo diet, despite the fact that some practitioners of that diet have reached out to scientists in an attempt to better understand their food practices and make sure they're being scientifically up to date. Like other anthropologists, archaeologists know that their understanding of the past is important, so why aren't they leaning into that, especially when others see the value of the information in their studies? People are interested in what archaeologists do and study, and they have an obligation to engage them in their work, especially when members of the public reach out to them.

Archaeologist need to engage in rigorous public outreach to correct misinterpretations of their field. How is anyone outside the field supposed to know what archaeologists do if they do not tell them in language a member of the public can understand?

There are many ethical considerations archaeologists must keep in mind when creating outreach materials to ensure they are doing things in a good way. Here are two of the most important considerations. First, keeping sensitive cultural material hidden. Personal anecdotes from community members may be too personally or culturally sensitive to share with a wider audience. To accurately determine what is or is not appropriate to share, archaeologists collaborate closely with the local community to get their feedback. Second, focusing on the people who created or used the material culture they're sharing with the public. A sole focus on the material culture of a site disconnects the artifacts from the community that produced them. Reducing people to their material culture relegates the ancestors to the past instead of acknowledging their active participation in the world today.

The Society for American Archaeology does not have a single definition of public outreach. Instead, it recognizes it as a collection of methods archaeologists use to engage the public in archaeological research and to create general public awareness of the field. Today, four different approaches to public archaeology have been identified: educational, public relations, pluralist, and critical. The educational and public relations approaches are based more on practice, and the pluralist and critical approaches are more theoretical. The **educational approach** aims to facilitate people's learning of the past via archaeological thinking and methods. The **public relations approach** works to increase the support of archaeology in contemporary society. The pluralist and critical approaches are more theoretical.

Archaeological education can occur both on and off site. Some organizations offer public dig days when members of the community can participate in an ongoing excavation, thus getting hands-on experience in archaeological thinking and methods.

The public relations approach aligns with the push for archaeological stewardship. In this approach, the wider community, not just archaeologists, participate in knowledge production and in protecting and showing reverence for a site. This takes the educational approach a step farther by fostering a stronger connection to and sense of responsibility for the site. Uncovering artifacts at a public dig adds to the knowledge we have about the site, but true knowledge production requires us to ask questions about and interpret the evidence.

The **pluralist approach** attempts to understand different types of relationships between material culture and different members of the public, which essentially means understanding who your public is and where they're coming from ideologically and the **critical approach** works to unsettle interpretations of the past as told by socially dominant groups, who typically have ulterior motives that socially subjugate another group by distorting narratives about the past. With this nuanced understanding of how people relate to museums, cultural institutions can better relate to a broader audience. They can choose communication methods that their target audience is comfortable with, they can offer content that the broader community (especially minority populations) can connect with, they can provide a welcoming atmosphere, and they can ensure that their spaces are comfortable and pleasing both visually and physically.

The fact is, archaeological sites around the world are in danger. This is important because **cultural patrimony** (the ongoing cultural importance of an artifact) and heritage tell us who we are and where we come from. This knowledge affects our world views and how we act, thus impacting both our present and our future. As natural resources decrease, scientists are increasingly looking toward the ocean for the mining of precious and non-precious metals, extracting aggregates, and producing marine-zone nonrenewable energy. On coasts, archaeological sites are threatened by rising sea levels, increasingly powerful storms caused by global warming, and anthropogenic transformations such as development, mining, and dredging. In war zones, cultural heritage is destroyed through bombing, the intentional destruction of cultural items in an attempt to wipe away an enemy's culture, and the creation of defensive

structures such as trenches. While the topic doesn't get much popular press, national and international cultural sites also face threats due to political decisions.

The loss of archaeological sites can cause irreparable damage to communities around the world. Without archaeological sites, oppressed peoples can be separated from their history and culture. History can be rewritten by the victor and groups may never learn the truth of where they came from. Such a loss can negatively impact the way people think about themselves. The loss of archaeological heritage can damage communities in many other ways. To exemplify the importance of archaeology and the need for public outreach, I will provide some examples of how the public communication of archaeology can significantly impact communities. I will discuss how learning from our past, telling stories, and correcting harmful narratives all contribute to the communities where archaeologists conduct their work.

Archaeology has a long history of focusing on the stories of rich, able-bodied white men in their prime. For many decades, the equally important histories of ethnic minorities, other genders, other age groups, and people with disabilities have been left out of the stories we tell about the past. This is problematic, because the exclusion of a group's past can lead to that group's subjugation by a dominant group. Today we realize that archaeology can be a useful way to challenge problematic narratives about the past. Sharing stories that have long been untold can help generate pride in a descendant community. Archaeology that gives underrepresented groups a tangible connection to their ancestors can go a long way toward building pride in those communities. Getting that message to a broader public beyond the descendant community can go even farther toward valuing the importance of the minority heritage.

For many decades, archaeology perpetuated **harmful narratives** about minority groups—stories claiming scientific basis for subjugation or behavior—but new research can help correct these misconceptions and reshape public understanding. One pervasive example is the belief that violence is an inherent human trait that drove our evolution and enabled anatomically modern humans to outlive Neanderthals, yet DNA evidence shows 1-4% Neanderthal ancestry in most people today, indicating substantial peaceful interaction rather than pure conflict, and archaeological evidence reveals very little violence in the deep past—a fact poorly communicated to the public who instead rely on media narratives that dangerously justify wars and harmful acts. Similarly, **pseudoarchaeological** shows like *Ancient Aliens* promote the false claim that Indigenous communities lacked the capability to build monumental structures, attributing them instead to extraterrestrial intervention, which portrays these cultures as inferior despite archaeological evidence demonstrating their sophisticated mathematical and engineering knowledge. Effective public outreach sharing corrected archaeological narratives can challenge these harmful beliefs and help people recognize the advanced skills of past cultures while understanding their own place in the world more accurately.

Archaeologists depend on external funding since university departments rarely provide internal support, making it essential to

write grant proposals accessible to non-specialists at funding agencies and to engage local communities who can provide resources, volunteer labor, and valuable input—especially when working on descendant community lands. Because archaeology is highly specialized, with researchers focusing on specific materials or methods, projects require collaboration with experts from chemistry, geology, genetics, geography, botany, and other fields, which is facilitated by communicating beyond traditional academic audiences. Public outreach thus serves multiple purposes: educating the public about archaeological findings, securing necessary funding by demonstrating relevance to broader audiences, and building interdisciplinary teams that enhance research quality through diverse expertise and perspectives.

Today, the ways archaeologists can engage with the public can be divided into three categories: traditional media (print, audio, and visual forms), online digital content, and interpersonal or interactive learning experiences. Archaeologists must keep in mind what kind of demographic they want to reach when they choose which method of communication is best suited for their project. Furthermore, each of these categories of communication has different levels of accuracy, access, and effectiveness that need to be taken into account when planning public outreach. In this section, I will describe some specific avenues of communication within each broad communication category and discuss some considerations, limitations, and benefits of each method.

Traditional media like print—including books, newspapers, and magazines—has traditionally been the primary and most credible means of conveying archaeological information due to rigorous editing and peer review, though content quickly becomes outdated and academic journals remain locked behind expensive paywalls that limit public access, despite platforms like Academia.edu and ResearchGate offering some relief. Different print formats serve varying levels of interest, from brief newspaper highlights to in-depth journal articles, making print communication adaptable to diverse audiences. Television and audiovisual media can reach far larger audiences than books and are particularly effective for visual learners, though streaming services have increased competition for viewers' attention, and producers often demand sensationalized content over educational rigor, leading to shows like *Ancient Aliens* overshadowing quality programs like PBS's *NOVA*. Recently, archaeological podcasts hosted by archaeologists have emerged as an increasingly popular medium that transforms traditionally dry information into engaging, accessible conversations for both novices and professionals, with networks like the Archaeology Podcast Network offering diverse content that requires active seeking but demonstrates archaeologists' growing embrace of new communication platforms.

Traditional media's primary drawbacks—difficult technical language and dry presentation—have led some archaeologists to advocate for **hard archaeological fiction**, which imaginatively reconstructs the past based on rigorous research. Jean Auel's *Earth's Children* series, which sold over 15 million copies worldwide, exemplifies this approach by portraying Paleolithic life and controversially imagining Neanderthal-human interbreeding decades before DNA evidence confirmed it, demonstrating fiction's power to envision

past social realities that differ radically from our own. Fiction serves as a methodological tool that helps archaeologists escape their own biases, since our understanding of the past is hindered more by contemporary knowledge systems than by fragmentary archaeological data, and it communicates to readers that archaeological interpretations are fluid and subject to change based on new discoveries. Unlike traditional science communication that presents findings as definitive—leading to public mistrust when research conclusions shift—hard archaeological fiction naturally reflects the uncertainty, diverse interpretations, and "ifs and buts" inherent in archaeological work while promoting cross-cultural empathy and appreciation for the discipline.

Online digital content, designed specifically for the internet, shares benefits and drawbacks with traditional media but uniquely brings higher education to people who otherwise couldn't access it, offering global perspectives beyond local contexts taught in schools and museums, with the advantage of easily updated information and quick responses through forums and webinars that enable direct engagement with larger audiences than print publications reach. Social media platforms like X facilitate public engagement through hashtags that allow users to follow archaeological topics and real-time updates, while Facebook's group-oriented structure limits archaeological content to members of relevant groups or their friends, resulting in more restricted engagement. However, digital content faces two major challenges: the overwhelming abundance of blogs, websites, articles, and platforms requires users to actively search for and verify credible information, and unequal internet access—made starkly visible during the COVID-19 pandemic—excludes many people from participating in online learning and engagement with archaeological content.

Community involvement in archaeological projects is one of the most effective forms of public engagement because it provides tangible connections to the past, gives participants an active role in knowledge production, generates a sense of ownership that fosters further interest and support for historical preservation, and makes archaeology "real" for people who typically don't know what archaeologists do or have never met one. **Interactive outreach programs** like the USDA Forest Service's Passport in Time, which enlists volunteers for cultural heritage management activities including survey, excavation, restoration, and oral history collection under the guidance of professional archaeologists, ensure that accurate and contemporary information is shared through active learning experiences. However, interpersonal and interactive learning is limited by its requirement for in-person participation, meaning outreach primarily occurs near museums or universities and excludes those unable to travel, so while these programs profoundly impact participants, they reach only a relatively small number of people.

No matter what format an archaeologist chooses, they need to **create a story**. People become more engaged in archaeological information if it is relatable and easy to follow. Making the information relatable is by far the most important part of public outreach. People find it easier to connect when archaeologists share human case studies. That is why it is important to bring the human element into any discussion of material culture. This can be accomplished in a

vignette based on archaeological evidence or by making the archaeologist the main character—taking nonspecialists on the journey of discovery and interpretation with the archaeologist. Each method—traditional media, online digital content, and interpersonal/interactive learning—has pros and cons and each needs to be tailored to a particular audience. Regardless of which method the archaeologist chooses, using a story format is a great way to engage nonspecialists.

DESCENDANT COMMUNITY VOICES

Descendant communities are among the most important resources for archaeologists understanding the past, as the interplay between archaeology and historical memory requires archaeologists to acknowledge multiple, possibly contradictory narratives held by publics with personal connections to archaeological sites and events, which in North America means expanding consultation to include the many communities impacted by excavation and study. Archaeology's focus on particular places and communities makes it especially valuable for understanding localized production, power dynamics within small groups, and addressing research questions specific to communities' own histories, with potential themes including revisions of the historical record, community-based research, and the archaeology of confinement.

Projects like the African Burial Ground, which reveals both general health impacts of enslavement and the specific story of one of North America's first African American communities, and Japanese-American internment camp archaeology demonstrate how involving descendant and living communities makes archaeological findings more useful and important by uncovering stories absent from written records—stories of common people like later European immigrants, enslaved Africans, and Asian-descent North Americans historically excluded from dominant narratives. Developing avenues in historical archaeology now include addressing localized contemporary problems like housing insecurity, where archaeological methods help craft solutions tailored to each population's unique geography, history, and economy.

Native North American communities are integral to archaeological projects, with collaborative efforts. In New England, examining reservations among tribes like the Eastern Pequot, Mashantucket Pequot, Mohegan, and Narragansett, demonstrating positive relationships between archaeologists and Tribal officials. Examples include the Mohegan Archaeological Field School directed by Craig Cipolla and the first Mohegan THPO James Quinn, which operates under Tribal authority and focuses on current Tribal needs like training descendant community members in heritage preservation, and the Eastern Pequot Archaeological Field School, whose collaborative research has shown that even European-made artifacts found on reservation sites should be considered Indigenous rather than Euro-American. Research programs like "Project 400" in Plymouth, Massachusetts have reexamined colonial-era sites to broaden focus from Pilgrims to include Native ways of life throughout colonization and the strategic motivations of both Indigenous groups and European settlers. In the Upper Midwest, collaborative archaeology includes work with tribes like the Ho-Chunk Nation in Wisconsin, where archaeologists partner with

Tribal Historic Preservation Officers on projects examining effigy mounds and historic village sites, ensuring that research questions align with tribal interests in cultural preservation and that sacred sites are protected according to tribal protocols. On the West Coast, collaborative projects include the Pimu Catalina Island Archaeology Project, which examines historic-era Tongva community connections while introducing students to Tongva cultural beliefs and deep history, and the Kashaya Pomo Interpretive Trail Project, which combines archaeological data with Tribal narratives to tell Kashaya Pomo history from time immemorial to the present while serving as a cultural program for tribal youth to reconnect with their homeland through research designs that integrate Kashaya values and cultural protocols.

Canada, Mexico, and the United States all utilized education to assimilate Indigenous peoples, with Mexico's system beginning only in 1926 and proving least destructive by applying standard curricula without the genocidal programs of boarding schools in the U.S. and Canada's Residential School System, which systematically disempowered Indigenous groups to force assimilation into white European-descent national identities. Archaeological investigations at these institutions, including Owen Lindauer's work at Phoenix Indian School and Sarah Surface-Evans's excavations at Mount Pleasant Indian Industrial School, reveal how students used material culture found in trash mounds to resist assimilation, how they negotiated retaining their own culture while navigating white American culture, and how gender-based spatial restrictions shaped their daily experiences, with more recent collaborative work at Stewart Indian School in Nevada involving tribal members in developing research plans. In Canada, ongoing excavations as part of national reconciliation efforts have examined sites like the Mohawk Institute, where archaeologists studied building graffiti and materials hidden in walls to understand students' experiences, while current work employs noninvasive techniques like ground-penetrating radar to locate graves of Indigenous children killed by the residential school system, representing a professional move to integrate First Nations values into Canadian archaeological practice.

Another important community to involve is **the descendants of the African Diaspora** (the global dispersion of African peoples due to historical forced migrations, primarily the transatlantic slave trade). Involving descendants of the African Diaspora is crucial to historical archaeology, though not all projects began with positive relationships, as exemplified by New York City's African Burial Ground, where the local African American community learned of excavations only after fieldwork began, creating tensions and media scrutiny that made the project emblematic of conflicts between archaeologists and descendant communities. When African American bioarchaeologist Michael Blakey took over the project, he invited descendant community members—who are the cultural and spiritual descendants of those buried there—to shape future research, leading them to pose questions about the origins of the buried population, construction of African American identity, quality of life under enslavement, and instances of resistance, which significantly changed the nature of historical archaeology and scholarly engagement with the African Diaspora. At James Madison's Montpelier, the African American Descendants' Project exemplifies

collaborative research by creating bridges to living descendants of enslaved individuals who participate in documentary research and archaeological excavation while providing valuable knowledge, such as when descendant community members helped interpret an excavated quartz crystal as a marker of spiritual protection, leading descendants to later place a representative crystal in the foundation of a reconstructed slave quarter. Resources like the Digital Archaeological Archive of Comparative Slavery now aggregate archaeological data to allow researchers to examine how enslavement of African people in North America varied across space and time, demonstrating how incorporating diverse perspectives, theories, and abilities helps us better understand the past.

One of the earliest undertakings of historical archaeology of North America has been understanding the **Anglo-American communities** on the continent, and none have been more important than the discovery of the archaeological remains of Jamestown. Although now there is archaeological evidence for Vikings at L'Anse aux Meadows, historical evidence for the Roanoke colony, and archaeological evidence for a Spanish Fort in the same area, Jamestown continues to fascinate American archaeologists in particular because of the importance it holds in the national narrative of the United States and the English colonization of the continent. With preservation of early settlement sites perpetuating cultural mythologies as shrines to the nation's roots and encouraging patriotic fervor, continued research uncovers complex histories that challenge these mythologies. Initially, Jamestown archaeology bolstered ideas of individuality and the Protestant work ethic as the historically documented settlement was uncovered, but ongoing excavation revealed evidence of starvation, cannibalism, and constant supply replenishment from British ships, demonstrating that "hard work" alone was insufficient against extreme conditions and a powerful Native American population. Research showing that European copper plates were used as bartering materials with Algonquian-speaking people, for whom copper was an important prestige item, suggests the colony's enduring establishment depended on the Native American population rather than Anglo-European labor alone, challenging the nationalist origins the site supposedly upholds and demonstrating how descendant communities and archaeological evidence can reshape interpretation of historically significant sites.

The growth of industrial capitalism in 19th-century America created opportunities for archaeologists to investigate technological innovation, profit-making, and workers' living conditions through material culture, particularly as the construction of the Transcontinental Railroad (completed in 1869) transformed the American market economy and displaced Indigenous peoples in the West while enabling mass-produced goods to replace small independent production. Archaeological research on railroad work camps has illuminated the daily lives of immigrant laborers, particularly Irish and Chinese workers, revealing not only harsh working conditions but also workers' efforts at self-care and "respectable masculinity" through artifacts like hairbrushes, combs, and dental care items. In Manhattan's Five Points neighborhood, a vibrant multiracial, multiethnic community of African American, Euro-American, Irish, and German workers emerged amid 19th-

century industrial expansion, and archaeological excavations in the late 1990s uncovered evidence of diverse cultural practices, including a Jewish kosher home using distinct dishes for meat and dairy, an Irish tenement with tea sets and ale bottles, and a brothel where German families lived alongside sex workers, collectively telling "a story of New York becoming itself."

Archaeological work with **European immigrant descendant communities** has proven particularly meaningful, as demonstrated at Portsmouth, New Hampshire's Strawberry Banke Museum, where the 1790s Shapiro House interprets the 1919 daily life of a Jewish Ukrainian immigrant family whose relatives provided oral testimony, photographs, and material records that shaped the interpretive plan and household furnishing based on excavations from the family's 1909-1928 occupation. In 2014, archaeologists at Strawberry Banke uncovered a community mikveh (ritual bath) described in oral histories, which had been built in a house owned by Temple Israel for the rabbi but was later sold, made inaccessible to the Jewish community, and nearly forgotten after the house was demolished during mid-20th-century Urban Renewal, with the discovery of the mikveh floor and hundreds of white glazed brick fragments providing material evidence of an important historic practice that proved deeply meaningful to the local descendant community and current Temple Israel congregation.

Asian descent communities have been present in North America since the 16th century, though often ignored in historical narratives, and archaeological research on these populations greatly benefits from descendant community voices and firsthand accounts that personalize history, make archaeology more relevant, inform analysis, strengthen understanding of the past, and increase community support for projects. Following the Pearl Harbor bombing, individuals of Japanese descent were forcibly removed from the West Coast of the United States and British Columbia, Canada, and incarcerated in detention centers, work camps, and concentration camps from 1942 until 1945-46 (with Japanese Canadians barred from coastal areas until 1949), a removal driven not only by wartime espionage fears but by underlying racism and contested concepts of American identity. The Amache Community Archaeology Project exemplifies the value of incorporating descendant voices through biennial field schools where faculty, the National Park Service, students, volunteers, former internees, and descendants work together, with community members providing firsthand accounts and invaluable memories that help others understand the incarceration experience while archaeology reveals new information that fills missing pieces of the past, since first-generation Japanese immigrants rarely spoke about their confinement after the war, creating a symbiotic relationship that enriches the project by informing archaeologists what matters to the community and guiding research questions.

Archaeological excavations at Japanese incarceration centers in Canada and the U.S. combine archaeological data with oral histories and archival material to focus on three research themes: understanding daily life within these institutions, examining how cultural identities were expressed through material artifacts, and analyzing landscape modifications, with internee communities responding to forced incarceration through social organizations and

extensive gardens built from found objects and scavenged construction materials that blended traditional Japanese and Western styles to transform barren desert landscapes as coping mechanisms. Evidence of cooking and cultural items like rice bowls indicates how the incarcerated navigated institutional settings to demonstrate and maintain ethnic identities, while the presence of American cultural icons like Mickey Mouse toys reveals the American identities of the incarcerated and the complexity of national identity, with combined landscape studies and artifact analysis reconstructing how the incarcerated navigated daily life as their American-ness was contested.

Currently, few projects focus on the historical archaeology of Latina/o, Chicana/o, and **Hispanic communities** as distinct from their Spanish colonial ancestors, though archaeologists are beginning to investigate this heritage alongside descendant communities by drawing on community archaeology developments that emphasize consultation and inclusion, such as ongoing research in New Mexico where local community members participate in excavation and survey while archaeologists respond to community requests for investigating particular topics and hold regular town hall meetings to gather feedback on research design, interpretation of findings, and the storage and curation of archaeological data to ensure it benefits those communities. Significant diversity exists in North American Hispanic communities' histories due to division between Mexico and the United States, each bringing distinct complications, and because Spanish colonization endured so long across vast distances that current communities' relationships to the past and their heritage are closely tied to specific contexts and may differ dramatically from one another, making it essential for archaeologists to understand these regional formations through material evidence and compare the diversity of Spanish colonial heritage across North America.

The technical definition of archaeological resources in the United States includes "material remains of human life or activities which are at least 100 years of age" (Thomas F. King, *Cultural Resource Laws and Practice*, 1998, p. 252); however, the entire 20th century was transformative for the people of North America and the archaeological record. War, changing economies, and migrations altered the material and social landscape of the continent. Large-scale transportation networks and the mass production of consumer goods changed the way people understood the landscape and material culture and conversations about **identity** at regional and national scales coalesced. These mass movements allow **historical archaeology** to look at the marginalized groups who tested these ideas of national identity. Specifically, archaeology has allowed us to explore the changing lives of Native American children and Japanese citizens interned during the Second World War through their use of material culture and the archaeology of transportation has allowed us to explore the alteration of our national landscape almost to the present.

One of the most important ongoing archaeological projects concerning **immigration in North America** is the Undocumented Migration Project, directed by Jason De León and collaborators, which examines the material culture of undocumented migrants from Northern Mexico into Southern Arizona, demonstrating how

archaeological methods remain relevant to current issues of economics and migration by exploring not only the pathways migrants take but also folk beliefs surrounding desert crossings and the community economies built upon this migration industry. With strict border controls, the United States has prioritized removing undocumented migrants and using the desert as a deterrent, inadvertently creating a unique disposable material culture industry in Mexico that standardizes the materials migrants carry, embodying folk beliefs about successfully traversing the desert—items that often make migrants easier to spot or negatively impact their journey, demonstrating how form and function are not always executed for maximum efficiency and providing an excellent case study of how folk beliefs influence material culture. This project effectively demonstrates that historical archaeology principles can examine contemporaneous material culture and contribute significantly to broader political and national conversations concerning migration, challenging dismissals of such work as mere "garbology" rather than legitimate archaeology.

Archaeological projects have created more theoretically robust frameworks for exploring **everyday lives of diverse peoples**, though serious collaboration with descendant communities has only recently become integral to a field still largely dominated by white voices in North America, while growing focus on the lives marginalized people is ascendant as archaeology becomes more open and diverse through inclusion of Black, Indigenous, and other people of color, as well as disabled people and LGBTQIA2S+ community members, promising a narrative that reflects the diversity always present on the continent. Race and ethnicity have become major research areas, with historical archaeologists developing theories for understanding cultural contact in colonial situations, asking how European arrivals influenced Indigenous material culture, how isolated European populations were affected by surrounding Native groups, and how diverse enslaved African peoples adapted their customs in polyethnic plantation settings, leading to intersectional frameworks including creolization, hybridity, metissage, and ethnogenesis that explicitly address North America's historical context and the plethora of cultures influencing material culture across the continent. Indigenous archaeology as both a topic and theoretical framework expanded in the 21st century, rejecting the historic/prehistoric divide and applying similar explanatory methods to all sites as part of ongoing efforts to decolonize archaeology by acknowledging archaeologists' colonial power over Indigenous groups, prioritization of Western over Indigenous ways of knowing, and actively collaborating with Indigenous groups to dismantle oppression. Whitney Battle-Baptiste's *Black Feminist Archaeology* represents an explicitly **intersectional** theoretical perspective that acknowledges how archaeologists themselves construct archaeological narratives, exploring how the researcher's background impacts their work through self-reflection that recognizes archaeologists as makers and creators of interpretation—a vital new aspect of intersectional perspectives acknowledging how who we are as archaeologists influences the questions we ask, how we understand the world, and what we know.

LEGAL-ETHICAL CONSIDERATIONS

The sections above offer many considerations related to the moral and ethical considerations archaeologists must keep in mind as they go about the archaeological research process. In addition, there are many **legal** aspects of archaeological work. Laws governing how, when, where, and with whom archaeologists can do certain types of work exists across levels of government from local ordinances to international agreements. As we saw above, through land development, intensive agriculture that clears forests with heavy machinery, tourism, and exposure, we are destroying archaeological remains and examples of **cultural heritage**—expressions of how societies live or lived, including their homes and cities, customs and practices, utensils and art, and ethics and values that represent a legacy of a particular group. Warfare also destroys archaeological artifacts and living cultural sites by damaging and destroying important monuments and symbols and by leaving museums and archaeological sites unprotected from looters.

Generally, people agree that national and regional governments have a responsibility to protect cultural heritage sites and artifacts from being destroyed. However, the 1954 **Hague Convention for the Protection of Cultural Property in the Event of an Armed Conflict**, which was intended to protect and potentially prevent such destruction globally, has yet to be ratified by the United States and the United Kingdom. Additionally, the United States has enacted several laws designed to allow for protection of cultural artifacts, but the laws mostly do not establish any *process* for preservation and protection and, therefore, provide no clear consequences when resources are damaged or destroyed.

Here are a few examples of U.S. legislation which impacts the work of archaeologists. The **Antiquities Act** of 1906 authorized the president to declare historic landmarks, historic and prehistoric structures, and other objects of scientific interest as national monuments, explicitly establishing the importance of archaeological sites on public land in the U.S. legal code. The **National Historic Preservation Act (NHPA)** of 1966 intended to preserve historic and archaeological sites on public lands. Two key sections of NHPA are 106 and 110. Section 106 established that when any money for a project comes from the federal government, builders and developers must determine if old things (archaeological) are present at the building site. When archaeological remains are found, they must do something about them (survey, inventory, and/or preserve) to retain federal funding for the project. Section 110 says that individuals who work for federal agencies are responsible for checking for, evaluating, and protecting historic remains on the land they manage. The **National Environmental Protection Act (NEPA)** in 1969 similarly set national policy of protecting the environment that requires proposed actions funded by the federal government to evaluate both natural and cultural resources. Ten years later, the **Archaeological Resources Protection Act (ARPA)** (1979) was enacted after the Antiquities Act of 1906 was determined to be unconstitutionally vague. ARPA requires that archaeological sites be protected and governs excavation of archaeological sites on federal and Native American lands, including requiring permits that protect cultural and historic resources, and prohibits interstate and international sales of artifacts.

Most recently, in 1990, Congress passed the **Native American Grave Protection and Repatriation Act** or **NAGPRA**. You will often hear this act referenced by archaeologists. NAGPRA established precise rules and responsibilities when Native American burials and other items associated with a Native American burial are found through excavation and are housed in museum and university collections. Notably, NAGPRA set into law requirements for the repatriation of human remains, funerary objects, sacred objects, and objects of cultural patrimony to their lineal descendants or culturally affiliated tribes.

In addition to numerous laws they must follow, archaeologists face many ethical dilemmas in their work. A **code of ethics** is a written statement of ethical guidelines for groups, organizations, and individuals in their professional occupations. The field of archaeology has established three primary levels of codes of ethics that have unique benefits and limitations. The highest-level codes are the ones adopted by **professional organizations** such as the Register of Professional Archaeologists (RPA). The RPA's standards of conduct provide for a grievance process and clear ways of enforcing those standards within its ranks, including censure. The weakest level of codes are **general statements** of goals, principles, and responsibilities adopted by organizations such as the Society for American Archaeology (SAA). SAA has drafted sweeping principles of desired behavior by archaeologists that include things such as accountability and stewardship but do not establish consequences for individuals who do not follow the guidelines.

CONCLUSIONS

The evolution of archaeological practice—from treasure-hunting antiquarians to today's collaborative, ethically-grounded researchers—reflects a fundamental transformation in how we understand both the past and our responsibilities to it. Modern archaeology recognizes that excavation is simultaneously an act of discovery and destruction, making meticulous documentation, thoughtful interpretation, and genuine partnership with descendant communities not merely best practices but ethical imperatives. The shift from viewing artifacts as decontextualized objects to understanding them as pieces of human stories embedded in complex relationships has revolutionized the field, while advances in technology—from GIS mapping to ground-penetrating radar—have expanded archaeologists' ability to study the past with minimal invasiveness. Yet technology alone cannot address archaeology's most pressing challenges: the need to amplify marginalized voices, correct harmful historical narratives, and ensure that research serves communities rather than exploiting them.

As archaeology moves forward, the field must continue grappling with its colonial legacy while embracing its potential to foster understanding across cultures and time. The work of archaeologists extends far beyond excavation units and laboratory analyses; it encompasses public education, policy advocacy, and the protection of irreplaceable cultural heritage threatened by development, climate change, and conflict. By engaging diverse audiences through multiple media—from peer-reviewed publications to social media, from museum exhibitions to community field schools—archaeologists can combat pseudoarchaeology, challenge

misconceptions, and help people understand their connections to the past. Ultimately, archaeology's greatest contribution may not be the artifacts recovered or the chronologies established, but rather the insights gained into human adaptability, creativity, and resilience across millennia—lessons that remain profoundly relevant as contemporary societies navigate their own challenges and shape the archaeological record future generations will inherit.

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CHAPTER OVERVIEW

5: LINGUISTIC ANTHROPOLOGY



Figure 6.1 Family members gather at a sweet potato festival in Gushegu in northern Ghana. This highly social event brought together families, farmers, chiefs, and community members to celebrate the harvest of sweet potatoes. (credit: Official photographer of the US Embassy in Ghana/USAID in Ghana/Wikimedia Commons, Public Domain)

Talk, talk, talk. As human beings, that is what we do all day (and sometimes all night). Even when we are alone, we might be listening to the radio, watching a video, reading, or texting—all activities that incorporate language. **Language** is often considered to be one of the quintessential elements of humanity, key to our social interactions and cultural development. No other animal does it the way we do. A few apes have been taught words in sign language, mainly using simple word combinations to ask for particular treats or desired activities. Is that anything compared to what we do with language?

Consider a situation from the author, Jennifer Hasty's own fieldwork.

While conducting research in Ghana, I once attended a large family gathering to honor the birth of a child, an event called an “outdooring.” After everyone had arrived and socialized a bit, a middle-aged man stood up and took the microphone in his hand to pour libation. Libation is the ritual offering of drink to the ancestors, welcoming them to the ceremony and asking for their blessings. As he took the cup in his hand, he surveyed his audience, then stopped short, appearing extremely embarrassed. Looking down at his feet, he sputtered, “Oh! When the tongue is present, the teeth do not make noise.”

Everyone laughed. It was a proverb I’d heard before, but I had no idea what it meant in this context. The speaker stepped aside as an even older man rose from a table at the edge of the gathering and slowly made his way to the microphone. The first speaker had assumed he was the eldest member of the family present at the gathering, but in fact, his older brother was there. By the rules of seniority, it was the older brother who should present the libation.

What did the proverb mean in that situation? In most cultures, people do not usually explain proverbs, so the listener has to piece together the meaning. In this case, the proverb was used metaphorically to compare the production of words in the mouth and the roles of the people involved in this particular performance of libation. The nimble tongue is central to human speech, while the teeth play a more fixed and supportive role, providing surfaces used by the tongue to make certain sounds. Alone, the teeth can only clash against each other meaninglessly. A tongue is needed to produce speech. Using the proverb, the first speaker was comparing his elder brother to the tongue—he was more central to the gathering and more proficient in the production of ceremonial speech such as libation. The younger man assigned himself the role of a tooth, only able to make noise rather than ceremonial speech.

In humans, language has developed into an extremely complex feature of sociocultural life. Just as the tongue is central to the production of human speech, language is central to the production of human culture. The subfield of linguistic anthropology examines the role of language in sociocultural life. Linguistic anthropologists are interested in how language affects our thinking and our experience of the world around us. Some explore the different categories of formal and informal speech that people have developed to organize rituals and ceremonies as well as everyday activities. Others listen carefully to various kinds of conversation, looking for patterns in the way people interpret and build on one another's speech acts.

The discipline linguistics is devoted to the study of language. Linguistics is the science of language, including subfields devoted to speech sounds, word forms, word arrangement, meanings, and practical language use. One subfield of linguistics, sociolinguistics, examines the social context of language use, such as how language varies according to age, gender, class, and race. While sociolinguistics and linguistic anthropology share an interest in the

social side of language, linguistic anthropologists tend to focus on language as an aspect of larger cultural processes. Rather than looking at language as a sole object of study, linguistic anthropology studies language as one cultural element among many, all interwoven into the sociocultural life of a people.

[5.1: Language and Society](#)

[5.2: Language Change and Digital Communication](#)

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5.1: LANGUAGE AND SOCIETY

THE EMERGENCE AND DEVELOPMENT OF LANGUAGE

There are some seven thousand languages spoken in the world today. Most people are proficient in at least one of them, possibly more. But people are biologically capable of mastering any of them, and have been since birth. Humans are born language ready. For a human baby, any language will do. With passive exposure to language (simply hearing it without any formal instruction), human toddlers learn the complex rules and vast vocabularies of the language spoken (or signed) around them. This astounding feat is made possible by specific biological features in the brains and bodies of human babies, features designed to help them understand and produce language. The learning of language then triggers further changes in our brains, making possible certain kinds of reasoning and thought as well as communication with others.



When teaching language to their children, some parents teach signs (such as those of American Sign Language) as well as spoken words for objects. The theory is that sign language and spoken language are processed in different parts of the brain. Teaching these two forms of language together may provide deeper cognitive reinforcement and greater chance of recall. This baby is making the sign for “bird.” (credit: “Bri signs ‘Bird’” by Bev Sykes/flickr, CC BY 2.0)

Drawing on biological and archaeological evidence, researchers seek to understand how, why, and when humans developed the biological features associated with language and, once language emerged, how the practice of language changed the way of life of early humans. Language became a building block for human culture of increasing complexity. Innovations such as stone tools, hunting, and using fire for heat and cooking were made possible by language. In turn, these new skills enhanced the survival of those who practiced them, increasing the likelihood that those people would live to pass on their genetic makeup to their offspring. This means that certain biological features were key to the invention of human culture and that human culture was key to the biological development of humans. We think of this as a reciprocal system of biocultural coevolution. Put another way, biology and culture developed in tandem, with language as the link between the two.

No one really knows when or how humans invented language. The problem is that language, whether spoken or gestural, leaves no direct trace in the archaeological record. Lacking direct evidence, researchers must be creative, combining various indirect forms of evidence to suggest theories about how language may have begun in humans. Based on such methods, researchers think that language may have emerged between 50,000 and 200,000 years ago. The largeness of this window of possibility is due to the indirect nature of the evidence and a great deal of controversy about which elements may have been most important in the process of language development. In this section, we look at these forms of indirect evidence, starting with communication in the animal kingdom.

ANIMAL COMMUNICATION

All animals communicate with each other and even with other species (Tallerman and Gibson 2011). Many use vocalizations like calls, growls, howls, and songs. Many also use gestures such as dances, postures, and facial expressions. Some change the color of their scales, skin, or fur. Some produce strong-smelling body fluids sprayed in their environment or rubbed on their own bodies. All of these activities are used to tell other animals about territory, food sources, predators, and mating opportunities.



Canada geese fly in a V formation to conserve energy and to keep track of all the birds in the formation. Coordination and communication are essential for the group. (credit: “Canada Geese” by Alex Galt, US Fish and Wildlife Service/flickr, CC BY 2.0)

Many people might be tempted to think that animals speak to each other just as we do, that their various forms of communication are roughly equivalent to language. Does your dog bark and jump excitedly whenever you pick up the leash? Isn’t that a way of saying, “C’mon! Let’s go for a walk!”

Some forms of animal communication are fairly simple, such as this canine leash mania. Others are far more complex, such as the way an octopus can change the color of and patterns on its skin for hunting, courtship, and camouflage. Fireflies use bioluminescence to attract mates and as a defense mechanism. Some fish generate electric fields to advertise their species and sex. Many animals use a vast lexicon of postures and gestures to communicate messages to one another and even to other species. When a bird issues a predator-

alert call, squirrels respond as well. Many mammals pay attention to the predator warnings of birds.

Are these complex forms of communication equivalent to language? Take a closer look at one famous example of complex animal communication and compare it to human language.

A WAGGLE IS NOT A WORD: THE COMPLEXITY OF LANGUAGE

Consider the famous “waggle dance” of the honeybee. Upon finding a good source of nectar such as a grove of wildflowers, a worker bee returns to the hive and performs a special flight pattern consisting of a figure-eight waggle followed by a return loop alternating right and left. The direction and duration of the waggle communicate the direction and distance to the location of the desirable food source (Seeley 2010; Frisch 1993).

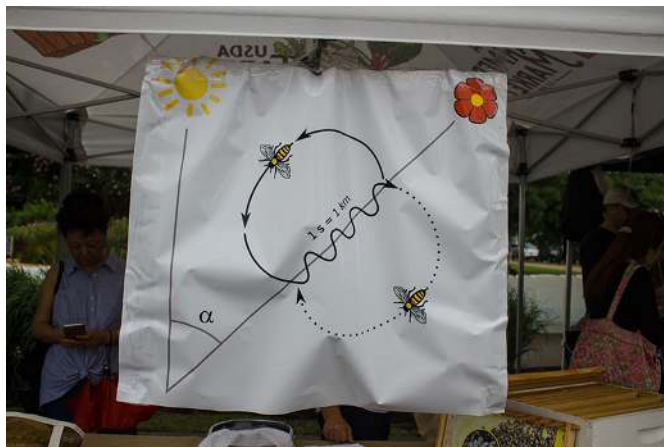


Diagram of the waggle dance of the honeybee. The movements performed by the bee during this dance communicate the direction of and distance to a food source to its fellow hive members. (credit: “20180622-FS-WashingtonDC-KTC-024” by Kelly Chang, US Forest Service/flickr, Public Domain)

The waggle dance is certainly a complex and effective form of communication, but does it qualify as language? **Communication** refers to the transfer of information from a sender to a receiver. Communication can be voluntary or involuntary, simple or complex. Language is a specific, complex, systematized form of communication involving the use of vocal or gestural units (words or signs) that can be combined and recombined in larger structures (sentences) that can convey an infinite array of complex meanings. Language is a form of communication. Not all communication is language.

Central to the infinite possibilities of language is a set of rules that govern just how sounds, signs, words, and phrases may be combined. These rules structure the order of words, dictating, for example, where to put subjects and actions in an utterance so that listeners will be able to find them. Rules also tell us whether words indicate a single thing or multiple things and whether actions occur in the past, present, or future. Complex forms of animal communication such as the waggle dance do contain some systematic rules governing the sequence, duration, and intensity of certain segments of the communication, but they are highly constrained to very limited contexts. For example, the waggle dance can be used to signal nectar sources near and far, but it cannot be used to discuss the weather or comment on the laziness of the queen.

Unlike the relatively “closed” systems of communication common among animals, human language is open-ended. Our languages have the distinctive quality of allowing actors to combine units in an infinite number of ways to produce new meanings.

SIMPLE SIGNS AND PANT-HOOTS: LANGUAGE IN PRIMATES

Biological anthropologists posit that we share a common ancestor with the other great apes (gorillas, chimpanzees, bonobos, and orangutans) about five to eight million years ago. As nonhuman primates do not produce language in the wild, the biological and cultural features that promoted language must have emerged after that. However, studies aimed at teaching human language to nonhuman primates have revealed that individuals of these species are able to master basic vocabulary and use simple words and word combinations to obtain the things they want. So the great apes must have some biological features that enable them to learn human language in a partial and limited way.

You may have heard of Koko, the gorilla famous for learning to use sign language. Sign language is used in such studies because nonhuman primates lack the distinctive vocal tract required to make the sounds of human language. Researcher Penny Patterson taught Koko to use about a thousand signs, roughly the vocabulary of a three-year-old child (Patterson and Linden 1981). Patterson reported that Koko could comment on things that were not currently present in her environment, such as personal memories. According to Patterson, Koko could joke and lie and teach other gorillas to sign. She could even invent new signs. Many of these claims are disputed by other researchers. Some point out that the evidence is largely anecdotal and relies on the interpretation of Patterson herself, hardly an objective observer. Though controversial, Patterson’s path-breaking work with Koko provided a wealth of data and opened up new possibilities for understanding the language abilities of nonhuman primates.



Koko learning to play the guitar. Koko became famous for learning to communicate with humans using roughly 1,000 signs taught to her by researcher Penny Patterson. (credit: “ODCnewBegin9” by FolsomNatural/flickr, CC BY 2.0)

Human-reared chimps, gorillas, bonobos, and orangutans have all been taught to use gestures or tokens to refer to things in the world around them, often combining those signs in a rule-based way to

make comments and requests. Even though many linguists are skeptical of these studies, the use of symbolic systems in cooperative interactions to achieve goals does seem to indicate that great apes have the basic capacity to generate some sort of protolanguage. **Protolanguage** refers to a very simple set of gestures or utterances that may have preceded the development of human language. But do apes display these abilities due to some innate capacity or because we have taught them symbolic systems? Perhaps learning a symbolic system has changed the brains of these individual animals in distinctive ways.



Chimpanzees use gestures and facial expressions as well as vocalizations to communicate with one another. (credit: "Chimpanzees" by foshie/flickr, CC BY 2.0)

Many primatologists conduct research on the vocal and gestural forms of communication used by primates in the wild, looking for those biological features that might underpin the human capacity for language. Wild chimpanzees, for instance, produce a wide range of calls, including hoots, pant-hoots, pant-grunts, pant-barks, rough-grunts, nest-grunts, alarm barks, waa-barks, wraas, screams, and soft panting play sounds (Acoustical Society of America 2018). Primatologists have listened closely to these calls. Some argue that chimp vocalizations are not much like human language, as calls are fairly fixed and limited in their meanings. Chimps may use a rough grunt to indicate a food source, but they do not seem to have specific grunts for specific food types. Monogamous pairs of gibbons, a smaller species of ape, are known to perform elaborate morning duets. Gibbons have an array of predator calls as well. Research comparing duets with predator calls suggests that gibbons compose their songs to convey specific information, each note carrying a certain meaning (Clark et al. 2006). While impressive, the ability to manipulate notes to convey a limited range of meanings is still a far cry from the infinite productivity of human language. The limitless recombination of signs that produces the flexible, open-ended quality of language is missing in the communication systems of wild primates.

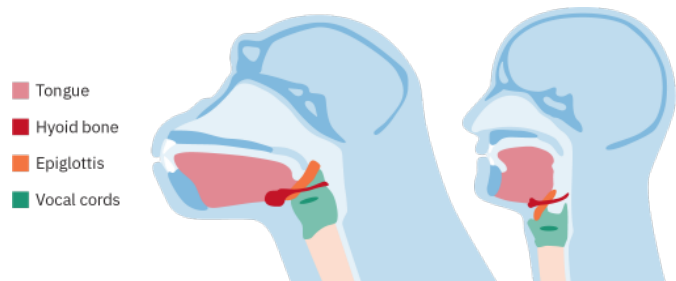
HUMAN BIOLOGY AND THE EMERGENCE OF LANGUAGE

There must be something special about us to make possible the distinctively flexible and open-ended communication system of language. Research has focused on our throats, our brains, and our

genes, looking for the biological features that allowed for the emergence of language.

THE VOCAL TRACT

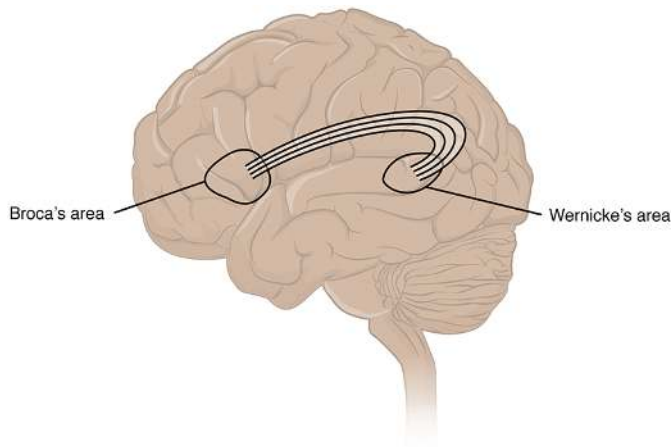
Humans have evolved a very unusual vocal tract with a descended larynx (otherwise known as the "voice box") and a large and rounded tongue positioned in the mouth to enable a remarkable array of sounds (Lim and Snyder 2015). Some researchers suggest that our throats may have evolved in response to walking upright or changes in diet or a combination of those two factors. Humans also have more deliberate control over breathing than nonhuman primates. In order to better understand when hominins developed this distinct vocal apparatus, researchers examine the hyoid bones of hominins to see if they resemble those of modern humans. The hyoid is a U-shaped bone in the human throat that helps us swallow and move our tongues. The few hyoids that have been found in the fossil record suggest that our distinctive vocal tract may have been developed around 500,000 years ago. This means that Neanderthals likely had the same vocal abilities as modern humans.



Evolutionary changes in the vocal tract enabled the development of spoken language in humans. The image on the left shows the vocal structures an early ancestor to humans. The image on the right shows the vocal tract of modern humans. The position of the vocal structures in the early ancestor allows for eating and breathing at the same time. The position of these structures in modern humans allows more sounds to be produced and more words to be spoken in sequence. (CC BY 4.0; Rice University & OpenStax)

BRAIN STRUCTURE

Several features of the human brain are considered prerequisites to language, including the overall (large) size, the division into specialized hemispheres, and certain structures like Broca's and Wernicke's areas. Broca's area is a region of the brain associated with the production of speech. Wernicke's area is essential to the comprehension of language. Both are most often located in the left hemisphere of the human brain (for left-handed people, both *can* be located on the right side). How did we acquire these brain features so essential to language? A great deal of controversy surrounds this question, as researchers debate when and how these structures evolved.



The locations of Broca's area and Wernicke's area in the human brain. Broca's area, responsible for the articulation of speech, is next to the motor area, where the movements of the body are controlled. Wernicke's area, associated with language comprehension, is situated beside the primary auditory area, where sounds are processed. (credit: "1605 Brocas and Wernickes Areas-02" by OpenStax College/Wikimedia Commons, CC BY 3.0)

Most recently, research has focused on "**mirror neurons**," special brain cells that seem to enable mimicry (Lim and Snyder 2015). Many researchers think that the ability to understand the actions of others and recreate those actions ourselves is a fundamental prerequisite for language. That is, in order to be able to talk to each other, early hominins must have been able to evaluate and interpret each other's actions and reproduce them in similar contexts. In primates like monkeys, scientists have discovered a system of specialized neurons called the "mirror neuron system" that enables primates to recognize and imitate actions. Monkeys and apes cannot talk, but they can recognize, interpret, and imitate actions performed by other primates. The neurological studies that revealed mirror neurons are too invasive to perform on humans, but neuroimaging studies suggest that a similar mirror neuron system does exist in humans.



Mirror neurons are most likely involved in the spread of contagious yawning. Mirror yawning happens between humans and can even happen across species. You can make your dog yawn! (credit: "Sleepy" by Toshimasa Ishibashi/flickr, CC BY 2.0)

Brain imaging studies on humans have located evidence for the mirror neuron system in a region of the brain close to Broca's area. So it is possible that the mirror neuron system inherited from primates provided a foundation for the later emergence of a brain

structure devoted to language production in hominins. If imitation and language are in fact connected in this way, then a system of gestures may have paved the way for the development of language. Some researchers now hypothesize exactly this: that hominin language evolved from a system of gestures to a system of vocalizations.

THE "LANGUAGE GENE"

In the late 1980s, medical researchers became aware of a particular speech disorder common among members of one family in West London. Many members of this family could not pronounce words. Many stuttered. Many had very limited vocabularies. Geneticists traced the disorder to a genetic mutation on chromosome number 7 of the human genome. The mutation was located on a gene named **FOXP2**, prompting some researchers to dub this "the language gene." Some hypothesize that FOXP2 may have played a role in the development of language in humans (Lim and Snyder 2015).

At first, researchers thought that only humans had the FOXP2 gene, but subsequently a form of this same gene has been identified in many vertebrates, including mice, bats, fish, and songbirds. In mice, the gene appears to be related to vocalizations. In birds, it seems to be linked to birdsong. All primates have FOXP2, but the human copy is slightly different than that of nonhuman primates. Some researchers think this mutation occurred around 260,000 years ago and may have enabled the development of spoken language in Neanderthals and *Homo sapiens*.

Other researchers are skeptical of the notion that one gene could be responsible for the emergence of spoken language (Tallerman and Gibson 2011). Many anatomical developments and cognitive processes—connected to different parts of the human genome—are involved in human language. These developments and changes would have required mutations in other parts of the genome of early Homo. While the mutation of FOXP2 in Homo may have played a role in language development, other mutations would have been important as well.

HOMININ MATERIAL CULTURE

Evidence from the material culture of hominins such as *Homo habilis* and *Homo erectus* is also used to speculate about the emergence of human language. Early hominins developed stone tool technologies and created stunning works of art. The production and use of such tools and artwork must have required a complex set of social and cognitive abilities. Those same types of social and cognitive skills are important to human language. It is possible that language emerged as part of a whole complex of material culture.

Archaeological evidence and linguistic theory come together in a model suggesting that the invention of tools by early hominins was linked to the invention of language. Some linguistic theorists suggest that the evolutionary changes in brain structure that allowed for the development of tool use also support the emergence of language. Furthermore, the innovations of tools and language are entwined in a reciprocal relationship; evolutionary pressure to develop tools stimulated the development of language, and the development of language facilitated increasingly complex tool making and tool use.

There are two theories to explain the connections between advances in tool use and language. The first rests on the assumption that tool making requires a considerable degree of cognitive planning. You cannot make a useful tool by just picking up a rock and randomly chipping away at it. Hominins like *Homo habilis* and *Homo erectus* must have known just what kind of rocks would work as base and chipper and how to execute a set of precise chips in a certain sequence to achieve a sharp blade without breaking the core. The mental processes important to this sort of planning are hypothesized to have also enabled hominins to do the sort of quick planning involved in the production of complex speech (Tallerman and Gibson 2011).

A second theory linking tool use and language emphasizes the importance of imitation in passing along the complex set of skills involved in tool making. Neuroscientist Michael Arbib suggests that the ability to imitate may have generated the first gestural language among hominins (2011). And he has developed a model to describe how imitation and tool making may have evolved together over time. About 2.5 million years ago, *Homo habilis* began making basic stone choppers, cores with flakes removed, used for butchering carcasses. Such choppers are called Oldowan tools, named after the site in Olduvai Gorge in Tanzania where they were first found. Arbib has theorized that the production of Oldowan tools required the ability for hominins to imitate each other's actions. Simple imitation would make it possible for a learner to reproduce the actions of an accomplished tool maker through observation and mimicry. This ability to imitate is biologically rooted in the system of mirror neurons discussed earlier. As hominin brains acquired the ability of simple imitation involved in tool production, they might also become capable of the kind of gestural communication we see in apes today—not language, but a precursor to it.

The array of action-oriented mirror neurons, tool innovation, and language all progressed together in hominin evolution. As tool technology developed, *Homo erectus* began making distinctive pear-shaped hand axes about 1.6 million years ago. A more intricate form of imitation would have been necessary to teach this sort of tool making to others, corresponding to the emergence of protolanguage. This protolanguage might have been a set of simple one-word utterances corresponding to concepts such as “yes,” “no,” “here,” or “there.”

We don't have any hominin brains to examine, but remember that in the human brain, the system of mirror neurons is assumed to be situated near Broca's area, which is associated with human speech. So very likely, protolanguage emerged in the same part of the brain as the ability to imitate. The explosion of innovations in tool making over the past 100,000 years is linked to the emergence of complex human language. While the development of mirror neurons and the ability to learn tool making required biological changes to the brain, Arbib argues that the last step, the emergence of language, was purely cultural.

LANGUAGE AND THE MIND

As discussed in the previous section, certain cognitive abilities were crucial to the development of language in humans. And reciprocally, once language emerged, it shaped our thoughts and actions in ways

that helped our species cooperate, invent, learn, and adapt to the environment. Language must have been a fundamental element in the creation of human culture (singular) and the eventual development into human cultures (plural) as different groups of humans moved into different geographical areas and began adapting to different conditions.

One key advantage of language is that it provides a way of encoding specific information about the environment and sharing that information with others so that it endures over time. If, say, there are snakes in an area, it would certainly be important to distinguish the venomous ones from the harmless ones, so probably there would be separate words for those two categories of snake or at least words for each specific snake so that people could alert each other to the presence of a dangerous one.

This means that early language must have been developed *relative* to environmental conditions. Linguistic anthropologists are interested in the way that language varies across cultures, reflecting different environmental, historical, and sociocultural conditions. This is called **linguistic relativity**.

On the other hand, languages are also constrained by human anatomy and cognitive abilities. Say there were two species of snake in an area, one poisonous and the other harmless, but you could not tell them apart by looking at them. (This is actually an adaptive strategy deployed by harmless animals called adaptive mimicry.) In this case, early humans probably would have had just one word for snake, indicating that sometimes a snake's bite made you sick and sometimes it didn't. As this example shows, the human visual apparatus shapes our understanding of the world, which, in turn, shapes our language.

Consider another example from the natural world—the beetle. There are over 300,000 types of beetles in the world. How many can you name? All of them? Ten of them? Two of them? Outside of written scientific taxonomy, there is no language in the world that contains separate terms for each kind of beetle. This is not only because there are only a few thousand of each type of beetle living in any one environment but also because of limits to the number of terms any person can learn and remember. Our vocabulary is constrained by the limits of human memory.



So many beetles. How many can you name? There are over 300,000 types of beetles in the world. Outside of written scientific taxonomy, no language in the world contains separate terms for each kind of beetle. (credit: "display drawer 3" by Joana Cristovao, Natural History Museum/flickr, CC BY 2.0)

So language is shaped not only by environmental conditions but also by how humans interact with their environments. Our common human anatomy influences our comprehension of the world, and that comprehension is expressed in language. This insight suggests that all languages must have some things in common by virtue of the fact that all humans have the same anatomy and cognitive abilities. Some linguistic anthropologists are interested in discovering these **linguistic universals**.

In the next section, we take a look at some intriguing research on both linguistic relativity and linguistic universals, seeking to better understand how language interacts with our human minds.

LINGUISTIC RELATIVISM AND THE SAPIR-WHORF HYPOTHESIS

As seen in previous chapters, it was lamentably common for scholars in the early 20th century to think of non-Western societies as backward and primitive, incapable of complex, abstract thought. Franz Boas worked hard to disprove these racist notions, seeking to demonstrate the equal sophistication of all peoples and cultures. Boas trained a student named Edward Sapir who was particularly interested in how non-Western languages conveyed forms of complex, abstract thought that were different from the Euro-American habits of thought. Sapir, in turn, trained a student named Benjamin Whorf who further elaborated on this theme in his own research (Ahearn 2017). The result is what we have come to call the "Sapir-Whorf" hypothesis.

The **Sapir-Whorf hypothesis** argues that the particular language you speak influences how you think about reality (Lucy 2001). Thus, different languages encourage different habits of thought. This is an essential tenet of linguistic relativity. Whorf based his argument on a comparison between the Native American language of Hopi and what he called "Standard Average European" (SAE), a

broad category of European languages including English. Whorf was interested in how speakers of each language might think differently about time. In English vocabulary, time is divided into units that can be counted. English speakers talk about the number of seconds, minutes, or days before an event or consider the number of months or years since something occurred. In Hopi, according to Whorf, time is conceived as indivisible and enduring, a whole process unfolding. The Hopi talk about the flow of events in a completely different way, a processual way Whorf termed "eventing." Whorf argued that these linguistic features profoundly influenced sociocultural life in each of these two contexts. Holding with the understanding of time as process, Hopi culture emphasized preparation, endurance, and intensity. Coordinating with the SAE expression of time as countable units, Euro-American culture emphasized schedules, accounting, and record keeping. Many people use a calendar to keep track of meetings, appointments, and assignments. Whorf would argue that the English language encourages us to think of time and events in this way, as a spatialized set of boxes to be filled up with discrete objects.

In connection with the Sapir-Whorf hypothesis, it is sometimes said that the "Eskimos" have 400 words for snow. This notion is both problematic and untrue. The first problem is that "Eskimo" is considered a derogatory term by the Inuit and Aleutian peoples to whom it has been applied. And, secondly, the claim turns out to be wrong. Anthropologist Laura Martin (1986, also described in Ahearn 2017) has debunked the myth by documenting that Arctic peoples really have just two root words for talking about snow, one for snow that is falling and the other for snow that is on the ground. They use these roots much as English-speakers would, to talk about snowstorms, snowflakes, snow drifts, and snow melt. The Sapir-Whorf hypothesis is not typically applied to the vocabularies of different cultures anymore.

Recall the earlier example about snakes. We hypothesized that a culture might not distinguish between two species of snakes if those snakes looked identical. But if people gradually came to notice that the poisonous snakes were always found in trees while the harmless snakes were always found on the ground, it is likely that a different term would come to be used for the tree-dwelling kind of snake, the one with the harmful bite. That is to say, even if a culture previously had only one term for snake, the people in that culture could easily understand that there were, in fact, two kinds and would be able to change their language to mark that difference in their vocabulary for future reference. Their vocabulary would not limit their thinking to such a degree that they could not conceive of two different kinds of snake.

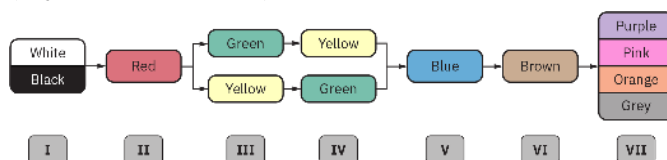
Rather than specific vocabulary words, researchers who study linguistic relativity have come to focus on larger abstract topics like space. In languages such as English, when people want to tell someone where a particular object is, they most frequently use language focused on their own bodies. English-speakers say, "You have a bit of arugula on the left side of your mouth" or "Grab the pink top hat on the shelf above you." This way of talking relies on the human body as a point of reference and therefore is relative to the bodies of the speaker and/or hearer. This creates confusion when the speaker is facing the person they are talking to, sometimes

prompting someone to say, “No, *my* left, not *your* left!” Steven Levinson has conducted research on languages that do not use the human body to talk about direction at all (2003). Instead, they use the cardinal directions (north, south, east, west) and specific features of their environments (mountains, oceans) to talk about where things are. A speaker of the Australian indigenous language of Guugu Yimithirr might say, “Watch out for the snake just north of your foot!” This way of talking about space is absolute, not relative. Such speakers never have to say “No, *my* north, not *your* north,” as there’s only one absolute north. Research suggests that these different ways of reckoning give us different kinds of mental maps, such that a Guugu Yimithirr speaker might be better at absolute navigation than an English speaker, and perhaps more adept at finding her way back home if she lost her way.

LINGUISTIC UNIVERSALS AND FOLK TAXONOMIES

While linguistic relativists explore how different linguistic patterns shape different thought patterns (and vice versa), other linguists are interested in how all languages are constrained by our common human biology and in finding universal linguistic patterns. There are specific domains of language that lend themselves particularly well to this kind of inquiry. One of them is color. The reason for this is that color relies directly on our human visual system, invariant across cultures.

And yet there is enormous [diversity in the ways that different cultures divide up the spectrum of possible color](#). Some cultures have hundreds of color terms, while others have only two or three. Researchers Brent Berlin and Paul Kay analyzed the color term systems of 98 languages and found that the diversity of color term systems is governed by one set of rules. All of these color term systems are comprised of a few basic colors with specific colors added to the scheme over time (Kay 2015, Berlin and Kay 1969). The color schemes of all cultures are based on the distinction between black and white (or light and dark). If a culture has only two terms, those two terms will always be black and white. The next most important color is red. If a culture has three color terms, those terms will be black, white, and red. Next comes green and yellow, then blue, then brown, then purple, pink, orange, and gray, always in that order. Berlin and Kay suggested that these rules form a pattern for the way all languages develop over long periods of time. Although the scheme proposed by Berlin and Kay has been revised a little in the past 50 years, the basic tenets have held up pretty well (Haynie and Bower 2016).



Berlin and Kay’s developmental scheme for the elaboration of color terms. Some cultures only distinguish black from white. When another term emerges, that color is red. After that, green and yellow are added, either one first. Then blue and brown are added, in that order, and then one of these four: purple, pink, orange, or gray. (CC BY 4.0; Rice University & OpenStax)

Oddly, though this finding lends very strong support to the notion of linguistic universals, the very same research has also been used to argue for linguistic relativity. Paul Kay later teamed up with another

linguist, Willet Kempton, to consider how different color schemes might affect how people “see” color in the environment around them (1984). They presented people with color chips on the spectrum between true blue and true green. They asked subjects how they would group all the colors into two categories. People who spoke languages that had terms for both blue and green drew a more distinct boundary between the two colors than people who had just one word for both blue and green.

Clearly, relativity and universalism are both aspects of human language. Our common biology plays a role in how humans interact with the world, providing regularity to the way all languages categorize not only color but also plants, animals, weather, and other natural phenomena. Researchers who study the systems of categories people use to organize their knowledge of the world have a term for those cultural systems: **folk taxonomies**. The folk taxonomy for any area of human knowledge reflects both human biology and the surrounding environment and sociocultural practices. There are folk taxonomies for plants, animals, clouds, foods, and the cries of babies.

Folk taxonomies are not just vocabulary terms; they frequently structure any kind of distinction that is meaningful within a culture, even those that rely on simple qualifiers like “good” and “bad.” One example is death, surely invariant across cultures. Societies all over the world distinguish between a “good” death and a “bad” death. These notions reflect cultural beliefs and values—such as the American notion that a good death is a painless one. Among the Akan peoples of Ghana, a good death is the death of someone who has led a very long life, achieving all of the culturally valued accomplishments in life, such as getting married, having children, accumulating property, and providing support to friends and family members (Adinkra 2020). Imagine a very old great-grandmother surrounded by her many descendants as she lies in her bed, heaving one final breath as she drifts away peacefully into death. That is a good death. A bad death is tragic and violent, the sudden death of a person who has not had the chance to really live a full life. Think of a young person drowning or dying in a traffic accident. That is a very bad death. If someone has had a good death, that person is eligible to become an ancestor if the correct rituals are performed. The body must be washed, publicly mourned, and buried in a beautiful casket in a public cemetery, often with grave goods like tools and money to help the person in the afterlife. Ancestors are important, as they watch over their living relatives, possibly helping them out if called upon through libation or other ritual means. If someone has had a bad death, however, they may become an angry ghost, haunting family members with bad luck. The funeral rites of bad deaths are rushed, minimal, and private in order to avoid commemorating or communicating with the agitated spirit.

Categorization is central to our perceptions, thoughts, actions, and speech. The way humans categorize objects and experiences is limited by the way our brains and bodies work, resulting in linguistic universals like the developmental scheme of color terms. However, the complex meanings associated with cultural categories vary widely, resulting in a great deal of linguistic relativity. Linguistic relativism and universalism are often described as opposite

positions, but in fact, they are both essential and complementary features of human language.

MEANING AND METAPHOR

How are you feeling today? Are you feeling *up* or feeling *down*? If you're feeling *low*, try doing something fun to *lift your spirits*. Take care of yourself so you don't *fall into a depression*.

An old theory suggested that languages are primarily referential; that is, each language contains a set of vocabulary terms that correspond to elements in the natural world. According to this theory, language functions as a mirror of reality. We have seen in the last section, however, that different languages divide up the natural world in different ways, from the natural domains of color and plants to the human domains of life and death. Moreover, humans use language to talk about abstract issues like mood, social relationships, and communication itself. It is fairly easy to use our terms for spatial organization to talk about the location of concrete objects like arugula on somebody's face. But what about more abstract issues? How do we talk about becoming friends with someone? How do we discuss an argument we're making in a term paper? How do we talk about how we're feeling today?

Mood is like color insofar as the human physiology of mood structures a set of near-universal basic categories including happiness, sadness, anger, fear, disgust, and surprise. And yet, because mood occurs on a spectrum, it is divided up in different ways by different cultures. Consider "schadenfreude," a German word combining the roots for "damage" and "joy." Schadenfreude refers to taking pleasure in another's misfortune. There is no equivalent word in English.

We don't just use language to identify the emotions we're feeling. We also talk about the process of developing an emotion, how one mood leads to another, and how we can prevent ourselves from feeling a certain way. These are mysterious and abstract processes. How do we do this? We use metaphor. A **metaphor** is a linguistic idiom where we use what we know about something *concrete* to think and talk about something *abstract*. Cognitive linguists George Lakoff and Mark Johnson argue that metaphor is the primary way we create complex meaning in language (1980). In terms of mood, we use our *concrete* language of direction to talk about our *abstract* experience of mood. A positive mood is understood as *up*, while a negative mood is considered *down*. If you're feeling really happy, you might say you're *on top of the world*. If you're really sad, you might say you're *down in the dumps*. In fact, the word for prolonged sadness, *depression*, literally refers to a sunken place or the act of lowering something.

Metaphor is one of those things that you don't notice until you start paying attention to it. And then you realize that it's everywhere: in the way you think about time, number, life, love, physical fitness, work, leisure, sleep, and thought itself, just to name a few highly metaphorical topics. Just about any abstract area of experience is structured by metaphorical thinking. Here are three common metaphors in English, with examples.

LIFE IS A JOURNEY

He took the wrong path in life.

As you move ahead, you should follow your dreams.

When I left home, I came to a crossroads in life.

If you work hard, you'll arrive at a sense of accomplishment later in life.

LOVE IS SWEET

She's my sweetheart.

The newlyweds went on a honeymoon.

Sugar, would you pass the salt?

Our love was sweet, but then it went sour.

ARGUMENT IS COMBAT

The candidate launched a personal attack against her opponent.

His position on taxes is indefensible.

Armed with facts, she won the argument.

His criticism really hit the mark.

There are thousands and thousands of metaphors in English. Many abstract domains rely on a combination of various metaphors used to describe different aspects of the experience. You can think of love as sweet (as above) but also as a journey (as in "Will the couple *go forward* together, or will they go their *separate ways*?") or as combat (as in "He *slew me* with his come-hither glance").

Metaphor is found in all human languages. Some specific metaphors, like the directional metaphors used to describe mood, are found in many, many cultures. A study by Esther Afreh (2018) found that the king of Asante (in Ghana) frequently uses metaphorical language in his public speeches, including such familiar ones as "life is a journey," "life is a battle," "ideas are food," "knowing is seeing," and "death is sleep." Though the speeches were delivered in English, Afreh notes that these metaphors also exist in Akan, the local language of the Asante people. Alongside her analysis of the English-language speeches, she notes many proverbs and phrases in Akan that use the same metaphors.

As with our discussion of categorization in the last section, metaphor is both relative and universal. Lakoff and Johnson argue that our common human biology structures our experiences of things like emotion and life. When you're feeling really sad, you might literally feel like lying down, and when you're really happy, you might jump with joy. We may use the notion of a journey to structure our understanding of life, social relationships, and time in general because in our everyday life, we move forward in space to pursue objects and activities.

Sometimes the reasons for cross-cultural similarities are not so directly linked to human biology. English and Chinese have similar

metaphorical systems for talking about moral issues. In both languages, the adjective meaning “high” is associated with things that are lofty, noble, or good, while the adjective “low” is used to describe things that are mean, contemptible, or evil (Yu 2016). Alternatively, it is also possible in both languages to describe moral behavior as “straight,” while immoral behavior can be termed “crooked.”

On the other hand (to deploy a useful metaphor), different cultures do rely on different metaphors to talk about some domains of experience, metaphors that emphasize certain aspects of those abstract topics. Consider the English notion that “time is money.” This is a metaphor, pure and simple, but many English speakers believe it to be absolutely true. You can *spend* time, *waste* time, *save* time, and *invest* time. So time does seem like money in capitalist cultures. But time is *not literally* money. Nor is time a journey or a horizontal line in space, though these are common ways of thinking about time in the English language. Time is just time, an abstract idea. Certainly Whorf did not find the Hopi talking about time as money. English speakers think of time in terms of money because they live in a society in which time is *treated as* money, a society that tends to monetize nearly everything, from land and labor to advice, attention, and even body parts like human sperm.

LANGUAGE, COMMUNITY, AND CULTURE

While language is critical to individual human thought, its basic function is to communicate messages in human communities. That is, language is fundamentally social. Through social interaction, humans learn the language of their community. And through language, humans express community identity and coordinate their activities.

LANGUAGE ACQUISITION AND LANGUAGE SOCIALIZATION

Imagine that someone handed you a babbling baby and said to you, “Teach this baby the basic rules and values of our culture.” What would you do?

Likely, you’d start by teaching the baby your language. Without language, it’s pretty hard to teach rules and values (unless you are a *really* good mime). Luckily, babies come into the world with special cognitive abilities that make them ready to learn language. Most babies undergo a rapid process of language learning between the ages of nine months and three years. Babies proceed through a set of stages that allow them to learn language just by being exposed to surrounding talk. Many scholars study the problem of **language acquisition**, examining precisely how humans manage to learn language in a diversity of sociocultural contexts.

So your babbling baby would probably learn language just by being exposed to it. But what if someone wanted to hasten the process or make sure their baby was particularly excellent with language?

An American would probably interact with the baby in a particular way, sitting the baby on their lap facing them, pointing to objects and asking basic questions in a quiz-like fashion. “See the cookie? Where did the cookie go? In my tummy!” The person might say these types of things while talking in a high-pitched, sing-song voice. Linguists call this type of talk “motherese.” In many other

cultures, caregivers do not interact with babies in this way. In some cultures, oversimplified “baby talk” is considered detrimental to language learning. The context of language learning might involve a whole host of characters beyond the baby and the caregiver, encompassing all household relatives, neighbors, visitors, and even strangers. Language is not always “taught” to babies, but is often witnessed and overheard. Rather than quizzing her baby American style, a mother in Kaluli society in Papua New Guinea is more likely to sit her baby on her lap facing outward, talking “for” the baby in conversations with siblings (Ochs and Schieffelin [1984] 2001). In West Africa, babies spend large parts of the day wrapped on the backs of their mothers where face-to-face interaction with her is impossible. But they overhear the talk around them all day long, and people frequently engage their attention in brief interactions. In the field of **language socialization**, researchers go beyond the various stages of language learning to focus on the social contexts in which language is acquired. As social contexts shape the way children learn language, language itself becomes a means of learning about sociocultural life.

Whether facing their caregivers or facing out to the social world around them, babies in all cultures learn to be proficient in their languages. And yet, in American culture, the notion persists that language proficiency relies on very precise forms of interaction between caregiver and baby, the American model of motherese. Every culture has specific ideas about language, how it is acquired, how it varies across social groups, how it changes over time, etc. These ideas are termed **language ideologies**. Some of these ideas, like the notion that babies have a special “window” of opportunity for learning language, are supported by linguistic research. Others, however, are challenged by ethnographic and cross-cultural research.

SPEECH COMMUNITIES AND CODE SWITCHING

A ten-year-old girl described one of her stuffed animals as “derpy.” Here is a snippet of her conversation with her mother:

Thisbe: Look at his face. He’s so derpy.

Jennifer: Derpy? I don’t know that word. What does it mean?

Thisbe: Like, kind of stupid. Kind of dumb.

Jennifer: Oh, ok. Like Clover [our dog], when she fell off the couch. Was that derpy?

Thisbe: No, that’s not derpy! It’s like ... Mom, I just can’t explain it to you. You just have to know.

All speakers of a particular language form a hypothetical community, sharing a common grammar and vocabulary, as well as a set of understandings about how language is used in different situations. Within this large group are smaller groups of speakers who use the common language in special ways unique to that group. Anthropologists use the term **speech community** to describe such a group (Muehlmann 2014). Speech communities often have distinctive vocabularies, grammatical forms, and intonation patterns. Using these features appropriately, members of the speech community demonstrate their membership in the group.

The concept of speech community was originally used to describe the distribution of dialects in a language. A **dialect** is a form of language specific to a particular region. For instance, in the

Philadelphia metropolitan area, it's common for local people to pronounce the word "water" as "woohder," as if it nearly rhymes with the word "order." It's also common to use the phrase "yooz" for the second-person plural (as in, "Yooz better drink some woohder!"). Linguists William Labov, Sharon Ash, and Charles Boberg famously mapped out these dialectal differences in different regions of the United States (2006). Over time, a dialect can accumulate such unique linguistic features that it develops into a separate language. Indeed, the distinction between a well-developed dialect and a language is largely political. Nation-states may downplay regional differences as mere dialects in order to maintain linguistic unity, while separatist political movements may champion their way of speaking as an entirely different language in order to justify their demands for independence.



Map of American dialects. While English is the official language in all areas of the United States, the particular way it is spoken varies from region to region. (CC BY 4.0; Rice University & OpenStax)

Other researchers have focused on the speech communities of ethnic groups and immigrants. Researchers use the term **vernacular** to describe dialects that are not necessarily regional but associated with specific social categories, such as groups based on ethnicity, age, or gender. Anthropological research on African American Vernacular English (AAE), Chicano English, and Native American English have all shown how these vernaculars shape distinctive forms of storytelling, arguing, and criticism (Chun and Lo 2015). Rather than seeing ethnic vernaculars as "incorrect" forms of English, researchers demonstrate how vernaculars like AAE are highly structured linguistic systems with regular grammatical patterns and innovative vocabularies (Labov 1972a). In formal settings like American classrooms and courtrooms, these alternative ways of using English are too often stigmatized as lazy, unintelligent, or just plain wrong. Believing their own English to be the "correct" form, authority figures often forbid the use of alternative vernaculars of English and refuse to engage in any effort to understand those forms. More recent research on vernaculars has explored how speakers maneuver among the styles of language they encounter in their daily lives, engaging in various languages, dialects, vernaculars, and other elements of style. We all use a variety of linguistic styles, and many speak more than one language. Addressing different audiences, U.S. President Barack Obama used linguistic strategies to "Whiten," "Blacken," "Americanize," and "Christianize" his public identity, thus subverting racial stereotypes and indicating his membership in a diversity of communities (Alim and Smitherman 2012). In parts of

the world that were previously colonized by Europeans, European languages have been maintained as the formal language of government and education even as most people speak local languages in their everyday interactions with kin, neighbors, merchants, and other community members. In these postcolonial contexts, people tack back and forth between various styles of their local languages as well as shifting between the local language and the European one. Such strategic maneuvering among linguistic styles, called **code-switching**, is done by people in many difference contexts.

For many people, the style of language spoken in elite settings such as schools and government institutions has the effect of disempowering and marginalizing them. Linguistic anthropologists examine how vernaculars associated with elite and professional groups become a means of in-group solidarity and out-group exclusion. Anthropologist and lawyer Elizabeth Mertz (2007) conducted participant observation in first-year classes at several American law schools, looking at how law students are taught to "think like a lawyer." Using a version of the Socratic method, law professors teach their students to set aside the moral and emotional elements of cases to view them purely as texts subject to abstract, professional analysis. The ability to master the linguistic maneuvering and arcane vocabulary of this form of analysis becomes a prerequisite for becoming a lawyer. The American justice system is thus dominated by people who are trained to set aside humanistic concerns in favor of textual authority and manipulation. Mertz's study shows how people are socialized by language throughout their lives, not just in childhood. And it alerts us to the way that language can be used to elevate the learned perspectives of elites, dismissing the moral and emotional perspectives of others.

PERFORMATIVITY AND RITUAL

SPEAKING AS ACTION

Consider the following pairs of sentences. What are the differences between the two sentences in each case?

1. Boris and Natasha are married.
2. Boris and Natasha, I now pronounce you husband and wife.

1. Natasha: Boris lost his job.
2. Natasha: Boris, you're fired!

1. Boris: Natasha, I ate the last pickle.
2. Boris: Natasha, I apologize for eating the last pickle.

In all the above pairs, the first sentence is a report about an event. The second sentence makes an event happen. In the sentences about the pickle, the second sentence does not make the pickle disappear, but it does create an apology for that action, hopefully altering the consequences of the pickle-eating. In the previous section, we explored how we use language to think and reason about the world around us. This is an essential function of language, but it is not the only one. We also use language to *do* things—that is, to perform actions in the world.

Way back in the 1930s, Bronislaw Malinowski explored how people use language in culturally specific ways to play an active part in their societies (Duranti 2012). Malinowski described how the people

of the Trobriand Islands used magical language to compel the growth of yams, bananas, taro, and palms in their carefully cultivated gardens. Magical spells, like all ritual language, aim at making something happen through the special manipulation of public speech. We see the same use of language in other ritual settings like marriages and naming ceremonies. The plot of many a Hollywood romantic comedy hinges on the moment the partners say “I do” and the officiant pronounces them married. In American marriage ceremonies, it is clear that ritual language is the tool that marries people—not the rings, or the pageantry, or the blessings of family and friends, or any other aspect of the ritual.

In his influential book *How to Do Things with Words* (1962), philosopher of language J.L. Austin coined a term for action-oriented language: performatives. The most obvious performatives use phrases like “I pronounce,” “I order,” “I promise,” “I warn,” or “I appoint.” Sentences that begin with these phrases are explicitly uttered with the intention of doing something through the act of speaking. As he dug deeper into the performative function of language, however, Austin realized that performatives are not so much a separate category of utterances but an aspect of most of the things we say. Even when people are making a simple descriptive statement, they are saying it for a reason. The power of speech to make things happen is called **performativity**. Consider the following sentences:

The exam is next week.

The dog is pawing on the door.

The above sentences are statements about an event or situation. However, if a professor announces to the class, “The exam is next week,” this is not merely an observation, but a warning—a cue to students to study in preparation for the upcoming exam. And if someone tells their roommate, “The dog is pawing on the door,” they are essentially telling that person to let the dog out.

Like metaphor, performativity is one of those aspects of language that permeates everyday speech. Once you learn about it, you recognize performativity in just about everything you say. Spend a few hours paying attention to each utterance as you go about your activities. You’ll find that you rarely use language to merely describe what’s going on. You speak in order to generate a response or result, even when you just say “Hi.”

THE PERFORMATIVITY OF RITUAL LANGUAGE

Just as Malinowski studied the special language used in garden magic among the Trobrianders, many contemporary linguistic anthropologists study the role of performative language in various ritual settings. In a recent article, Patience Epps and Danilo Paiva Ramos examine the performance of **incantations** among the Indigenous Hup community of the northwest Amazon (Epps and Ramos 2020). An incantation is a patterned set of phrases or sentences used to compel a magical result. Among the Hup, incantations are used by elders for protection, healing, and causing harm. While Epps and Ramos were conducting fieldwork in the area, Hup elders expressed concerns that the young men in the village were not learning the repertoire of important incantations properly, thus endangering the health and safety of the community. The elders invited Epps and Ramos to write down their incantations

for healing and protection in order to preserve them for future generations. Epps and Ramos documented and analyzed these incantations in consultation with Hup elders.

In the article, Epps and Ramos analyze an incantation used by the Hup to protect travelers on paths through the rain forest. This incantation is recited by an elder before a group of Hup people embark on a journey. After providing the original text and its English translation, Epps and Ramos describe the incantation’s structure and poetic features, including the use of metaphor and repetition of phrases. As a whole, the incantation lists various dangers and helpful entities and enacts certain magical practices through the speech itself. At the beginning of the incantation, the elder states that he is enclosing the entire path in a protective “canoe,” much as a traveler on a river would ride in a canoe. This canoe is named after a particular snake, the mussurana snake (*Clelia clelia*), a constrictor snake that eats other snakes and is immune to their venom. Thus, the incantation is creating a metaphorical shield of protection around the travelers, making them safe from venomous snakebites. In the second section of the incantation, the elder lists all classes and subtypes of snakes that might be encountered in the rain forest, asserting a kind of taxonomic mastery over the snakes. Summoning the snakes one by one, he tells of lining them up, sitting them down, and feeding them sticky coca and tobacco. The snakes then sit quietly, their jaws stuck together by the sticky substance so that they are unable to bite anyone. The incantation goes on to deal with several other malevolent entities and engage with beneficial entities to help the travelers in their journey.

INFORMAL BACK-TALK: TEASING, GRUMBLING, AND GOSSIP

Linguistic anthropologists most frequently rely on long periods of fieldwork, living in the communities they study and witnessing and even participating in ritual events where performative language is deployed. Such events include protection and healing magic, but also naming ceremonies, puberty rites, weddings, funerals, and other rituals that mark the passage of persons from one social status to another. Anthropologists term such rituals “rites of passage.” At such ritual events, elders or religious specialists are called upon to perform the ritual language necessary to publicly move persons from the previous category to the new one.

Naming ceremonies are a great example of the power of performative language in rites of passage. In many West African societies, a baby is not considered a true person until they have been publicly named by an elder or religious official in a naming ceremony performed a certain number of days after the baby is born. Extended family and friends attend the ceremony as markers of their relationship to the baby. Guests bring gifts such as rice and cloth for the baby, and they are rewarded for their attendance with prepared food and kola nuts.

During his fieldwork in southeastern Senegal, linguistic anthropologist Nicholas Sweet witnessed the naming ceremony for a baby in a Pular-speaking village (2019). When the family were gathered in the compound of the baby’s father, the imam rose, faced east, gave the blessings of the prophet, and then performed the naming of the baby girl (in Arabic, English translation below):

*In the name of God, the gracious and the compassionate
O Allah, send blessings on our master Muhammad
O Allah, send blessings on our master Muhammad
O Allah, send blessings on our master Muhammad
The name of the child has come here, her mother and her father
have named her Aissatou
The name of the child has come here, her mother and her father
have named her Aissatou
This is what was written on the tablet of Allah
May God grant her blessings*

While carefully recording the formal performative language so important to this naming ceremony, Sweet was also attuned to the more informal kinds of language that surrounded the main action. For instance, just before the imam's performance, some friends of the family were gathered around the baby, remarking on her beauty. As a way of showing their admiration, some of the men joked and teased one another about the prospect of marrying her someday. Other relatives teased the baby's parents with demands for kola nuts and other food. As dramatically performative as the official naming was, this informal language was also performative, providing a way for guests to socially configure their various relationships to the new person in their community.

Someone important had been left out of the ceremony—the great-aunt of the baby, also named Aissatou. As the baby was her namesake, Auntie Aissatou had been invited and should have been a featured guest at the ceremony. But when the time came to perform the ceremony, she had not arrived yet, and so they went on without her. Afterward, as guests were making their way home, they crossed paths with Auntie Aissatou, who was just then on her way to the event. Realizing that the naming had already been performed, she complained that she had been waiting for someone to fetch her and bring her to the ceremony. Auntie Aissatou was angry that she had missed the ceremony as well as the gifts distributed afterward.

Wrapping a scarf around her head in imitation of an imam, Auntie Aissatou continued on to the compound of the baby's father. Striding ceremoniously into the compound, she addressed a number of elders still gathered there. In a parody of the official naming performance, she faced east, delivered the blessings of the prophet, and then announced: "The name of the child has come here. It is Buubu Nooge (Trash Owl)."

The audience of relatives erupted in laughter but also protest, interrupting Auntie Aissatou to correct her with the baby's true given name. But Auntie Aissatou persisted, saying over and over again that the baby's name had come and it was "Trash Owl."

Why Trash Owl? In this community, it is believed that witches turn themselves into owls when they fly through the night. "Trash" seemed to refer to the joke gifts of garbage (broken flip-flops, an old sock) in a small gourd that Auntie Aissatou presented in lieu of the usual baby gifts of food, cloth, and soap.

In the days following the naming ceremony, the teasing name for the baby became a running joke in the community, especially among people who had not been invited to the ceremony but felt that they should have been. In order to quash the teasing nickname, the baby's family was compelled to make a number of visits around the

community with appeasing gifts of kola in an effort to get everyone to recognize the baby's proper name. Once Auntie Aissatou and the others had received their visits and kola, they abandoned the name Trash Owl, recognizing the baby as Aissatou, the namesake of Auntie Aissatou.

This incident illustrates the power of parody and gossip to steal performative power from the authoritative realm of formal speech, giving excluded and marginalized people a way to "talk back" to authority. There are many ways of doing this. Often, audiences to formal speech will deliberately misunderstand or creatively interpret the proclamations of authority figures.

LANGUAGE & POWER

GENDER

In 2018, the word "mansplaining" was added to the Merriam-Webster dictionary. The word is defined as "what occurs when a man talks condescendingly to someone (especially a woman) about something he has incomplete knowledge of, with the mistaken assumption that he knows more about it than the person he's talking to does" ("Words We're Watching" 2018).

The word was inspired by an article written in 2008 by the feminist blogger Rebecca Solnit. In the article "Men Explain Things to Me," Solnit described an incident at a party in which she mentioned to a man that she had recently written a book about a particular photographer. Immediately, the man interrupted to inform her about a *very important* book that just came out about that same photographer, a book he had read about in *The New York Times*. After the man had described the book in great detail, Solnit's friend finally intervened to say that the book he was talking about was, in fact, written by Solnit. In the wake of Solnit's article, other women writers described similar experiences in their workplaces, schools, and relationships, and the whole phenomenon came to be called "mansplaining."

Have you ever witnessed mansplaining? Have you ever mansplained to someone? Embedded in the very term is a notion about gender and language. The idea is that men and women have different styles of speech, styles that reflect and reinforce inequality between genders.

In recent years, many writers have pushed back against the term "mansplaining," arguing that *all* men do not *always* speak this way to *all* women. Some argue that many men are much more respectful and sensitive to the dynamics of power in their conversations with women. Some argue that privileged White women tend to speak in a mansplaining way to male waiters and salespersons or to people of color more generally. Others suggest that older people speak in a condescending way to younger people, or vice versa.

Have you ever become annoyed with a friend or relative who repeatedly interrupts you? Have you ever noticed how some people tend to end their sentences with rising intonation, making everything they say sound like a question? How about a person who ignores what you say but then rephrases your idea and takes credit for it? Many people associate these ways of speaking with gender, the way men speak or the way women speak. As noted in the discussion of language acquisition, every culture has ideas about how language

operates, called language ideologies. The idea that American men and American women have distinctive styles of speech is a language ideology. Whether it is true or not is a question for linguistic research, but this idea has become a widespread way of thinking about gender, power, and language in American culture.

In the 1970s, linguists inspired by the women's movement turned their attention to the way gender shapes different patterns of speech. In her influential book *Language and Woman's Place* (1975), Robin Lakoff argues that women and men are socialized to speak in distinctive ways that empower men and subordinate women. Lakoff describes women's speech as uncertain, excessively polite, and full of hedges, emotional language, euphemism, and tag questions ("Don't you think?"). Other linguistic researchers have found that men tend to interrupt women far more than vice versa, even when the women speaking are doctors and the men are their patients (Zimmerman and West 1975, West 1998).

Building on this research, Deborah Tannen generalized beyond speech patterns to describe two entirely different communicative subcultures for American men and American women (1990). When men and women speak to one another, Tannen argues, they are speaking cross-culturally, deploying different motivations and expectations for talk. Men engage in conversation to assert their status in a social hierarchy, while women are more interested in building solidarity through social connection. Men authoritatively report information to their interlocutors, while women engage in conversational rapport with their interlocutors. In popular media, differences in the speech styles of men and women are frequently linked to purported differences in specific parts of male and female brains, such as the corpus callosum, the amygdala, and the hippocampus. In this way, gendered patterns of speaking are naturalized as biological.

Like the pushback against the term "mansplaining," researchers have begun to challenge the view that women and men are embedded in different linguistic subcultures with different patterns of speech, motivation, and interpretation. Psychologist Janet Hyde conducted a meta-analysis of hundreds of quantitative studies to see if widespread notions about gender and language were actually borne out by linguistic data (2005). Along with notions of power, Hyde was interested in testing the idea that women are chattier and more deferential than men. Focusing on studies of children, Hyde found that boys and girls exhibited no differences at all in reading comprehension, verbal reasoning, and vocabulary. The tendency for boys to interrupt or speak assertively was only very slightly higher than for girls. The girls' tendency toward self-disclosure and cooperation with their conversation partners was only slightly higher than for boys. The only significant differences Hyde found were in smiling and correct spelling (girls did more of both).

How do we reconcile research demonstrating differences in the way men and women talk with data that suggests very little difference in the speech patterns of girls and boys? One could argue that children have not been entirely socialized into their assigned gender category. Perhaps the discrepancy suggests that gendered ways of speaking are cultural, not biological, and that, for children, the most intense period of socialization is yet to come in adolescence.

Moreover, ethnographic research by linguistic anthropologists shows that patterns of speech associated with men and women are culturally relative. Reversing the American stereotypes, anthropologists working in Madagascar and New Guinea have found that women are expected to speak in a more confrontational and argumentative style, while men are associated with more cooperative, euphemistic, and ceremonial speech (Keenan [Ochs] 1974, Kulick 1992, both cited in Ahearn 2017).

So both quantitative and ethnographic research overturn the notion that women and men are biologically engineered to use language in different ways. That leaves us with the conclusion that any differences in the ways men and women talk are entirely cultural. Literary scholar Judith Butler argues that gender identities are not biological but are performed through language and other cultural practices, particularly those centered on the body (1988). So when men and women speak in certain ways, they are socially performing their gender identities, whether consciously or unconsciously. Moreover, through their linguistic performances, people enact their own versions of gender in complicated ways that transcend the neat dichotomy of male and female. You probably have a language ideology that tells you how men and women speak in your culture, but do you *always* speak in the style associated with your assigned gender category? Nobody does. And some people rarely do. As these contradictory performances build up over time, the very notion of gender can change.

RACE AND ETHNICITY

On many government forms, people are asked to identify their "race." Forms in the United States often include five categories: Black, White, Asian, American Indian/Alaska Native, and Native Hawaiian/Other Pacific Islander. The category "Hispanic or Latino" is often listed as an ethnicity rather than a race. On the 2020 U.S. Census, people were presented with 14 racial categories to choose from: White, Black or African American, American Indian or Alaska Native, Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese, Other Asian, Native Hawai'ian, Samoan, Chamorro, and Other Pacific Islander. Again, "Hispanic, Latino, or Spanish" was listed as a question of "origin." Even with so many options, many Americans still could not find a category that represented their racial or ethnic identity.

As you'll remember from earlier chapters in this text, race is not biological. There is no accurate way to divide up the gradual spectrum of human biological variation, meaning that biological categories of race are entirely imaginary. However, we also know that social categories of race are very powerful tools of discrimination, subordination, solidarity, and affirmative action. Earlier in this chapter, we studied how sets of categories, "folk taxonomies," are embedded in language. We saw how different cultures divide up the natural world differently. Likewise, race and ethnicity are folk taxonomies, embedded in language and organizing the social world into a neat set of groups. These categories are real insofar as they have shaped the structure of our society, advantaging some groups and disadvantaging others. And they are real insofar as they shape our thoughts and actions and even our subconscious habits and tendencies.

Like gender, race and ethnicity are performed in language. We use language in conscious and unconscious ways to express racial and ethnic belonging as well as exclusion. Take the use of Spanish catchphrases by Americans who do not speak Spanish. Many Americans intend to be jokey and fun by using Spanish phrases such as “hasta la vista!” and “no problemo” as well as deliberately incorrect ones such as “buenos nachos” and “hasta la bye bye!” Anthropologist Jane Hill found that middle-class, college-educated White Americans were most likely (among other Americans) to use this “mock Spanish” (2008). People who use these phrases consider them harmless and even respectful, while Spanish speakers are often insulted by the association of Spanish with silliness. Hill argues that such phrases are only funny because they covertly draw from stereotypes of Spanish speakers as foolish, lazy, and inept.

Similar arguments about cultural appropriation and stereotyping can be made about the use of Black vernacular speech by White Americans. In the United States, a variety of English called African American English (AAE), or African American Vernacular English, is spoken by many people in predominantly Black communities. With the widespread popularity of Black culture, many White Americans have picked up phrases and grammatical features of AAE while knowing very little about the vernacular and the people who speak it as their primary language. To many Americans, AAE is just imperfect English (it is not, as we’ll see in a moment). So what are White people signaling when they say things like “chillin’,” “lit,” “on fleek,” “aa’ight” (for “alright”), “ima” (for “I’m going to”) and “Yasss, Queen!” Does the use of this language convey respect for the communities associated with Black vernacular English? Or does it demean and subordinate Black Americans who speak AAE?

People who use mock Spanish and mock AAE typically do not mean to insult anyone. The problem is not one of intent, but of context. In American culture, most middle-class White people speak forms of English considered standard or mainstream (Lippi-Green 2012). In fact, Standard American English (SAE) is historically based on the language of Anglo American immigrants. The adoption of White Anglo-English has always been considered critical to successful assimilation by minority and immigrant groups. Success at complete assimilation is often measured by the ability to speak SAE without an accent. But SAE is not speaking “without an accent.” SAE is an accent—the accent of White people whose ancestors emigrated from the British Isles.

SAE is the dominant language of American public spaces, including schools, workplaces, government, and media. People who speak SAE without effort or accent can speak freely in these spaces, knowing that their language will be understood and respected. Americans whose primary language is Spanish or AAE often struggle to be understood and taken seriously in American public life. Given this context, it can seem disrespectful for White Americans to appropriate Spanish and AAE as tools of humor while denigrating and marginalizing the actual speakers of these languages.

The issue is further complicated by the widespread and persistent notion among White Americans (and many Black Americans too) that AAE is not a language at all, but merely a hodgepodge of slang

and bad grammar. This view is simply wrong, another language ideology that has no basis in fact. AAE is a rule-governed form of English with its own regular system of sounds, grammar, and vocabulary (Labov 1972b). For historical reasons, AAE shares many features with the English spoken by White southerners in the United States as well as working-class Cockney English from London (Ahearn 2017). Rooted in historical experiences of slavery and segregation, Black Americans have developed their own distinctive set of innovative linguistic features to supplement the more basic structure of American English. Consider the following three sentences:

He is angry.

He angry.

He be angry.

The first sentence is SAE, and the second and third are AAE alternatives. In SAE, this conjugation of the verb “to be” describes a situation happening in the present. But the SAE present tense of “to be” is a bit vague, as it can mean “right now, this very minute” or a more ongoing situation, perhaps describing a person who is frequently or enduringly angry. AAE helpfully distinguishes between these two possibilities. “He angry” means angry “right now,” whereas “He be angry” indicates a more ongoing situation. In linguistic terminology, the second example is called “copula deletion” and the third is called “the habitual be.” Both are used in regular ways to indicate the difference between momentary and enduring conditions.

AAE is governed by many more rules and features that provide its speakers with expressive possibilities not available to speakers of SAE. In other words, AAE is not only a rule-bound vernacular; it’s a more developed and complex form of English. Linguists have been trying to convey this message to the American public since the 1970s (Labov 1972a). Read more about AAE at the [Anti-Racism Daily website](#).

Rather than recognizing the innovative contributions of vernaculars like AAE, language policy in the United States stigmatizes non-SAE vernaculars as “bad English” spoken by uneducated and unintelligent people. Linguist John Baugh calls this “linguistic profiling” (2003). With colleagues Thomas Purnell and William Idsardi, Baugh (1999) compared the response of California landlords to apartment inquiries spoken in SAE, AAE, and Chicano-American English (CAE). In Woodside, California, landlords responded to SAE inquiries 70.1 percent of the time. Inquiries in AAE received responses only 21.8 percent of the time and CAE inquiries only 28.7 percent of the time. Research in American schools and courtrooms corroborates the discriminatory effects of linguistic profiling on access to housing, education, and justice.

The use of language to discriminate and marginalize is certainly not limited to American English. Elites in many cultures define their own way of speaking as “correct” and “official,” using linguistic practices in public spaces to disempower other groups based on class, race, ethnicity, gender, and sexuality. How can people respond to these forms of linguistic marginalization? For many upwardly mobile speakers of “nonstandard” vernaculars and languages, the process of becoming successful has involved the abandonment of

their primary way of speaking in favor of standard, elite forms of language privileged in public discourses. But there is another alternative. As speakers of nonstandard vernaculars and languages move into public discourses, they can hold on to their primary languages, code-switching from context to context. Some language activists celebrate the genius of their “home” languages and work to nurture and revive them, as we will see in the next section.

Can speakers of dominant languages contribute to the process of celebrating and revitalizing marginalized languages? Is it *always* insulting or racist for speakers of a dominant language to use phrases from another vernacular or language? Some people think so. Certainly it is harmful to use phrases that reference negative stereotypes (even indirectly). But what if your limited use of a few phrases can help you communicate with someone from a different background? What if SAE speakers started quoting Spanish or AAE in ways that highlight positive aspects of those speech communities? What if White people started learning AAE in order to publicize the genius and complexity of this American vernacular? What if you learn another language or vernacular in order to subvert the forces of cultural segregation in your own society? There are no easy answers to such questions.

ENDANGERED LANGUAGES: REPRESSION AND REVIVAL

In 1993, a [Wampanoag](#) woman living on a reservation in Cape Cod, Massachusetts, had a mysterious dream, recurring on three consecutive nights (Feldman 2001). In the dream, a circle of Wampanoag were singing in a language she did not understand. When she woke, words of the language stuck with her, and she longed to find out what they meant. Were these words of Wôpanâak, the language of her ancestors? Wôpanâak had died out in the mid-1800s.

The woman was Jessie Little Doe Baird, a social worker and mother of five. Haunted by those words, she began reading through documents from the 1600s written in Wôpanâak, including letters, deeds to property, and the earliest translation of the Bible printed in the Western hemisphere (Sukiennik 2001). Though frustrated in her efforts to find the meaning of her dream words, she developed a passion for the language of her ancestors and began working with local Wampanoag communities to reclaim their common language of Wôpanâak. Community response was enthusiastic. Committed to the project, Baird went to MIT to study linguistics, earning a master’s degree. Based on her survey of Wôpanâak documents, she wrote a dictionary and began teaching [Wampanoag students to speak the language](#).

By learning their ancestral language, Baird and her students found themselves reconnecting with Wampanoag culture in unexpected ways. The grammar of Wôpanâak, for instance, puts the speaker at the end of the sentence rather than the beginning. Whereas English speakers would say “I see you,” Wôpanâak speakers would say something like “You are seen by me.” Baird suggests that this word order highlights the value of the community over the individual, putting awareness of the other ahead of the self. Wôpanâak displays alternative logic in the formulation of nouns as well. For instance, in English, animal names reveal little or nothing at all about the animal. The words “cat,” “mouse,” and “ant” are based on arbitrary sounds

that convey no information about their referents. In Wôpanâak, however, animal names frequently contain syllables that refer to the animal’s size, movement, and behavior. The word for “ant,” for instance, incorporates syllables communicating that the animal moves about, does not walk on two legs, and puts things away.

By now, you know that forms of cognition and culture are embedded in language. The languages of the world encode diverse experiences of time, space, life, death, color, emotions, and more. A language serves as a form of oral documentation of the surrounding environment, a survey of the flora, fauna, topography, and climate of an area. Forms of cultural wisdom are preserved in the stories and proverbs of a language. History is recorded in epic tales and legends. Language can be essential to maintaining cultural identity, affirming the common history and values of a people while providing them with a distinctive way of communicating with one another.

Among the seven thousand languages spoken in the world today, roughly 40 percent of them are in danger of dying out in the next hundred years. A language is considered dead when it is no longer spoken by any living person. Wôpanâak was once considered a dead language. Some linguists argue that no language should ever really be considered “dead,” however, and prefer the terms “dormant” or “sleeping.” So long as there are written or audio records of a language, it can come to life again, a process called **language revitalization**. Returning to a language that has become dormant or endangered, community members can develop strategic programs to spread, nurture, and modernize the language, ensuring it has a future for generations to come.

Languages generally become endangered or dormant through processes of colonialism and imperialism. In North America, as Native Americans were forcibly removed from their lands and confined to reservations in the 1800s, they were compelled to send their children to boarding schools where they were forbidden to speak their Native languages or practice their Native cultures. As foreign settlers seized lands in Australia, New Zealand, and Hawaii, they established similar schools, aimed at assimilating Indigenous children by stamping out their language and culture. Elsewhere, more gradual processes of endangerment can occur when a new language offers opportunities for employment and trade only available to speakers of that language. Parents may encourage their children to learn the new language in order to take advantage of these opportunities, and children may come to reject their own language as a backward language of old people.

Many, many languages have risen from dead or comatose states, among them Cornish, Hawaiian, Hebrew, Scots-Gaelic, the Ainu language of Japan, the Indigenous Australian language of Bamgarla, the Indigenous New Zealand language of the Māori people, and the Native American languages of the Navaho and Blackfoot peoples. Often, as with Wôpanâak, the impetus for language revival comes from energetic community members who feel the loss of their language as a threat to their cultural survival. These concerned people create programs to document the language and teach it to children and adults. They establish contexts where the language is spoken routinely and exclusively. Sometimes they work with linguists to develop these programs.

The most successful of these revitalization strategies are immersion schools and master-apprentice programs. In the early 1980s, Māori language activists developed full-immersion preschools, called *Te Kōhanga Reo*, or “language nests” (King 2018). In these nests, very young children are taught language and culture by Māori elders—grandmothers and grandfathers in the community. Native Hawaiians have developed a similar program of language nests, called *Pūnana Leo*. Early on, some parents worried that children in immersion schools would not learn the dominant national language well enough to be successful in later life, but research has shown that such children do just as well or better in later classroom performance and standardized testing. Many language revitalization projects combine early immersion with later bilingual education (Hinton 2011, 2018). The Navaho Immersion School in Arizona provides immersion education for the first three years of schooling and then introduces English as the medium of instruction through grade seven. From grades eight to twelve, children are taught in Navaho half the time and English the other half.



Sign in front of a full-immersion school in Seatoun, New Zealand. All classes are held in the Māori language. (credit: “Te Kura Kaupapa Maori O Nga Mokopuna” by Tom Law/flickr, CC BY 2.0)

One of the challenges of school-based revitalization programs is finding enough adults sufficiently proficient in the language to teach it to children. Among the strategies of language revitalization that target adult learners is the master-apprentice approach. The original Master-Apprentice Language Learning Program was founded in California by the Advocates for Indigenous California Language Survival (Hinton 2018). The strategy has since spread all over the world. In these programs, a proficient speaker and a motivated learner spend 20 hours a week together, using the target language

plus gestures and other nonverbal communication to engage in various activities.

When successful, language revitalization can empower individuals and energize communities. Learning their heritage language, people come to understand the distinctive genius and complexity of their culture while preserving a crucial means of transmitting that culture across generations.

SUMMARY

Language and culture are closely entwined in the evolutionary development and contemporary diversity of human societies. Human language differs from animal communication in its complexity and flexibility, aspects of human communication made possible by unique human biological and genetic features. The complexity of language makes it a powerful tool in shaping human thought, providing categories and metaphors for organizing our information about the world. Though language shapes thought and action in universal ways, many aspects of language vary widely relative to local cultures. The social aspects of language are particularly relative, influencing how children learn languages in various sociocultural contexts as well as how people use language to create speech communities. In ritual contexts, language is used performatively to accomplish social action as well as challenging those actions. As a tool of power, language structures gender, race, and ethnic dynamics. Recognizing the fundamental importance of language to the preservation of culture, many Indigenous communities have developed strategies to revive their heritage languages using immersion schools and master-apprentice programs.

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5.2: LANGUAGE CHANGE AND DIGITAL COMMUNICATION

FEATURES OF LANGUAGE

There is no human society that lacks language, and, therefore, its presence is a cultural universal. Is that where the universality ends?

The 7,000 or so languages in the world are wonderfully diverse, with different sounds, words, and rules for making sentences. The !Kung language spoken by the San of the Kalahari, for instance, has one of the largest sound inventories in the world including distinctive click sounds. Different languages use different rules for ordering subjects (S), objects (O), and verbs (V). In English, we say “Sue sells salsa”, an SVO sentence. In Tuareg-Berber, a VSO language, the sentence would be something like “Sells Sue salsa.” There are 6 different possible arrangements for sentences, all of which are found in human languages. Though we often think of language as being spoken, it can have different delivery systems including speech, sign language, and writing. While all cultures have some form of spoken language and accompanying oral traditions, not all have a written form of language. Writing itself had its beginnings around 6,000 years ago, the earliest known writing system, cuneiform, arising in Mesopotamia.

It is easy to take language for granted; most of the time we don’t even think about it. We just do it. If we had to explain it to alien visitors or even to children, we’d probably have trouble even with the basics. We might start with a biological or mental explanation like we saw previously. But we know from our own experience with language every day that it is more than a purely biological and mental process. It’s cultural! In 1960, linguist **Charles Hockett** defined the features of language. He argued that if a communication system lacks even one feature, it is not language. Because language is so essential to human culture, peeling back the layers of language is useful for understanding the nature of being human. Let’s look at seven of those features:

1. **Cultural Transmission:** humans learn the language of their environment. It is not too surprising that children raised hearing Swahili all around them will grow up to speak Swahili.
2. **Arbitrariness:** our words don’t necessarily match the things they represent. Arbitrariness is what allows different languages to have words that sound nothing like each other. We have all just decided (‘agreed’) on their possible meanings. And sometimes (often, in fact) this means we can get creative with our words. Consider, for example, the new meaning “giving” has taken on even just in the past couple of years.
3. Speaking of which, **Productivity:** new words or sentences can be generated. We even have a word for newly coined words: neologism. Productivity also means you can understand a sentence even if you’ve never experienced that particular collection of words before.
4. In part because we can refer to things in a variety of ways, **Displacement** means we can communicate ideas that are not in our immediate environment or that exist only in our *imaginings*.
5. **Discreteness:** every human language is made up of a small number of meaningless discrete sounds. That is, the sounds can

be isolated from each other, for purposes of study by linguists, or to be represented in a writing system. (A suddenly added new sound would take time to ‘catch on.’)

6. **Grammar:** the structural rules of human language (even if they are inconsistently used). Rules can be broken, but certain patterns such as how to turn nouns into verbs, for example, help keep the arbitrariness and productivity in check. Grammar and other sorts of linguistic rules are something to ‘fall back on’ as we construct new language and helps ensure we continue to understand one another.
7. And, finally, language is **Context-specific**. Language doesn’t work in isolation.

There are, of course, many other ways that animals communicate with one another. But, so far as we can tell, humans are the only creature with ‘language’ holding all of these characteristics. In this chapter, we’ll focus on the social and cultural implications of language and communication—and language change. Some anthropologists (such as Edward Sapir and Benjamin Lee Whorf) have even gone so far as to argue that all *culture is linguistic* (e.g., when we say that an object has ‘meaning,’ we mean it contains a form of oral history). This might be extreme, but, at the very least, anthropologists do care how people organize their language, and you can learn a lot about a society by studying how it communicates.

HIDDEN IN WHAT WE SAY

Language is a fundamental aspect of human culture and a key element in constructing social identity. In anthropology, the study of language overlaps with a wide range of topics, from the structural aspects of different languages to the cultural contexts in which they are used—pretty much every one of Hockett’s features above. Here are just a few examples I like that help show why language is important in comparative anthropology: **Shibboleths** (which we’ve seen before), the distinction between **orality and literacy**, and the potential for **universals** (or not).

SHIBBOLETHS

Shibboleths get their name from a biblical story which serves as a pretty obvious example of what they are. A Shibboleth is a word or phrase that is used to distinguish members of one group from those of another. A modern example might be whether you say ‘bubbler’ / ‘drinking fountain,’ ‘traffic lights’ / ‘stop and go lights,’ ‘casserole’ / ‘hot dish,’ how or if you pronounce the first T in ‘interesting,’ or how you pronounce ‘pecan’ or ‘caramel.’ The term originates from the biblical story in which the Gileadites used the word “shibboleth” to identify and kill members of the Ephraimite tribe, who could not pronounce the word ‘correctly’ according to their culture. The two tribes were enculturated to pronounce S and SH sounds differently. In a broader sense, Shibboleths are linguistic markers that signal social, ethnic, or regional identity. For linguists today, these linguistic markers are not just about pronunciation; they can also include vocabulary, grammar, and even non-verbal communication cues.

Here are some examples:

- **Dialectal differences:** Many Aboriginal Australian languages have regional variations, or dialects, that can be used to identify where someone is from. There are more than 250 indigenous Australian languages including nearly 800 dialects.
- **Click languages:** The Khoisan languages of southern Africa are known for their distinctive click sounds. The distribution and ‘type’ of clicks used can distinguish Khoisan speakers from speakers of other African languages.
- **Tonal languages:** East Asia and Africa have more ‘tonal’ languages than the rest of the world. The ability to correctly use tones can be a marker of language proficiency and cultural identity—especially considering the difficulty of learning a tonal language for a Western (largely non-tonal) speaker. The closest example of tonal language in English, for example, is the difference in inflection between a statement and the same statement as a question. Note the difference in tone between: “You’re wearing pajamas.” and “You’re wearing pajamas?”
- **Honorifics:** Many Southeast Asian languages have elaborate systems of honorifics, which are used to show respect to others. The correct use of honorifics can be a sign of social status and cultural knowledge.
- **Dialects:** Most languages have dialects. Native American languages, for example, are known for their regional dialects, which can be used to identify where someone is from. Speakers of Navajo from the Four Corners region may have a different dialect than speakers from the Navajo Nation’s eastern border. With the steady decline in number of speakers, these dialectal differences are under even more threat of extinction.
- This idea of a cultural form being associated with ‘us’ and ‘them’ should not be new to you. In fact, we saw this in research on the specific way that speech is organized in terms of social groups—especially between genders.

Part of the reason ideas like Shibboleths are so powerful is because, from its very basis, language is about the human drive to classify things (including themselves), both making them (or saying they are) similar and to say they are different. Language is never just neutral because it is always about how people relate to each other. Even the most innocuous language tells us about who/what gets included or excluded. We can see this in as simple as how a culture divides up the spectrum of visible light into named colors or as complex as life stages, a spiritual hierarchy, or caste system. Consider, too, the ‘**meta-language**’ of what is ‘said’ by the rules of who gets to speak, to whom, and when.

ORALITY AND LITERACY

Next, we turn to the distinction between **orality** and **literacy**. **Orality** refers to cultures that primarily rely on spoken language for communication, while **literacy** refers to cultures that use written language. This distinction is one we probably don’t consider too often in the modern West where everything is written about. But this distinction is crucial in understanding how different societies transmit knowledge, maintain social structures, and preserve cultural heritage.

In oral cultures, storytelling, proverbs, and oral traditions play a central role. For instance, among the Yoruba people of Nigeria, oral

literature, including folktales and praise poetry, is a vital part of cultural expression and social cohesion. In contrast, literate cultures often rely on written texts to record history, laws, and religious practices. The ancient Egyptians, for example, used hieroglyphics to document everything from administrative records to religious texts. Babylonians also had a form of writing. But not all writing is created equal—something modern archaeologists have to contend with when they try to ascribe modern writing practices to ancient systems.

The boundary between orality and literacy is not always clear-cut. Many cultures exhibit a blend of both. The Maori of New Zealand, for instance, have a rich oral tradition that includes the recitation of genealogies and myths, but they also adopted writing systems to preserve their language and culture in the face of colonial pressures. Similarly, the Mayan civilization of Mesoamerica developed a complex system of syllabic hieroglyphic writing while maintaining (we think) strong oral traditions that went along with them.

What is important about these ways (oral, literal, or something else) of doing language is that they can change over time (in part because of those seven features outlined above). More importantly, *what we think of as “natural,” then, is actually a product of a particular historical and cultural period.*

I also probably don’t need to list even one example of how language is also tied to emotions. How do you think this link between words and sentiments is different (or the same) between the spoken and the written word? Studies suggest that the emotional tone of language make it easier for people to remember situations or events that they found disturbing, joyful, angry, etc. One reason, perhaps, that rituals are effective is that when people cry, laugh, etc. they are “buying in” to the commitment involved. And this idea of social commitment and memory brings us to a more detailed account of Orality and Literacy.

ORALITY

Orality is simply speaking, particularly when literacy is largely absent. **Walter Ong** is best known for his theorizing on the implications of orality along with **Milman Parry** and **Albert Lord** who focused on oral performances such as story-telling and epic poems.

Ong argued that oral cultures live in a more intimate “hearing” environment. This *impacts our distance from one another*—we need to remain close to hear. As a result, oral cultures have an upward limit in terms of size—other historians and archaeologists have made a similar point. Beyond a certain population size, you can no longer (reliably) hear everything that happens. In literacy, by contrast, communication shifts from the ear to the eye—and the network with which you communicate grows tremendously. As a result, literacy is a kind of distancing mechanism that separates people from one another in time and space.

Think about *how continuity happens over generations* in oral cultures since spoken language goes out of existence as it is spoken. Parry and Lord have an answer. They studied the performances of Serbian folk singers, who might repeat tens or even hundreds of thousands of lines of poetry over a period of several days. Many other oral cultures have lengthy performances as well: the ancient Hebrews undoubtedly performed the Pentateuch; Muslims repeat the

Qur'an orally; ancient Norse, English, and Celtic peoples had their epic poems, as did the ancient Greeks; Navaho doctors sing songs such as Blessing Way for four days without interruption.

How? It's not just about memory. In most cases, these performances follow certain formulas and rules that helped guide them. Since they weren't written down, performers also had the freedom to adapt their tales to suit the audience. They could recycle phrases and make adjustments on the fly. Who would know—so long as what they said matched up with cultural expectations of the tale! So oral culture is stable because it is performed. How are literate cultures different?

LITERACY

Jack Goody has written extensively about literacy. He saw literacy as *a social technology* that had *important cognitive and cultural consequences*. Goody points out that prior to literacy, people could not “know” whether one account of an event was the same as another, because there was no way to compare them. As a result, “history” begins with literacy. Science and mathematics, according to Goody, also require writing.

Goody (like Max Weber) saw (Western) government as based on literacy: legal proceedings, taxes, and bureaucratic record-keeping all depend on the availability of written materials. The development of government in its turn made possible the extension of political systems over thousands of miles and hundreds of years. As a result, literacy is often very ‘conservative’—in the sense that it prefers to maintain the status quo with less and less regard for new contexts—since what you are reading may have been written a long time ago and far away.

That said, we always have to take into account *the social context of reading and writing* in order to understand its effect in specific cultures. For example, until fairly recently, it was considered entirely appropriate to read aloud. The idea that you would *read “in your head”* and not speak or move your lips is part of the modern emphasis on the importance of *individualism*—and therefore private *personal experience*.

SECONDARY ORALITY

But, wait. What about YouTube, TikTok, and other forms of ‘**modern media**’? It turns out, societies that go from orality to literacy come to feel the effects of losing the closeness created by hearing and a few select elders and the community at large holding the knowledge (instead of disparate texts).

Ong wrote about what he called “**secondary orality**” as a form of communication in cultures with **mass media**. He noted that TV and movies (the mass media of his time) were a lot like the performances of oral cultures, since they tried to establish an intimate space of hearing intent on an emotional response. At the same time, mass media are like literacy because they are based on distance in time and space. “Secondary orality” is a combination of orality and literacy—or a form of literacy trying to be as much like orality as it can be.

✓ CONSIDER THE FOLLOWING...

Do you think mass media has erased the physical barriers characteristic of primary orality? Before modern media, various

gatekeepers (elders for orality or specialists—such as bureaucrats or librarians—for literacy) controlled access to information. Who are the gatekeepers of mass media like TikTok or YouTube?

HIDDEN IN WHAT WE SAY

Orality and literacy is one way we can see how drastically different two languages or ‘modes’ of language can be from one another. Looking at language change can often be about what ‘language’ (as a broad cultural form) says in a culture beyond the words being uttered (or written). Consider what the culture bothers to name, the ways they speak—and if certain classes of people speak differently to one another.

The term anthropologists Deborah Tannen uses for these features language carries with it in addition to the actual content of the language is “**metamessage**.” The metamessage is whether the speaker is an authority, ‘one of us,’ and so on. A great way to think about metamessage is in ‘code-switching.’ Do you speak to your parents the same way you speak with your friends? To your partner the same way you speak with your boss? It probably wouldn’t take you long to think of a situation in which you or someone else was judged because of the way they spoke.

What many examples the world over all demonstrate is that, while language is a universal human trait, the ways in which it is expressed vary greatly across cultures. What does not change across these variations seems to be that language, like culture itself, is always embedded with a set of beliefs about how the world ‘is’ or ‘ought to be.’

We have previously heard about Keith Basso’s “Wisdom Sits in Places.” In it, he looks at the connection between language, landscape, and identity among the Western Apache. Basso illustrates how specific places in the Apache landscape are imbued with cultural significance and tied to stories, moral lessons, and social values that are passed down *through generations*. They are so much so that the names of places have become a sort of short-hand for certain situations.

The Apache example shows that language is more than just a tool for communication as a central to the way people understand their world and themselves. The Apache use place names not only to navigate their physical landscape but also to connect individuals to their community’s history and moral universe. By invoking place-names, they evoke shared stories and values, reinforcing their cultural identity. These stories, often tied to the moral failings or virtues of ancestors, become a way of teaching lessons about proper behavior, personal responsibility, and community cohesion. Language here acts as a bridge between the physical landscape and the internal sense of self and belonging within a community.

LINGUISTIC RELATIVITY: THE SAPIR-WHORF HYPOTHESIS

We have already touched on the Sapir-Whorf hypothesis in the previous chapter. In the 1920s, **Benjamin Whorf** was a graduate student studying with linguist **Edward Sapir** at Yale University in New Haven, Connecticut. Sapir, considered the father of American linguistic anthropology, was responsible for documenting and

recording the languages and cultures of many Native American tribes, which were disappearing at an alarming rate. This was due primarily to the deliberate efforts of the United States government to force Native Americans to assimilate into the Euro-American culture. Sapir and his predecessors were well aware of the close relationship between culture and language because each culture is reflected in and influences its language. Anthropologists need to learn the language of the culture they are studying in order to understand the world view of its speakers. Whorf believed that the reverse is also true, that **a language affects culture as well**, by actually influencing how its speakers think. His hypothesis proposes that the words and the structures of a language influence how its speakers think about the world, how they behave, and ultimately the culture itself. Simply stated, Whorf believed that *human beings see the world the way they do because the specific languages they speak influence them to do so*. (Recall examples of naming colors or classifying animals.) He developed this idea through both his work with Sapir and his work as a chemical engineer for the Hartford Insurance Company investigating the causes of fires.

One of his cases while working for the insurance company was a fire at a business where there were a number of gasoline drums. Those that contained gasoline were surrounded by signs warning employees to be cautious around them and to avoid smoking near them. The workers were always careful around those drums. On the other hand, empty gasoline drums were stored in another area, but employees were more careless there. Someone tossed a cigarette or lighted match into one of the “empty” drums, it went up in flames, and started a fire that burned the business to the ground. Whorf theorized that the meaning of the word empty implied to the worker that “nothing” was there to be cautious about so the worker behaved accordingly. Unfortunately, an “empty” gasoline drum may still contain fumes, which are more flammable than the liquid itself.

Whorf’s studies at Yale involved working with Native American languages, including Hopi. The **Hopi language** is quite different from English, in many ways. For example, let’s look at how the Hopi language deals with **time**. Western languages (and cultures) view time as a flowing river in which we are being carried continuously away from a past, through the present, and into a future. Our verb systems reflect that concept with specific tenses for past, present, and future. We think of this concept of time as universal, that all humans see it the same way. A Hopi speaker has very different ideas and the structure of their language both reflects and shapes the way they think about time. The Hopi language has no present, past, or future tense. Instead, it divides the world into what Whorf called the manifested and unmanifest domains. The manifested domain deals with the physical universe, including the present, the immediate past and future; the verb system uses the same basic structure for all of them. The unmanifest domain involves the remote past and the future, as well as the world of desires, thought, and life forces. The set of verb forms dealing with this domain are consistent for all of these areas, and are different from the manifested ones. Also, there are no words for hours, minutes, or days of the week.

Native Hopi speakers often had great difficulty adapting to life in the English speaking world when it came to being “on time” for work or

other events. It is simply not how they had been conditioned to behave with respect to time in their Hopi world, which followed the phases of the moon and the movements of the sun. In a book about the Abenaki who lived in Vermont in the mid-1800s, Trudy Ann Parker described their concept of time, which very much resembled that of the Hopi and many of the other Native American tribes.

They called one full day a sleep, and a year was called a winter. Each month was referred to as a moon and always began with a new moon. An Indian day wasn’t divided into minutes or hours. It had four time periods—sunrise, noon, sunset, and midnight. Each season was determined by the budding or leafing of plants, the spawning of fish or the rutting time for animals. Most Indians thought the white race had been running around like scared rabbits ever since the invention of the clock.

The **lexicon**, or vocabulary, of a language is an inventory of the items a culture talks about and has categorized in order to make sense of the world and deal with it effectively. For example, modern life is dictated for many by the need to travel by some kind of vehicle—cars, trucks, SUVs, trains, buses, etc. We therefore have thousands of words to talk about them, including types of vehicles, models, brands, or parts.

The most important aspects of each culture are similarly reflected in the lexicon of its language. Among the societies living in the islands of Oceania in the Pacific, fish have great economic and cultural importance. This is reflected in the rich vocabulary that describes all aspects of the fish and the environments that islanders depend on for survival. For example, in Palau there are about 1,000 fish species and Palauan fishermen knew, long before biologists existed, details about the anatomy, behavior, growth patterns and habitat of most of them—in many cases far more than modern biologists know even today. Much of fish behavior is related to the tides and the phases of the moon. Throughout Oceania, the names given to certain days of the lunar months reflect the likelihood of successful fishing. For example, in the Caroline Islands, the name for the night before the new moon is otolol, which means “to swarm.” The name indicates that the best fishing days cluster around the new moon. In Hawai’i and Tahiti two sets of days have names containing the particle `ole or `ore; one occurs in the first quarter of the moon and the other in the third quarter. The same name is given to the prevailing wind during those phases. The words mean “nothing,” because those days were considered bad for fishing as well as planting.

Parts of Whorf’s hypothesis, known as **linguistic relativity**, were controversial from the beginning, and still are among some linguists. Yet Whorf’s ideas now form the basis for an entire sub-field of cultural anthropology: cognitive or psychological anthropology. A

number of studies have been done that support Whorf's ideas. Linguist George Lakoff's work looks at the pervasive existence of metaphors in everyday speech that can be said to predispose a speaker's world view and attitudes on a variety of human experiences. A **metaphor** is an expression in which one kind of thing is understood and experienced in terms of another entirely unrelated thing; the metaphors in a language can reveal aspects of the culture of its speakers. Take, for example, the concept of an argument. In logic and philosophy, an argument is a discussion involving differing points of view, or a debate. But the conceptual metaphor in American culture can be stated as ARGUMENT IS WAR. This metaphor is reflected in many expressions of the everyday language of American speakers: I won the argument. He shot down every point I made. They attacked every argument we made. Your point is right on target. I had a fight with my boyfriend last night. In other words, we use words appropriate for discussing war when we talk about arguments, which are certainly not real war. But we actually think of arguments as a verbal battle that often involve anger, and even violence, which then structures how we argue.

To illustrate that this concept of argument is not universal, Lakoff suggests imagining a culture where an argument is not something to be won or lost, with no strategies for attacking or defending, but rather as a dance where the dancers' goal is to perform in an artful, pleasing way. No anger or violence would occur or even be relevant to speakers of this language, because the metaphor for that culture would be ARGUMENT IS DANCE.

LANGUAGE AND IDENTITY

The way we speak can be seen as a marker of who we are and with whom we identify. We talk like the other people around us: where we live, our social class, our region of the country, our ethnicity, and even our gender. These *categories are not homogeneous*. All New Yorkers do not talk exactly the same; all women do not speak according to stereotypes; all African-Americans do not speak an African-American dialect. No one speaks the same way in all situations and contexts, but there are some *consistencies* in speaking styles that are associated with many of these categories.

As discussed above, people can indicate **social class** by the way they speak. The closer to the standard version their dialect is, the more they are seen as a member of a higher social class because the dialect reflects a higher level of education. In American culture, social class is defined primarily by income and net worth, and it is difficult (but not impossible) to acquire wealth without a high level of education. However, the speech of people in the higher social classes also varies with the region of the country where they live, because there is no single standard of American English, especially with respect to pronunciation. An educated Texan will sound different from an educated Bostonian, but they will use the standard version of English from their own region. The lower the social class of a community, the more their language variety will differ from both the standard and from the vernaculars of other regions.

An ethnicity, or **ethnic group**, is a group of people who identify with each other based on some combination of shared cultural heritage, ancestry, history, country of origin, language, or dialect. In

the United States such groups are frequently referred to as "races," but there is no such thing as biological race, and this misconception has historically led to racism and discrimination. Because of the social implications and biological inaccuracy of the term "race," it is often more accurate and appropriate to use the terms ethnicity or ethnic group. A language variety is often associated with an ethnic group when its members use language as a marker of solidarity. They may also use it to distinguish themselves from a larger, sometimes oppressive, language group when they are a minority population.

A familiar example of an oppressed ethnic group with a distinctive dialect is African-Americans. They have a unique history among minorities in the United States, with their centuries-long experience as captive slaves and subsequent decades under Jim Crow laws. (These laws restricted their rights after their emancipation from slavery.) With the Civil Rights Acts of 1964 and 1968 and other laws, African-Americans gained legal rights to access public places and housing, but it is not possible to eliminate racism and discrimination only by passing laws; both still exist among the white majority. It is no longer culturally appropriate to openly express racism, but it is much less frowned upon to express negative attitudes about African-American Vernacular English (AAVE). Typically, it is not the language itself that these attitudes are targeting; it is the people who speak it.

As with any language variety, AAVE is a complex, rule-driven, grammatically consistent language variety, a dialect of American English with a distinctive history. A widely accepted hypothesis of the origins of AAVE is as follows. When Africans were captured and brought to the Americas, they brought their own languages with them. But some of them already spoke a version of English called a pidgin. A pidgin is a language that springs up out of a situation in which people who do not share a language must spend extended amounts of time together, usually in a working environment. Pidgins are the only exception to the Language Universal number 3 (all languages are systematic, rule driven, and equally complex overall, and equally capable of expressing any idea that the speaker wishes to convey).

There are no primitive languages, but a pidgin is a simplified language form, cobbled together based mainly on one core language, in this case English, using a small number of phonemes, simplified syntactic rules, and a minimal lexicon of words borrowed from the other languages involved. A pidgin has no native speakers; it is used primarily in the environment in which it was created. An English-based pidgin was used as a common language in many areas of West Africa by traders interacting with people of numerous language groups up and down the major rivers. Some of the captive Africans could speak this pidgin, and it spread among them after the slaves arrived in North America and were exposed daily to English speakers. Eventually, the use of the pidgin expanded to the point that it developed into the original forms of what has been called a Black English plantation creole. A creole is a language that develops from a pidgin when it becomes so widely used that children acquire it as one of their first languages. In this situation it becomes a more fully complex language consistent with Universal number 3.

All African-Americans do not speak AAVE, and people other than African-Americans also speak it. Anyone who grows up in an area where their friends speak it may be a speaker of AAVE like the rapper Eminem, a white man who grew up in an African-American neighborhood in Detroit. Present-day AAVE is not homogeneous; there are many regional and class variations. Most variations have several features in common, for instance, two phonological features: the dropped /r/ typical of some New York dialects, and the pronunciation of the “th” sound of words like this and that as a /d/ sound, dis and dat. Most of the features of AAVE are also present in many other English dialects, but those dialects are not as severely stigmatized as AAVE is. It is interesting, but not surprising, that AAVE and southern dialects of white English share many features. During the centuries of slavery in the south, African-American slaves outnumbered whites on most plantations. Which group do you think had the most influence on the other group’s speech? The African-American community itself is divided about the acceptability of AAVE. It is probably because of the historical oppression of African-Americans as a group that the dialect has survived to this day, in resistance to the majority white society’s disapproval.

In any culture that has differences in **gender role expectations**—and all cultures do—there are differences in how people talk based on their sex and gender identity. These differences have nothing to do with biology. Children are taught from birth how to behave appropriately as a male or a female in their culture, and different cultures have different standards of behavior. It must be noted that not all men and women in a society meet these standards, but when they do not they may pay a social price. Some societies are fairly tolerant of violations of their standards of gendered behavior, but others are less so.

In the United States, men are generally expected to speak in a low, rather monotone pitch; it is seen as masculine. If they do not sound sufficiently masculine, American men are likely to be negatively labeled as effeminate. Women, on the other hand, are freer to use their entire pitch range, which they often do when expressing emotion, especially excitement. When a woman is a television news announcer, she will modulate the pitch of her voice to a sound more typical of a man in order to be perceived as more credible. Women tend to use minimal responses in a conversation more than men. These are the vocal indications that one is listening to a speaker, such as m-hm, yeah, I see, wow, and so forth. They tend to face their conversation partners more and use more eye contact than men. This is one reason women often complain that men do not listen to them.

Deborah Tannen, a professor of linguistics at Georgetown University in Washington, D.C., has done research for many years on language and gender. Her basic finding is that in conversation women tend to use styles that are relatively cooperative, to emphasize an equal relationship, while men seem to talk in a more competitive way in order to establish their positions in a hierarchy. She emphasizes that both men and women may be cooperative and competitive in different ways.

Other societies have very different standards for gendered speech styles. In Madagascar, men use a very flowery style of talk, using

proverbs, metaphors and riddles to indirectly make a point and to avoid direct confrontation. The women on the other hand speak bluntly and say directly what is on their minds. Both admire men’s speech and think of women’s speech as inferior. When a man wants to convey a negative message to someone, he will ask his wife to do it for him. In addition, women control the marketplaces where tourists bargain for prices because it is impossible to bargain with a man who will not speak directly. It is for this reason that Malagasy women are relatively independent economically.

In Japan, women were traditionally expected to be subservient to men and speak using a “feminine” style, appropriate for their position as wife and mother, but the Japanese culture has been changing in recent decades so more and more women are joining the work force and achieving positions of relative power. Such women must find ways of speaking to maintain their feminine identities and at the same time express their authority in interactions with men, a challenging balancing act. Women in the United States do as well, to a certain extent. Even Margaret Thatcher, prime minister of England, took speech therapy lessons to “feminize” her language use while maintaining an expression of authority.

THE DEAF 'CULTURE' AND SIGNED LANGUAGES

Deaf people constitute a linguistic minority in many societies worldwide based on their common experience of life. This often results in their identification with a local Deaf culture. Such a culture may include shared beliefs, attitudes, values, norms, and values, like any other culture, and it is invariably marked by communication through the use of a sign language. It is not enough to be physically deaf (spelled with a lower case “d”) to belong to a Deaf culture (written with a capital “D”). In fact, one does not even need to be deaf. Identification with a Deaf culture is a personal choice. It can include family members of deaf people or anyone else who associates with deaf people, as long as the community accepts them. Especially important, members of Deaf culture are expected to be competent communicators in the sign language of the culture. In fact, there have been profoundly deaf people who were not accepted into the local Deaf community because they could not sign. In some deaf schools, at least in the United States, the practice has been to teach deaf children how to lip read and speak orally, and to prevent them from using a signed system. They were expected to blend in with the hearing community as much as possible. This is called the oralist approach to education, but it is considered by members of the Deaf community to be a threat to the existence of their culture. For the same reason, the development of cochlear implants, which can restore hearing for some deaf children, has been controversial in U.S. Deaf communities. The members often have a positive attitude toward their deafness and do not consider it to be a disability. To them, regaining hearing represents disloyalty to the group and a desire to leave it.

According to the World Federation of the Deaf, there are over 200 distinct sign languages in the world, which are not mutually comprehensible. They are all considered by linguists to be true languages, consistent with linguistic definitions of all human languages. They differ only in the fact that they are based on a gestural-visual rather than a vocal-auditory sensory mode. Each is a

true language with basic units comparable to phonemes but composed of hand positions, shapes, and movements, plus some facial expressions. Each has its own unique set of morphemes and grammatical rules. American Sign Language (ASL), too, is a true language separate from English; it is not English on the hands. Like all other signed languages, it is possible to sign with a word-for-word translation from English, using finger spelling for some words, which is helpful in teaching the deaf to read, but they prefer their own language, ASL, for ordinary interactions. Of course, Deaf culture identity intersects with other kinds of cultural identity, like nationality, ethnicity, gender, class, and sexual orientation, so each Deaf culture is not only small but very diverse.

LANGUAGE CHANGE

All languages change over time. In fact, it is not possible to keep them from doing so. How and why does this happen? The study of how languages change is known as **historical linguistics**. The processes, both historical and linguistic, that cause language change can affect all of its systems: phonological, morphological, lexical, syntactic, and semantic... The short answer is tweaks among and between the seven features of language above!

Historical linguists have placed most of the languages of the world into **taxonomies**, groups of languages classified together based on words that have the same or similar meanings. Language taxonomies create something like a family tree of languages. For example, words in the Romance family of languages, called sister languages, show great similarities to each other because they have all derived from the same “mother” language, Latin (the language of Rome). In turn, Latin is considered a “sister” language to Sanskrit (once spoken in India and now the mother language of many of India’s modern languages, and still the language of the Hindu religion) and classical Greek. Their “mother” language is called “Indo-European,” which is also the mother (or grandmother!) language of almost all the rest of European languages.

Let’s briefly examine the history of the English language as an example of these processes of change. England was originally populated by Celtic peoples, the ancestors of today’s Irish, Scots, and Welsh. The Romans invaded the islands in the first-century AD, bringing their Latin language with them. This was the edge of their empire; their presence there was not as strong as it was on the European mainland. When the Roman Empire was defeated in about 500 AD by Germanic speaking tribes from northern Europe (the “barbarians”), a number of those related Germanic languages came to be spoken in various parts of what would become England. These included the languages of the Angles and the Saxons, whose names form the origin of the term Anglo-Saxon and of the name of England itself—Angle-land. At this point, the languages spoken in England included those Germanic languages, which gradually merged as various dialects of English, with a small influence from the Celtic languages, some Latin from the Romans, and a large influence from Viking invaders. This form of English, generally referred to as Old English, lasted for about 500 years. In 1066 AD, England was invaded by William the Conqueror from Normandy, France. New French rulers brought the French language. French is a Latin-based language, and it is by far the greatest source of the Latin-based

words in English today; almost 10,000 French words were adopted into the English of the time period. This was the beginning of Middle English, which lasted another 500 years or so.

The change to Modern English had two main causes. One was the invention of **the printing press** in the fifteenth century (and resulting boom of ‘literacy’ in Ong’s terms), which resulted in a deliberate effort to **standardize** the various dialects of English, mostly in favor of the dialect spoken by the elite. The other source of change, during the fifteenth and sixteenth centuries, was a major shift in the pronunciation of many of the vowels (known, not terribly creatively, as **The Great Vowel Shift**). Middle English words like *hus* and *ut* came to be pronounced *house* and *out*. Many other vowel sounds also changed in a similar manner.

None of the early forms of English are easily recognizable as English to modern speakers. Here is an example of the first two lines of the Lord’s Prayer in Old English, from 995 AD, before the Norman Invasion:

*Fæder ūre, ðū ðē eart on heofonum,
Sī ðīn nama gehālgod.*

Here are the same two lines in Middle English, English spoken from 1066 AD until about 1500 AD. These are taken from the Wycliffe Bible in 1389 AD:

*Our fadir that art in heuenes,
halwid be thi name.*

The following late Middle English/early Modern English version from the 1526 AD Tyndale Bible, shows some of the results of grammarians’ efforts to standardize spelling and vocabulary for wider distribution of the printed word due to the invention of the printing press:

*O oure father which arte in heven,
halowed be thy name.*

And finally, this example is from the King James Version of the Bible, 1611 AD, in the early Modern English language of Shakespeare. It is almost the same archaic form that modern Christians use.

*Our father which art in heauen,
hallowed be thy name.*

Over the centuries since the beginning of Modern English, it has been further affected by exposure to other languages and dialects worldwide. This exposure brought about new words and changed meanings of old words. More changes to the sound systems resulted from phonological processes that may or may not be attributable to the influence of other languages. Many other changes, especially in recent decades, have been brought about by cultural and technological changes that require new vocabulary to deal with them.

? CONSIDER THE FOLLOWING...

Try This: Just think of all the words we use today that have either changed their primary meanings, or are completely new: mouse and mouse pad, Google, app, computer (which used to

be a person who computes!), text, phone, etc. How many more can you think of?

GLOBALIZATION AND LANGUAGE CHANGE

Globalization is the spread of people, their cultures and languages, products, money, ideas, and information around the world. Globalization is nothing new; it has been happening throughout the existence of humans, but for the last 500 years it has been increasing in its scope and pace, primarily due to improvements in transportation and communication. Beginning in the fifteenth-century, English explorers started spreading their language to colonies in all parts of the world. English is now one of the three or four most widely spoken languages. It has official status in at least 60 countries, and it is widely spoken in many others. Other colonizers also spread their languages, especially Spanish, French, Portuguese, Arabic, and Russian. Like English, each has its regional variants. One effect of colonization has often been the suppression of local languages in favor of the language of the more powerful colonizers.

In the past half century, globalization has been dominated by the spread of North American popular culture and language to other countries. Today it is difficult to find a country that does not have American music, movies and television programs, or Coca Cola and McDonald's, or many other artifacts of life in the United States, and the English terms that go with them.

In addition, people are moving from rural areas to cities in their own countries, or they are migrating to other countries in unprecedented numbers. Many have moved because they are refugees fleeing violence, or they found it increasingly difficult to survive economically in their own countries. This mass movement of people has led to the on-going extinction of large numbers of the world's languages as people abandon their home regions and language in order to assimilate into their new homes.

LANGUAGE SHIFT, LANGUAGE MAINTENANCE, AND LANGUAGE DEATH

Of the approximately 6,000-7,000 languages still surviving today, about half the world's more than seven billion people speak only ten. These include Mandarin Chinese, two languages from India, Spanish, English, Arabic, Portuguese, Russian, Japanese, and German. Many of the rest of the world's languages are spoken by a few thousand people, or even just a few hundred, and most of them are threatened with extinction, called **language death**. It has been predicted that by the end of this century up to 90 percent of the languages spoken today will be gone. The rapid disappearance of so many languages is of great concern to linguists and anthropologists alike. When a language is lost, its associated culture and *unique set of knowledge and worldview* are lost with it forever. Remember Whorf's hypothesis.

Some minority languages are not threatened with extinction, even those that are spoken by a relatively small number of people. Others, spoken by many thousands, may be doomed. What determines which survive and which do not? Smaller languages that are associated with a specific country are likely to survive. Others that are spoken across many national boundaries are also less threatened,

such as Quechua, an indigenous language spoken throughout much of South America, including Colombia, Ecuador, Peru, Chile, Bolivia, and Argentina. The great majority of the world's languages are spoken by people with minority status in their countries. After all, there are only about 193 countries in the world, and over 6,000 languages are spoken in them. You can do the math.

The survival of the language of a given speech community is ultimately based on the accumulation of individual decisions by its speakers to continue using it or to abandon it. The abandonment of a language in favor of a new one is called **language shift**. These decisions are usually influenced by the society's prevailing attitudes. In the case of a **minority speech community** that is surrounded by a more powerful majority, an individual might keep or abandon the native language depending on a complex array of factors. The most important factors will be the attitudes of the minority people toward themselves and their language, and the attitude of the majority toward the minority.

Language represents a **marker of identity**, an emblem of group membership and **solidarity**, but that marker may have a downside as well. If the majority look down on the minority as inferior in some way and discriminates against them, some members of the minority group may internalize that attitude and try to blend in with the majority by adopting the majority's culture and language. Others might more highly value their identity as a member of that stigmatized group, in spite of the discrimination by the majority, and continue to speak their language as a symbol of resistance against the more powerful group. One language that is a minority language when spoken in the United States and that shows no sign of dying out either there or in the world at large, is Spanish. It is the primary language in many countries and in the United States it is by far the largest minority language.

Another example of an oppressed minority group that has struggled with language and culture loss is Native Americans. Many were completely wiped out by the European colonizers, some by deliberate genocide but the great majority (up to 90 percent) by the diseases that the white explorers brought with them, against which the Native Americans had no immunity. In the twentieth-century, the American government stopped trying to kill Native Americans but instead tried to assimilate them into the white majority culture. It did this in part by forcing Native American children to go to boarding schools where they were required to cut their hair, practice Christianity, and speak only English. When they were allowed to go back home years later, they had lost their languages and their culture, but had not become culturally "white" either. The status of Native Americans in the nineteenth and twentieth-centuries as a scorned minority prompted many to hide their ethnic identities even from their own children. In this way, the many hundreds of original Native American languages in the United States have dwindled to less than 140 spoken today, according to UNESCO. More than half of those could disappear in the next few years, since many are spoken by only a handful of older members of their tribes. However, a number of Native American tribes have recently been making efforts to revive their languages and cultures, with the help of linguists and often by using texts and old recordings made by early linguists like Edward Sapir.

HOW IS THE DIGITAL AGE CHANGING COMMUNICATION?

The invention of the printing press in the fifteenth-century was just the beginning of technological transformations that made the spread of information in European languages and ideas possible across time and space using the printed word. Recent advances in travel and digital technology are rapidly transforming communication; now we can be in contact with almost anyone, anywhere, in seconds. However, it could be said that the new age of instantaneous access to everything and everyone is actually continuing a social divide that started with the printing press.

In the fifteenth-century, few people could read and write, so only the tiny educated minority were in a position to benefit from printing. Today, only those who have computers and the skills to use them, the educated and relatively wealthy, have access to this brave new world of communication. Some schools have adopted computers and tablets for their students, but these schools are more often found in wealthier neighborhoods. Thus, technology is continuing to contribute to the growing gap between the economic haves and the have-nots.

There is also a digital generation gap between the young, who have grown up with computers, and the older generations, who have had to learn to use computers as adults. These two generations have been referred to as digital natives and digital immigrants. The difference between the two groups can be compared to that of children versus adults learning a new language; learning is accomplished much more easily by the young.

Computers, and especially social media, have made it possible for millions of people to connect with each other for purposes of political activism, including “Occupy Wall Street” in the United States and the “Arab Spring” in the Middle East. Some anthropologists have introduced computers and cell phones to the people they studied in remote areas, and in this way they were able to stay in contact after finishing their ethnographic work. Those people, in turn, were now able to have greater access to the outside world.

Facebook and ‘micro-blogging’ platforms (like X/Twitter, Bluesky, etc.) are becoming key elements in the survival of a number of endangered indigenous languages. Facebook is now available in over 70 languages, and Twitter in about 40 languages. For example, a website has been created that seeks to preserve Anishinaabemowin, an endangered Native American language from Michigan.

The language has 8,000-10,000 speakers, but most of the native speakers are over 70 years old, which means the language is threatened with extinction. Modern social media are an ideal medium to help encourage young people to communicate in their language to keep it alive.

Clearly, language and communication through modern technology are in the forefront of a rapidly changing world, for better or for worse. It’s anybody’s guess what will happen next.

LANGUAGE CHANGE OVER GENERATIONS

While the notion of discrete “generations” as bounded demographic categories—Baby Boomers, Generation X, Millennials, Generation Z—itself represents a largely culturally fabricated construct rather than a biological or linguistic reality, the phenomenon of **age-graded language variation** remains fundamentally important to understanding language change. **Generations**, however we choose to delineate them, do indeed produce language change, but they do so primarily because they produce identity change. Young speakers do not merely inherit the linguistic systems of their predecessors whole cloth; rather, they actively *or accidentally* reshape it as part of constructing their own social identities distinct from those of their parents and other authority figures. This process operates at multiple levels simultaneously: young speakers adopt novel vocabulary, innovate grammatical structures, shift phonological patterns, and repurpose existing linguistic resources to signal membership in their peer groups while simultaneously marking distance from older generations.

You may be able to think of goofy things you say in your family simply because a child mispronounced them, but generational language change goes well beyond this phenomenon.

The Sapir-Whorf hypothesis offers a useful way for understanding this type of language change: if language shapes thought and perception, then different generations, speaking subtly (or not so subtly) different varieties of what we call “the same language,” quite literally inhabit different worlds. A teenager in 2025 who describes something as “bussin” or uses “slay” as a verb of approval is not simply using different words for the same concepts that their grandparents might express as “excellent” or “wonderful” or *their* grandparents may have called “capital”—they are participating in an entirely different semiotic system, one that indexes different cultural values, different media ecosystems, different social hierarchies, and different ways of constructing the self in relation to others.

This divergence in linguistic practice inevitably generates what we might term generational **moral panic**. A moral panic is a period of broad fear and anxiety where a group or cultural behavior is falsely or exaggeratedly portrayed as a threat to society’s values. Moral panics are a recurring pattern in which older generations perceive the innovations (including linguistic changes) of younger speakers not simply as different, but as evidence of cognitive decline, cultural degradation, or moral decay. Interestingly, moral panics often correspond with the introduction of new media forms. Broad moral panic surrounded the advent of the printing press, newspapers, radio, television, *Dungeons & Dragons*, video games, the internet, video games (again), and—most recently—various forms of artificial intelligence.

Such moral panics about language are remarkably consistent across time periods and cultures, suggesting that they serve important social functions in negotiating intergenerational power dynamics and cultural authority. In contemporary America, we can observe this phenomenon vividly in middle school contexts, where linguistic innovations spread with particular rapidity through peer networks. Consider the emergence of the “six seven” verbal expression and hand gesture among middle schoolers in certain regions and online

communities in 2025. Originating from the song "Doot Doot (6 7)" by Skrilka, the expression took on meme status in part thanks to its use in TikTok edits. While the phrase lacks a fixed meaning, other (sometimes coincidental) usages have come to serve other localized meanings depending on context. In any event, "six seven" is best understood by linguistic anthropologists as 'sticky' or attractive to young speakers because of a simple feature: it exemplifies how young speakers create and circulate linguistic forms that are *deliberately opaque to adults*. The very inscrutability of such expressions to parents and teachers constitutes part of their social value. They function as identity markers that simultaneously build in-group solidarity and exclude outsiders. Predictably, adult reactions to such linguistic innovations often frame them as evidence that "kids these days can't communicate properly" or that "[texting / TikTok / YouTube / the internet / video games / etc.] is destroying literacy"—moral judgments that conflate linguistic difference with linguistic deficiency.

Yet these contemporary anxieties are hardly new. They echo concerns that have attended language change across centuries. In early twentieth-century America, social commentators lamented the "slovenly speech" of young people who had adopted jazz-age slang like "the bee's knees" or "the cat's pajamas"—expressions that today seem quaintly innocent but which at the time were perceived by many adults as vulgar corruptions of proper English that presaged the collapse of civilized discourse. Similarly, the emergence of youth-oriented slang in the 1960s ("groovy," "far out," "dig it") was frequently interpreted by older Americans not merely as generational difference but as symptomatic of broader social unraveling associated with the *counterculture* movement. The linguistic innovations were inseparable from—and indeed, constitutive of—the identity transformations that characterized that era.

Looking beyond American contexts, we find remarkably similar patterns across vastly different historical periods. Ancient Roman writers, including Cicero and Quintilian, regularly complained about the declining standards of Latin among young people, who were accused of adopting vulgar colloquialisms, foreign borrowings, and simplified grammatical structures that deviated from classical norms. What these Roman critics were actually observing, of course, was language change in progress—the gradual evolution of Classical Latin toward the various Romance languages that would eventually emerge. Their moral panic about linguistic corruption was simultaneously a panic about social change, political transformation, and the apparent erosion of traditional Roman values.

The Elizabethan / Shakespearean era provides another instructive example of the complex relationship between generational language change and moral anxiety. Shakespeare himself was a prodigious creator and popularizer of neologisms, introducing or giving currency to thousands of words and phrases that enriched English but which were often criticized by contemporary purists as unnecessary corruptions of the language. Words like "addiction," "bedroom," "eyeball," and "fashionable"—now thoroughly unremarkable—were once viewed by some of Shakespeare's contemporaries as the kind of flashy, youth-oriented linguistic innovation that degraded the dignity of English. But linguistic historians argue about whether Shakespeare really 'invented' all of

these words or was simply the first to put the words he was *hearing* into writing. So to say, Shakespeare's linguistic innovations were not merely individual creativity—they reflected and accelerated broader changes in Early Modern English driven partly by generational turnover in a period of rapid social change, expanded literacy, and increased contact with other languages.

The anxiety about these changes was palpable in works like Thomas Wilson's *The Arte of Rhetorique* (1553), which decried young scholars who "pouder their talke with ouersea language" and employ fancy foreign-derived vocabulary to show off, rather than communicating clearly in good plain English. What Wilson perceived as a moral failing was actually a generation of speakers navigating new social realities—increased international commerce, humanist education, religious reformation—that required new linguistic resources. The parallel to contemporary concerns about young people's language is striking: in both cases, linguistic innovation that serves genuine communicative and identity needs is reinterpreted through a lens of moral anxiety as evidence of decline. The "6 7" of middle school culture, the slang of the jazz age, the vulgarisms of young Romans, and the neologisms of Elizabethan youth all share a common feature—they represent generations using language not merely to communicate information, but to construct new forms of social identity that distinguish them from their predecessors, thereby ensuring that language, like the societies it serves, remains perpetually in motion.

The recurring correlation between moral panics and the emergence of new media forms offers insight into the relationship between language, culture, and generational anxiety. From wax writing tablets that horrified the ancient Greek philosopher Socrates (he thought we'd lose good human memory if we could write things down), to the printing press that horrified medieval scribes, to the social media platforms that alarm contemporary parents—each new medium does not merely provide a novel channel for transmitting existing language. Rather, it fundamentally restructures the conditions under which language is produced, circulated, and interpreted, thereby reshaping the cultural worlds that speakers inhabit. In Sapir-Whorf terms, a generation raised with TikTok, Discord, and Snapchat does not simply communicate the same ideas through different technologies—they think, perceive, and construct reality differently than a generation whose linguistic socialization occurred primarily through face-to-face conversation, telephone calls, and handwritten letters as well as one somewhere in between who prefer Facebook (or perhaps remember Myspace).

When parents express alarm that their children communicate through memes, abbreviations like "6 7," or AI-generated text, they are responding not merely to surface-level linguistic differences but to a profound recognition that these young people are cognitively and culturally inhabiting a different world, one whose rules and values are not immediately transparent to those formed by earlier media ecologies. The moral panic, then, serves as a kind of social alarm system signaling that a genuine transformation in human consciousness and communication is underway—though the panic typically misdirects our attention toward imagined harms (literacy decline, shortened attention spans, moral corruption) rather than toward the actual adaptive challenge of understanding and

navigating the new cultural-linguistic landscape being created. Linguistic anthropologists have an opportunity to study these alarms!

History suggests that each generation ultimately accommodates itself to the media innovations of its youth, at which point those once-threatening technologies become naturalized as simply "the way things are"—until the next innovation arrives to provoke the next moral panic, continuing the cycle through which language, culture, and human perception evolve together across generational time. So what's next?

MODERN LANGUAGE AND LARGE LANGUAGE MODELS (LLM, "AI")

The discussion of generational moral panics and new media forms brings us inevitably to one of the most significant technological developments of our current moment: Large Language Models and artificial intelligence. It is worth stating explicitly at the outset that what follows is not itself a moral panic about AI, nor an argument against its use. Just as previous generations had to grapple thoughtfully with the genuine transformations brought about by the printing press, television, or the internet—beyond the initial alarm and anxiety—our generation faces the task of understanding AI's relationship to language not through fear or uncritical embrace, but through careful examination of what changes when machines enter the fundamentally human domain of meaning-making. The goal here is not to condemn or celebrate, but to think clearly about what is at stake when we invite AI into our most fundamental cognitive and social practice in the uses of language itself.

The emergence of Large Language Models (LLMs)—artificial intelligence (AI) systems trained on vast corpora (the plural of 'corpus' to make Cicero and Quintilian above happy) of human-written text to generate statistically probable sequences of words—presents linguistic science with a curious paradox. These systems produce output that *superficially* resembles human language so convincingly that we are predisposed to accept it as language, yet what LLMs do fundamentally differs from what humans do when we *use* language. An LLM does not possess intentions, experiences, or a model of the world. It does not mean anything when it produces text. Rather, it performs extraordinarily sophisticated pattern-matching, predicting which word is most likely to follow based on the statistical regularities it has learned from billions or trillions of examples of human writing.

When you read a sentence generated by an LLM, your brain—evolved over millennia to interpret linguistic signals as emanating from other conscious beings with communicative intentions—automatically supplies the meaning, the intentionality, the human presence that the text itself lacks. (This social-psychological relationship is further complicated by our 'prompting' the AI to produce a certain expected result.) The output meets our expectations for language on its surface. It has grammar, coherence, even apparent logic and personality. This surface-level adequacy is precisely what makes LLMs so powerful and, simultaneously, so potentially problematic for our understanding of what language actually is. We see sentences, paragraphs, even entire essays that look like language, sound like language, and function like language

in many contexts—and our cognitive systems, not evolved to distinguish statistically-generated text from intentionally communicative utterances, treat them as equivalent.

More interesting still is the feedback loop that LLMs create within the broader linguistic ecology. The training data for these models consists primarily of human-written text scraped from the internet, books, articles, and other sources—a vast repository of *genuine* human communication reflecting diverse voices, styles, and purposes. The models learn the patterns in this data and generate new text based on those patterns. Increasingly, however, that generated text itself circulates back into the world. Students use AI to write essays, journalists use it to draft articles, businesses use it to generate marketing copy, social media users employ it to craft posts and responses, and so on. This AI-generated text then becomes part of the linguistic environment in which humans read, write, and learn—and inevitably, some of it gets incorporated into the training data for the next generation of LLMs. We are thus creating a recursive system in which human language trains AI, AI generates synthetic language, humans are exposed to and potentially influenced by that synthetic language (consciously or unconsciously adopting its patterns, phrasings, and structures), and this hybrid linguistic product then trains future AI systems... The long-term consequences of this feedback loop remain unclear, but the potential for what we might call linguistic drift—a gradual homogenization or flattening of language as distinctively human voices are "averaged out" through repeated AI mediation—deserves serious consideration.

Consider, then, how AI may already be impacting the way you speak, write, and interact with fellow humans. Have you found yourself using phrases or constructions that "sound like" AI-generated text? When drafting an email or essay, do you sometimes mentally preview how an AI might phrase something, or feel your own writing converging toward the smooth, inoffensive, sycophantic/pandering, generically competent style that characterizes much LLM output? Do you find yourself interacting with other humans through templates and patterns rather than through genuinely spontaneous, contextually responsive communication? These are not purely rhetorical questions but genuine prompts for self-reflection. If, as the Sapir-Whorf hypothesis suggests, our language shapes how we perceive and conceptualize reality, then changes in our linguistic practices—including those induced by regular interaction with and reliance upon AI-generated text—may be changing not just how we communicate but how we think and *what we are capable of thinking*.

The question facing our generation, then, is fundamentally about cognitive and cultural autonomy: what aspects of language, and therefore of thought and worldview, can we safely delegate to AI systems? Where should we insist on preserving distinctively human linguistic practices—messy, inefficient, emotionally charged, and unpredictable as they may be—as essential to maintaining our humanity? The convenience of having AI compose our emails, draft our reports, or even engage in our social media conversations must be weighed against the possibility that in outsourcing language production, we may be outsourcing something more fundamental: the uniquely human capacity to mean something, to intend

something, to reach across the unbridgeable gap between consciousnesses and touch another mind with our words.

Language is not merely a tool for transmitting information. LLMs are good enough at that. Look again at the seven features of language that opened this chapter. While LLMs can *simulate* several of these features, they fundamentally lack the grounding that makes them genuinely linguistic. Cultural transmission requires embodied experience within a community—LLMs are trained on decontextualized text, not (yet) raised in social interaction. Arbitrariness and productivity appear intact until we recognize that LLMs don't understand words as arbitrary symbols agreed upon by a community, nor do they intentionally repurpose language based on shifting cultural needs (they're still bad at developing new jokes, for example). Most critically, they lack pragmatic competence. Without genuine understanding of social context, speaker relationships, or communicative intent, they are pattern-matching rather than meaning-making—a fundamental distinction that separates statistical approximation from actual language use. Language is the medium through which we construct our shared reality, negotiate our relationships, and ultimately constitute ourselves as social beings. The question is not whether AI will become part of our linguistic landscape—it already is—but rather how we will navigate that landscape in ways that preserve what is essential about human communication while adapting to the new realities of a world in which not all language comes from human minds.

LANGUAGE AS LIVING PRACTICE

Language, as we have seen throughout these chapters, is far more than a static system of symbols or a mere tool for transmitting information. It is a dynamic, living practice through which we construct our identities, navigate our social worlds, and ultimately shape our perception of reality itself. From the fundamental building blocks of phonemes and morphemes to the complex interplay of syntax and semantics, from the ways children acquire language to the mechanisms through which it changes across generations, every

aspect of linguistic study reveals the same essential truth: language and humanity are inseparable.

We are not beings who happen to use language; we are beings constituted through language, our very capacity for thought and culture inextricably bound to the symbolic systems we inherit, transform, and pass on.

The challenges facing language in our contemporary moment—the integration of artificial intelligence into our communicative practices, the rapid evolution of digital media, the perpetual tension between innovation and tradition—are not aberrations but continuations of processes as old as language itself. Every generation has faced the task of adapting language to new realities while preserving the essential human capacities that make communication possible. What remains constant is the need for critical awareness and understanding not just how language works, but what it does, what it means, and what is at stake when we choose—or fail to choose—how we will speak, write, and mean in an ever-changing world.

Language is power, identity, thought, and culture all at once. How humans wield it, preserve it, and allow it to evolve will determine not just how we communicate, but who we are and what we can become.

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CHAPTER OVERVIEW

6: APPLIED ANTHROPOLOGY

In an increasingly interconnected world facing unprecedented challenges—from climate change and global pandemics to mass migration and growing inequality—the need for culturally informed, holistic approaches to problem-solving has never been more obvious. Applied anthropology offers a unique framework for addressing these complex issues by putting anthropological knowledge, methods, and perspectives to work in real-world contexts both small and vast. Unlike more academic anthropology, which focuses primarily on building theoretical knowledge, **applied anthropology** actively seeks to create positive change in communities, organizations, and policy-making settings. Drawing on anthropology's core strengths—its holistic perspective, emphasis on cultural context, appreciation for human diversity, and commitment to understanding people on their own terms—applied anthropologists work across virtually all fields including public health, international development, environmental conservation, business, education, the arts, and government.

What makes applied anthropology particularly powerful is its foundation in anthropology's four-field approach and core concepts. By integrating insights from cultural, biological, linguistic, and archaeological perspectives, applied anthropologists can see connections that narrower fields might miss. They understand that culture is learned and shared, that human biological and cultural variation is normal and valuable, that all aspects of human life are interconnected, and that culture is an ongoing process of negotiation and change rather than a static blueprint. This comprehensive understanding allows applied anthropologists to anticipate unintended consequences, design culturally appropriate interventions, and avoid the kinds of failures that result from imposing one-size-fits-all solutions on diverse communities.

The contemporary global challenges outlined by the United Nations—from poverty and migration to climate change and gender

inequality—are deeply interconnected and go beyond national boundaries. They also affect local communities. These issues exist within what anthropologist Wade Davis calls the "**ethnosphere**" describing the sum total of human knowledge, cultural wisdom, and adaptive strategies accumulated across time and cultures. As **globalization** intensifies the movement of people, ideas, technologies, and even diseases across borders, it becomes increasingly important to understand these complex cultural flows and their impacts. Applied anthropology provides crucial tools for navigating this complexity, whether through medical anthropologists working on pandemic response, environmental anthropologists collaborating on conservation projects that respect indigenous knowledge, or corporate anthropologists ensuring that technology development doesn't erase cultural diversity.

Throughout in the next two chapters, we will explore how anthropological thinking and practice contribute to addressing real-world problems. We'll see why "in our confusion is our strength"—why anthropology's flexible, holistic approach and commitment to understanding human diversity makes it uniquely suited to guide us toward more equitable, sustainable, and culturally informed solutions for the challenges ahead.

Also included in this section are two chapters which go into greater depth on two specific areas of applied anthropology: *Medical Anthropology* and *Environmental Anthropology*.

[6.1: Putting Anthropology to Good Use](#)

[6.2: Contemporary Issues](#)

[6.2.1: Medical Anthropology](#)

[6.2.2: Environmental Anthropology](#)

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6.1: PUTTING ANTHROPOLOGY TO GOOD USE

Applied anthropology is the **practical application** of anthropological theories, methods, and knowledge to solve real-world problems and address contemporary social issues. Unlike academic or theoretical anthropology, which focuses primarily on research and building knowledge about human cultures and societies, applied anthropology actively works to **create change and improve conditions** in communities, organizations, and policy settings.

Applied anthropologists work in diverse settings outside of traditional academia, including:

- **Public health and medicine** designing culturally appropriate health interventions, understanding health beliefs, ethics, and practices in different communities.
- **International development** assessing the cultural impact of development projects, ensuring programs are sustainable and culturally sensitive.
- **Business and marketing** conducting ethnographic research on consumer behavior, workplace culture, or product design.
- **Environmental conservation** working with local communities on resource management and conservation efforts.
- **Education** developing culturally responsive teaching methods and curriculum.
- **Urban planning** understanding how communities use and experience public spaces.
- **Government, policy, and advocacy** providing cultural expertise to inform government policies on immigration, indigenous rights, etc.
- And many more.

This area of anthropology emerged in the early-to-mid 20th century as anthropologists increasingly recognized the value of their insights for **addressing social problems**. Applied anthropologists typically emphasize collaborative, participatory approaches that involve the communities they work with, aiming to ensure that interventions are ethical, culturally appropriate, and beneficial to the people affected.

WHAT IS IT APPLIED ANTHROPOLOGY APPLIES?

Looking back at some key concepts in anthropology can help us to make more sense of what applied anthropology is.

Applied anthropology depends greatly on understanding the **culture concept**. Primarily, it relies on culture as learned, shared patterns of behavior, beliefs, and values that shape how people experience the world. When applied anthropologists design health interventions, development projects, or business strategies, they recognize that people *interpret and respond to these initiatives through their cultural lenses*. For example, a public health campaign that ignores local beliefs about illness causation or an architectural project that mistakes deep-seeded metaphysical beliefs with superstition or pure practicality will likely fail. Applied work requires moving beyond superficial cultural knowledge to understand *the deep logic and meaning systems that guide people's decisions*.

Applied anthropology is also concerned with the debate **whether anthropology is a science**. This debate directly impacts *how applied*

anthropologists justify and conduct their work. Those favoring a scientific approach emphasize systematic data collection, measurable outcomes, and evidence-based interventions—which appeals to funding agencies and policymakers who want "proof" that programs work. Others argue that applied anthropology is more interpretive, focused on understanding meaning and context rather than prediction and control. In practice, most applied anthropologists blend both approaches using rigorous qualitative methods while recognizing that human behavior isn't as predictable as some natural phenomena. The tension plays out in questions like: Can we *measure* cultural change? Should we?

Understanding **human biological and cultural variation** is essential for applied work that doesn't impose one-size-fits-all solutions. This concept reminds applied anthropologists that humans are diverse—genetically, culturally, linguistically—and that this diversity is normal and valuable, not a deviation from some standard. In medical anthropology, this means recognizing that drug metabolism varies across populations, pain expression is culturally shaped, and healing practices differ validly across cultures. In development work, it means understanding that there are multiple viable ways to organize economies, families, and societies. Applied anthropology at its best celebrates and works with this variation rather than trying to erase it.

Holism is perhaps the most critical concept for applied work. It means understanding that any aspect of human life is interconnected with all others—economics, politics, religion, kinship, environment, and history all shape each other. Applied anthropologists who ignore this interconnectedness create failed interventions. A classic example is agricultural development projects that introduced new crops without considering their impact on gender roles, religious calendars, land tenure systems, and nutritional practices. Effective applied anthropology requires seeing the whole system, understanding that changing one element ripples through everything else. This is why anthropologists often identify unintended consequences that narrow specialists miss.

Applied anthropologists are also deeply familiar with a process-based approach to culture. Anthropologists like Sally Falk Moore emphasized that **culture** isn't a static blueprint but **an ongoing process** of *negotiation, contestation, and change*. People *actively* interpret, debate, and transform cultural meanings rather than passively following rules. This is crucial for applied anthropology (Falk Moore was herself a legal anthropologist) because it means communities aren't frozen in tradition—they're constantly adapting. Applied anthropologists must recognize people as agents who strategically navigate multiple, sometimes contradictory cultural frameworks. For example, refugees don't simply "lose" their culture or "adopt" a new one. They actively create hybrid practices while negotiating power dynamics. This process view also highlights Falk Moore's concept of **indeterminacy** (sometimes called '**contingency**')—the reality that cultural outcomes are unpredictable. Applied anthropologists must therefore remain flexible, recognize that communities will adapt interventions in unexpected ways, and

avoid assuming they can fully control or predict how change will unfold. This is another knock against a purely "scientific" approach.

APPLIED ANTHROPOLOGY AND THE FOUR FIELDS

Applied anthropology benefits enormously from anthropology's integration of cultural, archaeological, biological, and linguistic subfields. For example, an applied project addressing indigenous land rights might draw on archaeological evidence of historical occupation, linguistic analysis of place names and oral traditions, cultural understanding of contemporary communities, and biological anthropology's insights into health disparities or population genetics. As another example, forensic anthropologists apply biological anthropology to human rights investigations. This type of **holistic** training helps applied anthropologists see connections others miss—like how language barriers affect healthcare access, or how environmental changes impact both cultural practices and physical health.

While most applied anthropology is more holistically integrated, each subfield also has its own flavor of applied anthropology.

Cultural anthropology is the most directly connected subfield to applied work. Cultural anthropologists work in community development, public health, business, education, and policy settings. They conduct ethnographic research to understand how communities experience problems and design culturally appropriate solutions. Examples include designing refugee resettlement programs, improving patient-provider communication in hospitals, conducting market research for product development, and advising on culturally sensitive conflict resolution strategies.

Applied **linguistic anthropologists** address language-related social problems. They work on language preservation and revitalization projects with indigenous communities whose languages are endangered. They develop bilingual education programs, analyze how language barriers create healthcare disparities, and consult on legal cases involving linguistic discrimination or miscommunication. They also study institutional language use—like how medical terminology affects patient understanding or how language shapes courtroom outcomes. Applied linguists might help design interpretation services or analyze how workplace communication patterns create exclusion.

Biological anthropologists apply their expertise most often to forensic contexts, public health, and human rights work. Forensic anthropologists assist law enforcement in identifying human remains and documenting trauma in criminal and human rights investigations. They work on skeletal biology projects that inform public health interventions, study how environmental stressors affect human biology, and analyze health disparities across populations. Some conduct nutritional anthropology research to improve food security programs or study the biological impacts of poverty, migration, and environmental change.

And applied **archaeologists** most commonly work in cultural resource management (CRM), assessing and protecting archaeological sites threatened by development projects. They also contribute to indigenous rights cases by documenting historical land use and occupation patterns. Some work in heritage management

and museum curation, help communities preserve and interpret their material past, or collaborate on repatriation efforts. Archaeologists also apply their methods to contemporary issues—like studying modern landfills to understand waste management or analyzing material culture to understand homelessness and poverty.

TWO KEY U.S. EXAMPLES: MILK & NUCLEAR WASTE

A NEGATIVE EXAMPLE: WHERE APPLIED ANTHROPOLOGY COULD HAVE HELPED.

U.S. food assistance programs in South and Central America during the mid-20th century often failed because they ignored fundamental principles of human biological variation. Programs frequently distributed powdered milk and dairy products to malnourished populations, assuming these would be nutritious solutions applicable everywhere. However, many indigenous and mestizo populations in Latin America have high rates of lactose intolerance after early childhood—a normal biological variation found in populations without long histories of dairy pastoralism. The result was that well-intentioned food aid caused digestive distress, discomfort, and illness rather than improved nutrition. Without understanding that lactose tolerance is not universal but rather represents specific evolutionary adaptations in certain populations, planners designed interventions based on North American and European dietary norms that were biologically inappropriate for recipient communities.

These programs also failed due to a lack of holistic thinking about how food connects to broader cultural, economic, and social systems. Introducing surplus U.S. commodities like wheat and processed foods disrupted local agricultural economies by undercutting prices for traditional crops like maize, beans, and quinoa that were culturally valued and nutritionally appropriate. Food aid rarely considered local food preparation methods, taste preferences, religious dietary practices, or the social meanings of meals and specific foods. Moreover, the programs ignored how food production and distribution were embedded in kinship networks, gender roles, market systems, and land tenure patterns. By treating hunger as simply a caloric deficit rather than understanding it within the whole system of how communities produce, exchange, prepare, and consume food, these assistance efforts sometimes worsened food insecurity while creating dependency on foreign aid. An anthropological approach recognizing both human biological diversity and the interconnectedness of food with all aspects of social life could have designed more effective, culturally appropriate interventions.

If the four subfields of anthropology had been applied to these food assistance programs, outcomes could have been dramatically improved. Biological anthropologists could have conducted research on lactose tolerance patterns and nutritional requirements specific to Latin American populations, ensuring that food aid matched the biological characteristics and dietary needs of recipients rather than donors. Cultural anthropologists could have documented local food systems, understanding what foods held cultural significance, how meals were prepared and shared, and what barriers existed to food security beyond simple availability—preventing the imposition of culturally inappropriate foods and identifying solutions that aligned

with existing practices. Linguistic anthropologists could have facilitated better communication between aid agencies and communities, analyzing how nutritional information was translated and understood, and ensuring that local knowledge about food and health was heard and valued rather than dismissed. Archaeologists could have contributed historical perspective on long-term subsistence patterns and agricultural practices in the region, demonstrating which crops had sustained populations for millennia and how traditional food systems were adapted to local environments—evidence that could have supported preservation and strengthening of indigenous agriculture rather than its replacement. Together, these four perspectives would have created food assistance programs grounded in biological reality, cultural appropriateness, effective communication, and historical understanding of proven subsistence strategies.

THE POSITIVE EXAMPLE: WHERE APPLIED ANTHROPOLOGY PLAYED AN IMPORTANT ROLE.

In the late 20th century, the United States was dealing with a problem: how to safely store radioactive waste. One solution was the development of the Waste Isolation Pilot Plant (WIPP) in New Mexico. The WIPP is a deep underground repository designed to 'permanently' store transuranic radioactive waste that remains hazardous for over 10,000 years. Because this timespan far exceeds recorded human history, the U.S. Department of Energy faced an unprecedented challenge: how to warn future humans—who might speak different languages, use different symbols, or possess different knowledge systems—about the deadly dangers buried at the site. This seemingly impossible communication problem required thinking *anthropologically* about how human cultures, languages, and meaning systems change over vast stretches of time.

Initial planners realized they couldn't assume future societies would speak current languages, understand contemporary symbols, or even possess scientific knowledge about radiation. This led to one of the most remarkable applications of anthropology to public policy. In 1991, the Department of Energy convened **the Futures Panel**, which included anthropologists, linguists, archaeologists, and other experts, to design warning systems that could communicate across vast time spans and potential civilizational changes. The panel had to think anthropologically about cultural change, symbol systems, and human behavior in ways that went far beyond typical engineering problems.

You can read [the full WIPP report from Sandia National Laboratories](#) (known as "SAND92-1382") online.

The anthropological insights that emerged were profound... and unsettling. The panel recognized that any symbol system—even seemingly universal ones like skulls or radiation trefoils—could lose meaning or be reinterpreted over millennia. They considered how future societies might view the site (and the implications of these mistaken assumptions) as a temple, a treasure repository, or a sacred place worthy of excavation rather than avoidance. Drawing on archaeological knowledge of how past monuments and warnings were misunderstood or ignored, they recommended multiple, redundant warning strategies including landscape modifications (enormous earthworks and stone monuments), buried warning

messages in multiple languages and pictographs, an information center, and detailed records stored globally. The anthropological perspective pushed planners to *imagine radical cultural difference and discontinuity rather than assuming "progress" or continuity*. This represented applied anthropology at its most forward-thinking—using knowledge of human cultural diversity and change across time to solve a problem that wouldn't fully manifest for thousands of years.

Each anthropological subfield contributed essential insights to the WIPP project that improved its approach. **Archaeologists** provided critical evidence about how monuments, symbols, and warnings from past civilizations were preserved, altered, forgotten, or misinterpreted—showing, for example, how Egyptian tomb warnings didn't deter grave robbers and how religious prohibitions sometimes attracted rather than repelled curiosity. **Linguistic anthropologists** analyzed how languages change and die, how writing systems become unreadable, and how translation across radical linguistic difference might work, leading to recommendations for redundant communication through images, multiple languages, and potentially self-explanatory visual narratives that didn't depend on specific linguistic knowledge. **Cultural anthropologists** contributed understanding of how symbols acquire meaning in cultural contexts, how taboos and sacred sites function across societies, and how human curiosity and value systems might motivate future peoples to approach or avoid the site—recognizing that what seems obviously dangerous to us might not register that way to societies with different cosmologies or technological understandings. **Biological anthropologists**, while perhaps less central to this particular project, could have further contributed insights into human sensory perception and cognition—what visual or spatial arrangements humans instinctively avoid, or how embodied experience might communicate danger more effectively than abstract symbols. Together, these four-field perspectives created a uniquely comprehensive approach that acknowledged both the universality of human curiosity and cognition and the profound variability of human meaning-making across time and culture.

IN OUR CONFUSION IS OUR STRENGTH

In “Waddling In,” a provocative essay published in 1985, interpretive anthropologist Clifford Geertz proposed that among the various academic disciplines, anthropology was uniquely capable of leading into the future. He pointed out the fundamental changes anthropology faced as it headed into the 21st century—changes in its traditional subject focus, its traditional field sites, and its wide, holistic perspective, which Geertz referred to as “walking barefoot through the Whole of Culture” (1985, 623):

Pulled in opposed directions by technical advances in allied disciplines, divided within itself along accidental ill-drawn lines, besieged from one side by resurgent scientism and from the other by an advanced form of hand-wringing, and progressively deprived of its original

subject matter, its research isolation, and its master-of-all-I-survey authority, [anthropology] seems not only to stay reasonably intact but . . . to extend the sway of the cast of mind that defines it over wider and wider areas of contemporary thought. We have turned out to be rather good at waddling in. In our confusion is our strength. (624)

In our confusion is our strength. For Geertz, this *confusion* reflects anthropology's flexibility as a science and a humanity and its acknowledgment that we do not yet know everything about who we are as a species. Our ongoing mission is to be open to what comes next, open to the potential of what it means to be human. This is especially important at this moment in history when global challenges remind us of how much remains to be done for every person to have a life of dignity. Instead of predicting the end of anthropology, "Waddling In" challenges anthropologists to discover an ever-widening relevance and importance for the discipline, in a world of ongoing cultural change.

Anthropology is both an academic and an applied discipline. What anthropology reveals about human culture and human biology can be used to improve lives today. Anthropology is deeply relevant to contemporary lives in many ways. Museums are a common way in which anthropological knowledge is presented to the public, interpreting cultural and biological diversity and inspiring new generations of scholars and a broader public. But there are many other ways in which anthropologists interact with and influence our global community.

A UNIQUELY RELEVANT DISCIPLINE

As we have learned, anthropology is a unique discipline. Not only does it study all aspects of what it means to be human across time, with a focus on evolution and how changes occur in our bodies and cultures, but it also examines the ways in which we adapt to different social and physical environments. This process of adaptation is a primary source of cultural and biological diversity. Anthropology is also holistic, examining the context of and interconnections between many parts of our lives and weaving together our biology, our traditions, and the diverse social and physical environments in which we live. The anthropological approach views humans as part of a wider system of meaning, as actors and change-makers within a dynamic environment populated by others. Across cultures, those others can include other species (plant and animal) and spirits as well as other human beings. It is the human ability to imagine and construct the universe in which we live that most interests anthropologists.

In most four-field introductory classes, students are surprised at the breadth of anthropology, but this wide lens is the cornerstone of the discipline. Today, anthropologists increasingly approach the study of humans as a dynamic construct. We see humans as agents in motion, undergoing change as a normal state of being, rather than as objects

in a petri dish, preserved and inert. This means that anthropological studies are by necessity messy and in flux, as our subject matter makes change. Because holism, adaptation, and adjustment are critical to anthropological studies, we bring an especially powerful lens to attempts to understand complex, large-scale global problems.

Few of our challenges today are simple. Solving the climate crisis requires changes not just to our use of fossil fuels but also to the ways in which we produce food, bathe, heat and cool our houses, and travel. Each culture and each community must be aware of its power and potential to enact positive change. Both a scientific and a humanistic approach are needed to solve our current global challenges.

ANTHROPOLOGICAL VALUES

The anthropological perspective is grounded by principles and standards of behavior considered important to understanding other people and their ways of life. These include the value of all cultures; the value of diversities, biological and cultural; the importance of change over time; and the importance of cultural relativism and acknowledging of the dignity of all human beings. These anthropological **values** undergird our discipline.

The study of culture intersects with each of the four subfields and highlights the importance of diversity. From the beginning, humans have used ingenuity to tackle problems and provide solutions to challenging circumstances. Anthropologists study and value this extraordinary process of human creativity, documenting it in living and past cultures, in our languages and symbol systems, and even in our bones, through cultural procedures such as elongating women's necks (as is practiced by the Kayan people of Myanmar) or flattening/elongating people's heads (practiced by the Chinookan peoples of North America). Even our diets, which are cultural artifacts of adaptation, are written on our bones. The consumption of corn, for example, is measurable as carbon isotopes in human bone. Anthropology celebrates this human uniqueness and diversity, understanding that different ways of being are humanity's greatest legacy—a foundation embodied in the concept of the **ethnosphere**.



Kayan women use neck rings from an early age to make their necks appear longer. The rings actually push down the clavicle and compress the rib cage. This is a sign of beauty among the Kayan. (credit: "IMG_0547" by Brian Jeffery Beggerly/flickr, CC BY 2.0)

Anthropological studies produce documentation of immeasurable worth. Through anthropological research, we collect, preserve, and share the stories of living humans as well as human artifacts, sites, and bodies. Together, these documents form a valuable database. Field notes and artifacts from the earliest anthropologists document diversity that has since disappeared. Franz Boas taught his students how to make life masks of the people they were studying to document the physical diversity of different groups of people (A. Singer 1986). This vast collection of some 2,000 life masks is now preserved at the Smithsonian Institution as an archival resource for understanding environment, culture, and biological adaptations. Many masks document ethnic groups that are now extinct. Anthropology collections are of inestimable value for future research.

The Council for the Preservation of Anthropological Records, or CoPAR, works with anthropologists, librarians, and archivists to obtain and preserve anthropological records and make them available both for the study of human diversity and as a record of the history of the discipline. The organization has two primary goals. The first is to educate anthropologists on the value and urgency of saving documents. The second is to help train archivists and information specialists in best practices for handling the sometimes very sensitive information within these documents while also

facilitating them in making sure that the information is available to scholars anywhere (Silverman and Parezo 1995).

Diversity is a product of adaptation and change over time. As cultural groups encountered different challenges in their environments, they used ingenuity and innovation to address these challenges, sometimes borrowing other cultures' solutions when applicable. In the high Andes of South America, the steep mountainous inclines mean that there is little flat ground for growing food. In response to this challenge, Inca farmers used terrace farming, building steplike terraces into the hillside to create areas of flatter surfaces for growing crops (see Figure below). Forms of terrace farming are found all over Asia and in parts of Africa, with cultures in each area adapting the use of terraces to meet specific climatic conditions and crop requirements (e.g., paddy rice cultivation requires small earthwork borders to allow for flooding). In short, there is no one way to do something; every solution is calibrated to particular needs. Today, with increasing urgency to minimize our carbon footprints, architects are designing homes to meet clients' demands for net-positive houses—that is, houses that produce more energy than they consume through solar power and lower-energy appliances (Stamp 2020). As we work toward reducing our dependence on fossil fuels, the architectural and construction industries are beginning to adapt to these changing needs and demands.



Adaptations: (left) By cutting these steplike terraces into the mountain, Andean farmers created more arable land for farming. (right) In this net-positive house in Australia, the solar panels, increased insulation, and lower-energy appliances all contribute to a "net zero" energy design. (credit: (left) "Peru Terrace Farming" by J. Thompson/Wikimedia Commons, Public Domain; (right) "The Zero-Emission House" by Keirissa Lawson, CSIRO/Wikimedia Commons, CC BY 3.0)

Besides culture and diversity, anthropology is also about the human power to change. Through adaption, evolution, and even acclimatization (short-term adaptation to environmental change), the human body has evolved alongside human cultures to make us a species uniquely capable of adapting to almost any environmental or social conditions. Humans can survive even in such inhospitable environments as outer space (thanks to the human-designed technology that makes up the International Space Station) and the polar regions (where human-built structures and protective gear make habitation possible at McMurdo Station in Antarctica). And humans have survived health crises such as the COVID-19 pandemic and historical tragedies such as slavery and warfare. The ability to change, redirect, reassess, reimagine, and innovate has sustained our species across time.

Diversity matters more today than ever. Where diversity is valued, there is greater potential for innovation and collaboration. A central value of anthropology, evident in both research and applied work

across communities, is anthropologists' focus not only on understanding other cultures and different ways of living but also on *translating* them—that is, communicating what is learned across cultures in order to share it more broadly.

The most important anthropological value, however, is cultural relativism, or suspending judgment about other cultures until one gains a clear understanding of the meaning and significance of what those cultures do and believe. Cultural relativism requires us to understand the rationale, purpose, and meaning of cultural traditions and knowledge before we decide on their validity. And it provides significant advantages in better understanding others:

- It allows us to see the worth, dignity, and respect of all persons, allowing for initial exchange and collaboration between “us” and “them.”
- It reminds us to approach the study of other cultures without automatically judging them as inferior, thus minimizing ethnocentrism.
- It helps us keep an open mind about the potentials and possibilities inherent in our species.

First formally introduced by Franz Boas, cultural relativism laid the groundwork for the discipline of anthropology, a science that would study what it means to be human in all its diverse forms. Boas and his students worked to apply cultural relativism across racial, ethnic, linguistic, and socioeconomic boundaries, documenting the rich cultural traditions of Indigenous peoples, minority communities, and immigrants. The concept, though, has undergone a great deal of debate since the 1948 Universal Declaration of Human Rights by the United Nations. Is anything okay if a culture decides it is? Are there any boundaries to cultural relativism? Do we have to accept everything that a group does, or can an anthropologist ultimately judge that a practice is damaging, harmful, and not deserving of being respected and upheld?

While these debates remain, anthropologists still value cultural relativism (and the worthiness of other peoples and cultures), although perhaps in a modified form that anthropologist Michael Brown calls *cultural relativism 2.0*. As Brown states, cultural relativism 2.0 is “a call to pause before judging, to listen before speaking, and to widen one’s views before narrowing them” (2008, 380). In other words, *first give people a chance*.

Anthropology is important today, perhaps even more than when it formally began some 150 years ago. As French anthropologist Maurice Godelier says:

Anthropology—together with history—is one of the social science disciplines best able to help us understand the complexity of our now globalized world and the nature of the conflicts and crisis we are experiencing. In such a world, it would be irresponsible and indecent for anthropologists [to] stop trying to understand others. (2016, 75–76)

WHAT ANTHROPOLOGISTS DO TODAY

Anthropologists are at work now to make a difference in our lives. There are various ways in which anthropologists and those utilizing an anthropological lens or framework contribute critically needed skills and resources in the 21st century.

RESEARCH

Sometimes referred to as *pure* or *theoretical* research, fieldwork is conducted in all kinds of settings in order to answer practical and theoretical questions that form the basis of anthropology. How do cultures change? How do artifacts and technology evolve within a culture? How do trade and exchange affect the development of cultures? As above, each of the subfields engages in distinct types of field research as ways to test theories and advance our knowledge of human beings. Theoretical research is the backbone of academic anthropology.

RESEARCH AND DEVELOPMENT

Research and development are associated with practical applications, such as creating or redesigning products or services for governments or corporations. Anthropologists who work in research and development contribute what they know about human behavior and the world around us to projects that serve the interests of human organizations and the human community.

Cultural anthropologist Genevieve Bell worked for 18 years in research and development for Intel Corporation, the world’s largest semiconductor chip manufacturer. Her focus at Intel was on user experience, researching how people use technology and apply it in their lives with the goal of designing more relevant and user-friendly products. Intel valued the way Bell’s deep knowledge of human behavior and human culture helped the company better anticipate their clients’ needs. Bell’s insights helped make Intel a more competitive corporation. She has described her job as “mak[ing] sense of what makes people tick, what delights and frustrates them, and . . . us[ing] those insights to help shape next generation technology innovations. I sit happily at the intersection of cultural practices and technology adoption” (*City Eye* 2017).



Anthropologist Genevieve Bell works with tech and engineering industries, applying anthropological concepts to make technology more user-friendly and better adapted to our everyday lives. (credit: "Genevieve Bell" by Kevin Krejci/flickr, CC BY 2.0)

In a TED Salon talk titled "[6 Big Ethical Questions about the Future of AI](#)," Bell explains that the technological revolution of artificial intelligence is already in progress, affecting many aspects of our lives. She says that the challenge now is to use artificial intelligence "safely, sustainably, and responsibly." Bell advocates for human-scale technology. Using skills and knowledge gained through her training as an anthropologist, she looks at the ways in which technology, culture, and environment interact. In her work today, she continues to use an anthropological approach: "It's about thinking differently, asking different kinds of questions, looking holistically at the world and the systems" (Bell 2020).

Bell left Intel in 2017 to serve as a distinguished professor at the Australian National University College of Engineering and Computer Science, where she serves as the director of the School of Cybernetics and continues to research the interface between culture and technology.

PUBLIC POLICY

Anthropologists are involved in public policy making all over the world. Anthropological skills and outlooks are increasingly valuable to the development of principles and regulatory measures that increase public safety and resolve real-world problems. Applying a holistic approach to these issues allows government and nongovernment organizations to avoid some problems and better anticipate future challenges.

The [American Anthropological Association \(AAA\)](#) has identified five public policy areas that would greatly benefit from an anthropological approach. In each of these areas, the AAA hopes to involve more anthropologists in public policy in the 21st century and to work collectively to message international, national, and local agencies about the importance of anthropological knowledge and involvement:

One of the challenges that anthropologists face is better educating governments and corporations about the skills they can bring to understanding and addressing contemporary problems. Working collaboratively within and beyond the discipline is important for advancing an awareness of the possibilities that anthropologists offer as public policy advocates.

- *Social and cultural aspects of health*: identifying ways in which categories of race, ethnicity, gender, socioeconomic status, and age hinder medical delivery.
- *Culture and diversity in education*: understanding the diversities that affect educational delivery and the gaps that exist in current educational policies due to such things as changing demographics and new information technologies.
- *An interdisciplinary approach to the environment*: focusing on the ways in which anthropological knowledge contributes to understanding the human dimensions of the environment and interfacing with federal agencies actively seeking to support this type of environmental research.
- *Economic, social, and cultural aspects of the information revolution*: examining the human dimensions of the information revolution and the impact that it is having on our work and personal lives.
- *Globalization and its impact on public policy*: specifically, focusing on issues of conflict and war and the effects of globalization on transnational communities.
- *Applied or practicing anthropology*. Anthropologists are engaged in wide-ranging work on the ground in real-life situations, helping address numerous current and emerging needs in communities around the world. Many work within nongovernmental agencies. Some anthropologists are already engaged in efforts pertaining to the COVID-19 pandemic, gathering preliminary data and working to streamline access to treatment and preventative measures.

In 2014, the WHO reached out to sociocultural anthropologists to help address an outbreak of the Ebola virus in Mali. They sought the help of these anthropologists as liaisons to connect with the local people and lessen their anxieties about the disease, help those recovering cope with the stigma of having had Ebola, and build a bridge between the community and the health system. They also sought anthropological direction on how best to interact with local people while respecting their culture and traditions. The WHO described some of the roles of the anthropologists who aided in this project:

The social anthropologists have also helped train teams searching for Ebola patients and monitoring Ebola contacts,

teaching them to make allowances for local culture and the rules of hospitality and politeness when visiting families. These factors are key to getting the message across and being heard by members of the community. (World Health Organization 2015)

MEDICINE

The global emergency of COVID-19 mobilized a number of anthropologists, especially those in the applied field of medical anthropology. Medical anthropologist Mark Nichter (2020), who has studied emerging diseases and global health for much of his career, was returning from fieldwork in India and Indonesia when COVID-19 cases started being diagnosed in the United States. He traveled from Asian countries, where people were wearing masks and showing a high level of concern for the disease, into Europe and then the United States, where there seemed to be little concern. These different attitudes prompted him to think about other pandemics he had experienced as a medical anthropologist and about how complex these global events can be. Deeply aware of issues of social inequality, he worried about the poor infrastructure conditions in so many countries and the dense populations in refugee camps. What would happen in water-insecure areas where accessing any kind of water, especially clean water for handwashing, was difficult? He wondered just how bad this was going to be as a global event.

During lockdown in the United States, Nichter used his training as a medical anthropologist to create positive change within his community. He first developed a COVID-19 primer, explaining health concepts about COVID-19 and methods of slowing and preventing transmission in everyday terms to help professors and teachers educate themselves and their students. The primer quickly began circulating on campuses in the United States and around the world. Nichter also worked with fellow anthropologists in a special working group supported by the American Anthropological Association to identify research areas of critical need. Many of these research areas concerned structural threats and areas where mortality data were revealing disparities, indicating that certain populations were more vulnerable than others. Third, Nichter began advocating and working for COVID-19 testing resources, the development of contact tracing, and symptom monitoring to better contain outbreaks within communities. Lastly, he helped develop a health care worker support network with both online and grassroots resources, knowing that frontline workers would be those most taxed by the pandemic. Nichter advocates for what he calls *anticipatory anthropology*. In the context of medical anthropology, anticipatory anthropology acts to shore up the fault lines that have emerged in the global health system, working toward creating stronger resistance to the next health care emergency. “COVID-19 provides an opportunity to build alliances and momentum for significant health care reform” (Nichter 2020).

Anthropological skills are increasingly vital to developing and communicating culturally relevant messages. While global health

initiatives are very prominent within the field of applied and practicing anthropology, the range of interventions is wide. Applied anthropology projects might involve improved farming techniques and heirloom seed banks, better educational services, and even work on the front lines with persons displaced by war, migration, or climate emergencies.

ECONOMICS

Economic anthropology is the study of how humans produce, exchange, distribute, and consume goods and services across different cultural contexts. (We scratched the surface of this earlier.) Rather than assuming all economies work like modern capitalist markets, economic anthropologists examine the diverse ways societies organize economic life—including gift exchange, reciprocity networks, redistribution systems, subsistence economies, and informal markets. The field explores how economic activities are embedded in social relationships, cultural values, kinship systems, religious beliefs, and political structures. Economic anthropologists study questions like: How do people make decisions about work and exchange? What motivates economic behavior beyond profit? How do different societies define value, wealth, and property?

Economic anthropology serves as an important example of applied anthropology because its insights are directly used to address real-world development, business, and policy challenges. Applied economic anthropologists work in international development, assessing why microfinance programs succeed or fail by understanding local systems of trust, debt, and obligation. They consult for businesses entering new markets, explaining how consumer behavior and preferences are culturally shaped rather than universal. They advise on poverty alleviation programs, revealing how informal economies and social safety nets actually function in communities—knowledge that helps design more effective interventions. Applied economic anthropologists have documented how imposing market-based models on communities with gift economies or collective land tenure can destroy existing economic security rather than improve it. They work in fair trade certification, labor rights advocacy, and analyzing the impacts of globalization on local livelihoods. By revealing that there are multiple rational ways to organize economic life, economic anthropology provides practical tools for creating policies and programs that work with rather than against existing economic systems and cultural logics.

THE ENVIRONMENT

Similarly, **environmental anthropology** examines the complex relationships between human societies and their natural environments. It explores how different cultures understand, use, and manage natural resources; how environmental knowledge is created and transmitted; and how environmental changes affect human communities. Environmental anthropologists study topics like traditional ecological knowledge, human adaptations to different ecosystems, cultural dimensions of conservation, environmental justice, and how people experience and respond to climate change, pollution, and resource scarcity. The field rejects the nature/culture divide common in Western thought, recognizing that what counts as

"natural" or "environmental" is itself culturally constructed, and that humans and environments mutually shape each other over time.

Environmental anthropology is a prime example of applied anthropology because its practitioners actively work on pressing environmental problems alongside communities, policymakers, and conservation organizations. Applied environmental anthropologists collaborate on designing conservation programs that respect indigenous land rights and incorporate local ecological knowledge rather than imposing top-down protected areas that displace communities. They work on climate change adaptation projects, helping vulnerable populations develop strategies that align with their cultural practices and local conditions. They assess the social and cultural impacts of environmental policies, revealing how regulations affect different groups unequally—for instance, how conservation restrictions might harm subsistence farmers while benefiting ecotourism companies. Applied environmental anthropologists contribute to environmental justice movements by documenting how marginalized communities disproportionately bear pollution and environmental hazards. They facilitate co-management arrangements where indigenous communities and government agencies share responsibility for natural resource management, recognizing that local communities often have sophisticated, time-tested environmental knowledge. They also work in corporate and governmental settings, conducting environmental impact assessments that go beyond measuring physical changes to understand how projects affect livelihoods, cultural practices, spiritual connections to land, and social organization. By bringing holistic, culturally informed perspectives to environmental challenges, applied environmental anthropologists help create solutions that are both ecologically sound and socially just.

MEDIA

Media anthropology studies how people create, circulate, consume, and make meaning through various forms of media—from traditional forms like radio and television to digital platforms, social media, film, and emerging technologies. Media anthropologists examine how media shapes identity, community, and culture; how people use media to communicate, resist power, and build social movements; and how media technologies transform social relationships, political participation, and everyday life. The field explores questions like: How do different communities interpret the same media text differently? How does media consumption fit into daily routines and social practices? How do people navigate multiple media environments and create hybrid cultural forms? Media anthropologists also study media production, examining how journalists, filmmakers, content creators, and platform developers make decisions and how power dynamics shape what gets represented and how.

Media anthropology serves as applied anthropology in several important ways. Applied media anthropologists work in the technology industry conducting user experience research, helping companies understand how people from diverse cultural backgrounds actually use apps, platforms, and devices—often revealing that designers' assumptions don't match users' practices and needs. They consult on international media campaigns, ensuring

that public health messages, educational content, or development communications are culturally appropriate and effectively reach target audiences. Applied media anthropologists collaborate with journalists and documentary filmmakers to improve cross-cultural representation and avoid stereotyping, and they work with museums and cultural heritage organizations on digital exhibits and community media projects. They contribute to media literacy programs, helping communities critically analyze media messages and create their own counter-narratives. Some applied media anthropologists work on digital rights and platform governance issues, documenting how content moderation policies affect marginalized communities differently or how algorithmic systems reproduce inequality. Others partner with activists and NGOs to develop effective social media strategies for advocacy campaigns. During crises like pandemics, applied media anthropologists study how misinformation spreads and how trusted communication channels vary across communities—insights critical for effective public health communication. By understanding media as culturally embedded practice rather than neutral technology, applied media anthropologists help create more inclusive, effective, and ethical media systems and interventions.

Media anthropologists are critically relevant right now because they bring essential perspectives to understanding how social media and AI are transforming human social life in unprecedented ways. As platforms continuously evolve and AI becomes embedded in everyday communication, media anthropologists conduct ethnographic and other research on how people actually adapt to and repurpose these technologies, often in ways designers never anticipated. They document how platform changes and AI systems affect different communities unequally—what seems minor to engineers might fundamentally alter how activists organize, how marginalized groups find community, or how diasporic families maintain connections. Media anthropologists counter technological determinism by demonstrating through comparative research that the same technology produces radically different effects depending on local social structures, political conditions, and cultural values—facial recognition raises different concerns in societies with different surveillance histories, and social media norms around privacy vary dramatically across cultures. They identify whose voices are marginalized by AI training data biases and algorithmic systems, document creative resistance and workarounds people develop, and reveal unintended consequences of rapid technological change. Their holistic approach is crucial for ensuring that AI and social media development doesn't steamroll cultural diversity or deepen inequalities, making anthropological understanding of human variation and cultural meaning-making more vital than ever in an era where tech companies make decisions affecting billions across vastly different cultural contexts.

CORPORATE OR ORGANIZATIONAL ANTHROPOLOGY

Corporate anthropology, also called **business anthropology** or **organizational anthropology**, applies anthropological methods and theories to understand and solve problems within business and organizational settings. Corporate anthropologists work inside companies or as consultants or embedded in human resources,

information technology, or other departments, using ethnographic research to study workplace cultures, consumer behavior, organizational dynamics, and product design. They examine questions like: How do employees actually use workplace technologies versus how managers assume they're used? What unspoken cultural norms shape decision-making in organizations? How do different departments or global offices develop distinct subcultures? Why do consumers interact with products in unexpected ways? Corporate anthropologists bring the discipline's core insights—particularly about culture, meaning-making, and holism—into profit-driven contexts, revealing the cultural dimensions of business problems that quantitative market research or management theory alone might miss.

Corporate anthropology represents applied anthropology with anthropologists working on diverse business challenges across industries. They conduct user research for technology companies, observing how people interact with devices and software in real-world contexts to inform design improvements—leading to more intuitive, culturally appropriate products. They help companies expand into new markets by researching local consumer practices, values, and preferences, preventing costly missteps based on assumed universality of Western consumer behavior. (If you are familiar with "Kohl's Cash" at Kohl's department stores, that incentive structure was developed in collaboration with an anthropologists. The same is true of many similar marketing incentive structures.)

Corporate anthropologists study organizational change, analyzing why workplace initiatives succeed or fail by understanding existing cultural dynamics and employee perspectives. They work on diversity and inclusion efforts, examining how organizational culture perpetuates inequality and recommending structural changes. Some focus on supply chains and labor practices, documenting working conditions and cultural contexts in global production networks. While corporate anthropology raises ethical questions about serving profit motives versus community interests, practitioners argue they can actually *humanize* business practices, advocate for workers and consumers within systems, and ensure that anthropological insights about cultural difference and human needs shape how companies operate in an increasingly globalized economy.

ANTHROPOLOGICAL SKILLS AND RESOURCES

In common across all of these examples, anthropologists are trained to look at the larger context and understand how smaller, local environments fit into overarching forces. They aim to hold a multicultural perspective that represents various constituencies and to interact with people around them with the goal of better understanding where they are coming from and what things *mean* to them. Anthropologists gather and analyze data that reflects real life *on the ground and in the streets*. The central anthropological specialty is an unfettered interest in human beings.

In 2020, career research and employment website Zippia interviewed a group of teaching and practicing anthropologists about the anthropological skills they believe are most valuable in today's job market. The two quotes below illustrate the breadth of career preparation that anthropology provides:

Organizations are looking for people who can articulate the value of their experiences. Anthropology provides a broad array of skills. Some [are] more general, such as critical thinking and written and oral communication and teamwork. Some skills are more specific, such as survey and excavation for archaeology positions, research design, data analysis skills (qualitative and quantitative), and familiarity with research ethics. —John Ziker

And

Young graduates need to think quickly and with skepticism, read situations from multiple angles, and have openness to variable solutions. This means that they need skills in understanding pluralistic vantage points, judging where information comes from and who it benefits and who it hurts, and being gifted at recognizing and acknowledging their own biases. Anthropology teaches these skills as it prepares graduates for work in a wide array of fields. —Suzanne Morrissey (Stark et al. 2020)

Anthropologists and anthropology students, undergraduate and graduate, fit into a wide array of careers and contribute valuable skills and resources to their communities everywhere. As people specialists, anthropologists understand how to approach diverse peoples, elicit information about and from them, and work with that information to understand broader situations. Some of the broadly applicable skills that different anthropologists have include interviewing; excavating; mapping; analyzing data using various types of methodologies, including mixed methods (combining qualitative and quantitative methods); applying ethics in difficult, emerging situations; and engaging with new technologies in the sciences. All of these are 21st-century skills and resources. However, the most advantageous of an anthropologist's skills is an attitude of respect and dignity toward diverse peoples everywhere. In our global world, this may be the most important asset of all. As anthropologist Tim Ingold says, anthropologists “study ... *with* people” and “learn *from* them, not just *about* them” (2018, 32).

HOW ANTHROPOLOGY CAN LEAD IN THE FUTURE

Career and employment trends today align with what anthropologists do, whether or not one is a full-time practicing

anthropologist. Students heading into any fields that address the human condition, past or present, will benefit from studies in anthropology. Within colleges and universities across the world, there is a reemergence of transdisciplinary approaches that utilize methods and perspectives from multiple disciplines to study and propose solutions to complex problems. This educational model, sometimes called the *matrix model* (National Academy of Sciences, National Academy of Engineers, and Institute of Medicine 2005), has resulted in the development of new interdisciplinary degree programs such as the biomedical informatics program at Stanford University; the Indigenous food, energy, and water systems program at the University of Arizona; and the science, medicine, and technology in culture program at Union College. Training in anthropological holism is the ideal foundation for working in teams with multiple interests and a shared focus on the larger context. Specifically, the four-field approach in anthropology prepares researchers to apply a keen perception of the ways in which biology and culture interact and influence each other.

With the increasing prominence of social media and grassroots communication across cultures, it is important that emerging leaders have the ability to interview people, elicit relevant information from them, and analyze what they think, do, and desire. Anthropologists are trained to interact with others, seek connections and patterns in what they observe, and analyze the symbolic significance of what they find.

Anthropologists are also trained to work in the field, *wherever and whatever the field may be*, taking their offices and research labs into the communities in which they work and live. Accustomed to being flexible and adaptable to the needs of the situation and letting the field dictate how best to accomplish their work, anthropologists have the skills, technology, and experience to work well in a global community.

In the 20th century, academia sought to become ever more specialized, constructing departments, specialties, and subspecialties

to home in on very particular subjects such as a disease, a genre of literature, or a type of religion. This approach was an advance over the more generalist approach that was common in the 19th century, in which academics were trained in very broad fields such as medicine, ancient history, or culture. Now, in the 21st century, the shift is toward a more complex and multifaceted understanding of how we live and the challenges we face. Many anthropology programs today provide vocational skills and workplace training. There is a growing awareness that we need to develop the ability to think both generally and systematically (such as in an ecosystemic approach) while also seeking to understand the particularities of specific challenges. Anthropology, with its holistic approach, mixed methodology analyses, and deep, abiding appreciation of diversity and the dignity of all people, is situated at the crossroads of what comes next. This is how anthropology can guide us as we move into the future.

As Geertz said, “We have turned out to be rather good at waddling in” (1985, 624). Anthropological skills are based on flexibility and adaptation to a changing world, open-mindedness and openness to new ideas, and a willingness to engage with complex issues in order to find solutions to problems facing our world today. The anthropological skillset is critical in the 21st century.

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6.2: CONTEMPORARY ISSUES

CRITICAL GLOBAL CHALLENGES

Today humanity faces a growing number of global problems, most of them linked to one another and to long-standing historical inequities and injustice. Many of the problems people experience in their daily lives derive from major global issues, which intersect with and affect cultural traditions and contemporary social behaviors. In other words, our global problems are deeply connected to the ways we live locally. Local and global problems connect and reinforce each other.



The United Nations headquarters in Geneva, Switzerland. In 2021, the United Nations identified 22 critical global issues humanity currently faces. (credit: “Palais des Nations Unies, à Genève” by Groov3/Wikimedia Commons, CC0)

In 2021, the United Nations (UN) identified 22 critical global issues, several worsened by the COVID-19 pandemic. These are challenges that “transcend national boundaries and cannot be resolved by any one country acting alone” (United Nations 2021). Many of these challenges, which affect all nations, are particularly harmful to those facing discrimination, environmental and social racism, and economic poverty. As you read through these “global issues,” notice how many of these challenges are linked together (e.g., Africa, decolonization, democracy, poverty, global health, etc.). Go through this list and note which of these impact you and which might have affected your ancestors. Consider such things as cost of goods and services, possible effects on health and welfare, and even the political instability that might result from these issues, creating global ripple effects. Also, consider how populations suffering various injustices might experience greater impacts than those in otherwise stable communities.

- *Africa*: promoting democratic institutions, supporting economic and social development, and protecting human rights.
- *Aging*: responding to the growth of aging populations (ages 60 and over) worldwide.
- *AIDS*: continuing to reduce infection and death rates in the global fight against AIDS.
- *Atomic energy*: promoting the safe, secure, and peaceful operation of more than 440 nuclear reactors generating electricity

worldwide.

- *Big data for sustainable development*: monitoring inclusiveness and fairness in the application of new data sources, technologies, and analyses.
- *Children*: protecting the rights of every child to health, education, and protection and expanding children’s opportunities.
- *Climate change*: responding to the unprecedented challenges of shifting weather patterns that threaten food production and create climate emergencies.
- *Decolonization*: continuing to monitor and encourage self-determination among former colonies, which the UN refers to as a “sacred trust.” When the UN was founded in 1945, approximately 750 million people were living in colonies and dependencies; today, fewer than two million live under colonial rule.
- *Democracy*: strengthening democracy, “a universally recognized ideal” and a core value of the UN, as a way of strengthening human rights.
- *Ending poverty*: reducing global poverty rates, which could increase by as much as 8 percent of the world’s population during the COVID-19 pandemic.
- *Food*: working toward food security and increasing nutrition for the most vulnerable population groups, especially during COVID-19.
- *Gender equality*: promoting gender equality as both a fundamental human right and a critical factor in achieving peaceful and sustainable societies.
- *Health*: monitoring, promoting, and protecting health concerns worldwide. Much of the leadership in this area is provided by the World Health Organization (WHO).
- *Human rights*: continuing the ongoing effort to guarantee human rights around the globe. This is a central focus of the UN’s work, as set out in the [UN Charter](#) and the [Universal Declaration of Human Rights](#).
- *International law and justice*: continuing to promote international law and justice across the three pillars of international peace and security, socioeconomic development and progress, and respect for fundamental human rights and freedoms.
- *Migration*: ensuring the orderly and humane management of migration, finding practical solutions to migration problems, and providing humanitarian assistance to refugees and internally displaced persons.
- *Oceans and the law of the sea*: ensuring peaceful, cooperative usage of the oceans and seas to the common benefit for humanity and combating the rising threat of pollution and waste from transport vessels and oil tankers.
- *Peace and security*: helping restore peace and preventing disputes from escalating into war.
- *Population*: promoting sexual and reproductive health and individuals’ ability to manage the size of their families.
- *Refugees*: providing aid and safe haven to the millions of people forcibly displaced worldwide. In 2019, an estimated 79.5 million

people were refugees, 26 million of them under the age of 18.

- *Water*: managing the competition between individual and commercial needs for access to water, which is critical for all human populations.
- *Youth*: providing for a more just, equitable, and progressive future for persons between the ages of 15 and 24, including ensuring access to health, education, and employment and working toward gender equality.

Private philanthropists have been working on some of these same problems as well. In 2020, the Bill and Melinda Gates Foundation, founded in 2000 to work collaboratively with governments to solve critical global health issues, expanded their focus by naming three major action areas for their multibillion-dollar foundation, in addition to ongoing educational priorities:

- *Climate change*: increasing clean energy, providing zero-emissions energy to low-income countries, and developing innovative approaches to food production.
- *Gender inequality and gender-based violence*: expanding access to education to improve women's lives and increasing women's leadership positions in government, finance, and health.
- *Global health*: sponsoring initiatives to deliver vaccinations and otherwise combat major global diseases, such as AIDS and malaria. (Bass and Bloomberg 2020)

These lists represent only the beginning of the challenges that face us as human beings living on one shared planet. Underpinning these challenges are many others, none more important than the loss of diversities. We face devastating losses in three major areas of diversity: *biological diversity*, as species are increasingly endangered or become extinct; *cultural diversity*, as Indigenous peoples, minorities, and smaller populations in more isolated areas, such as rural areas, face encroachments on their lands and their lives, including their right to exist as diverse cultures; and *linguistic diversity*, with thousands of languages already extinct and many more facing imminent extinction. As diversity declines, our species has fewer options and less flexibility. When we consider that most innovation builds on preexisting forms—whether of biology, culture, or language—the loss of anything that once existed is also a loss of potential, of *what could have been*.

But all is not doom and gloom. Hope is offered by disciplines, such as anthropology, that work to value and preserve diversities. Anthropology has taken a lead role in bringing positive change to our global world. Projects in which anthropological knowledge and insight is applied to current challenges include language reclamation and revitalization, primate conservation and habitat enrichment, revitalization of traditional foodways and technologies, and other projects to revive, restore, and encourage cultural, biological, and linguistic diversity.

THE ETHNOSPHERE

When considering the many challenges facing us as a global community, we must also acknowledge our **assets**—the tools and conditions we can harness to increase value and effect positive change. We do not enter our future empty-handed. To some extent, our challenges and assets have evolved together, hand in hand. As

we face concerns about another possible global health pandemic, for example, we bring with us a depth of scientific knowledge based on earlier experiences, having learned and retooled our responses to be better prepared for those things we have experienced before. As we begin to combat overwhelming climate crises after decades of abusing our environment, we have knowledge and tools to make positive changes while continuing to educate people about our physical world, pollution, and global warming. We understand the causes of most of our challenges, and we have the ability to harness large groups of people globally to work together to address them, with an impressive array of technology at our fingertips. We are not a helpless species. We are not necessarily smarter or wiser than our ancestors were, but we do have one great treasure—we have what our ancestors left to us. We have the accumulation of all their cultural wisdom, ingenuity, and humanity.

In 2001, Canadian cultural anthropologist Wade Davis coined the term **ethnosphere** to refer to the sum total of all of human knowledge across time:

You might think of the ethnosphere as being the sum total of all thoughts and dreams, myths, intuitions and inspirations brought into being by the human imagination since the dawn of consciousness. The ethnosphere is humanity's great legacy. It is the product of our dreams, the embodiment of our hopes, the symbol of all that we are and all that we have created as a wildly inquisitive and astonishingly adaptive species. (Davis 2003)



Anthropologist Wade Davis coined the term *ethnosphere* to describe the totality of the human cultural legacy across time and cultures. (credit: "Wade Davis" by Cpt. Muji/Wikimedia Commons, CC0)

The diverse ways in which humans have solved or managed the challenges of our lives, many of them challenges that we have inflicted on ourselves because of greed and ignorance, is a rich storehouse for our future. Too often, contemporary people feel there is little to learn from those who are different from us or who came

before us, but the solutions to our current problems are founded upon this legacy.

Humans have faced grave environmental challenges more than once in our species' history. Our ancestors also faced global climate challenges. The last glacial period occurred between 120,000 and 11,500 years ago. During that time, alternating periods of global cooling and warming displaced human populations and forced them to adapt to new plants and animals as they migrated and ultimately peopled the globe. One of the notable consequences of the last years of the glacial period was the extinction of some 177 species of megafauna (large mammals), including woolly mammoths, giant deer, and saber-toothed cats. There have been two primary theories about these extinctions, which occurred worldwide (in Europe, Africa, Asia, and North and South America). Did the animals go extinct due to climate change and habitat loss or to overkilling by human big-game hunters? Recently, researchers at Aarhus University in Denmark studied the extinction of megafauna species through global mapping techniques that compared timelines of human occupation and of animal extinction (Sandom et al. 2014). In about one-third of the animal extinctions, the correlation of the dates of the earliest arrival of human hunters and the extinction of the animals was clear and consistent. While the majority of cases were not consistent, they did not present contrary evidence to the theory of human overkill and environmental exploitation. It appears that humans were involved in mass extinctions and environmental changes even in these early periods.



The skeleton of a woolly mammoth, a large mammal that was most likely hunted to extinction by early humans. (credit: "Siegdsorfer Mammut" by Lou Gruber/Wikimedia Commons, Public Domain)

And yet people have also been involved in animal reintroductions and species conservation. Today, U.S. National Parks have reported a variety of species reintroduction success stories. In several national parks across the United States, native animal species have been reintroduced to better manage habitats, conserve endangered species, and support a healthy ecosystem. Among the most successful reintroduced species are California condors, Pacific fishers, black-footed ferrets, gray wolves, bald eagles, desert pupfish, bighorn sheep, elk, and nēnē, a species of goose native to Hawaii (Errick 2015).

Entomologist Edward O. Wilson has devoted his life to studying and working to protect **biodiversity**, the astounding variety of plants and animals on our planet that together form a healthy ecosystem. As part of the biological web of life, humans are important actors. Within the **ethnosphere** lies the wisdom of generations of human interactions with other species for food, medicines, clothing, shelter, protection, companionship, and economic exploitation. Many of the tools related to this valuable knowledge are found within Indigenous cultures, too many of them also endangered or extinct today. By preserving and valuing the **ethnosphere** and its diversity, we preserve ourselves, our children's futures, and the hopes we have for our planet.

Anthropology plays a major role in preserving, valuing, and teaching about the **ethnosphere**. In this critical role, anthropology makes an important difference in how well we encounter the future—whether we will adapt and thrive or face ever-increasing threats to our survival. Whether you are a practicing anthropologist, a student of anthropology, or someone who enjoys learning about our diverse world, including its diverse peoples and cultures, you have a role to play in bringing about a more hopeful future.

GLOBALIZATION

Many social scientists trained in the 1990s and 2000s draw heavily on different versions of the idea of 'globalization.' In social science (including anthropology), globalization refers to the growing interconnectedness and interdependence of people, institutions, and economies across the world. Theories related to globalization are about how actions in one part of the globe increasingly shape outcomes elsewhere.

In some ways, globalization is a lot like the concept of **ethnosphere**. Both focus on global interconnectedness. Globalization examines how economic, cultural, and political systems become linked. The **ethnosphere** highlights the global tapestry of human cultures. Both describe large-scale, planet-wide processes. Each concept tries to make sense of what happens when societies interact, share knowledge, and influence one another. Both recognize cultural exchange. Globalization addresses flows of culture across borders. The **ethnosphere** acknowledges that cultures continually evolve through contact.

Still in other ways, the concepts are almost the opposite. Globalization is a broad, multi-dimensional process driven by economics, politics, technology, and culture while the **ethnosphere** is specifically the collective **diversity** of human cultures, languages, and worldviews. Globalization is an analytic framework studied without an inherent moral stance. The **ethnosphere** explicitly emphasizes the importance and fragility of cultural diversity and warns about its erosion. Globalization describes *ongoing processes* of integration and interaction. The **ethnosphere** refers to a living repository of cultural wisdom and practices that can grow or shrink depending on historical forces. Globalization includes discussions of cultural **homogenization**, but this is only one among many aspects. The **ethnosphere** places cultural loss—especially the extinction of languages etc.—at the center of its meaning.

Sometimes, anthropologists can pick and choose alternating between these two different frames for understanding modern humanity very broadly speaking. While it is increasingly something of an old-fashioned term, the ideas embedded within globalization are still useful as we try to better understand contemporary human issues in the 21st century since it provides us ways of discussing several key dimensions of today's world:

- Economic: Expansion of global trade, investment, production networks, and financial flows.
- Cultural: Movement of ideas, media, values, and lifestyles across borders, leading to both cultural mixing and cultural tensions.
- Political: International institutions, treaties, and governance structures that influence national policies.
- Technological: Communication and transportation technologies that accelerate cross-border interaction.
- Social: Increasing migration, diaspora communities, and transnational social networks.

Overall, it's used to analyze how these processes reshape societies, power relations, and everyday life.

COLONIALISM AND MIGRATION AS GLOBAL FORCES

The global movement that characterizes our current period in history is not preordained. The volatile and powerful nature of multinational cultural change and economic exploitation associated with this global movement is connected with specific historical forces. One of the most consequential early global forces was *colonialism*, an exploitative relationship between state societies in which one has political dominance over the other, primarily for economic advantage. Colonialism did not only affect the countries enmeshed in colonial relationships; it also established world alliances and enduring social, political, and economic changes.

Some scholars date the earliest emergence of colonialism to the city-states of Mesopotamia in western Asia, an area occupied today by parts of Iran, Iraq, Turkey, Kuwait, and Syria. Evidence indicates that by around 3500 BCE, the northern and southern regions were connected by exploitative trade relationships and intense and prolonged warfare. US archaeologists Guillermo Algaze and Clemens Reichel (Algaze 2013; Wilford 2007), in excavations at Uruk in ancient Mesopotamia, have unearthed trade goods that indicate a vast exchange network involving items such as pottery, jewelry, metalwork, and even wine. There is also a pattern of destruction and warfare at Uruk and, more recently, at Tell Hamoukar in modern-day Syria, which indicates the movement of populations as well as trade goods. Tell Hamoukar was a major site of obsidian tool and blade manufacture as early as 4500 BCE, with raw materials coming from as far away as modern-day Turkey, some 100 miles to the north. At Tell Hamoukar, collapsed walls and a large number of penetrating clay bullets, likely delivered by slingshots, are some of the oldest known artifacts of organized warfare. The archaeological sites indicate that there was armed conflict and that groups of people were moving between locations. The patterns of destruction across these various sites suggest that populations were most likely vying for control over resources and production sites, similar to conflicts associated with more modern

colonialism, which also were primarily characterized by a drive for political control based on access to raw materials and resources.

After these early beginnings, colonialism spread, including the development of European and Mediterranean settlements in northern Africa. The Phoenicians, from what is now modern-day Lebanon, established the city of Carthage in what is now Tunisia to facilitate and control trade throughout the Mediterranean area. Carthage remained an important hub for trade from its founding in the 9th century BCE until it was destroyed by the Roman Empire in 146 BCE. In what is now modern-day Egypt, the Macedonian king Alexander the Great founded the city of Alexandria in 331 BCE. Alexandria rapidly grew in economic and political influence because of its control over Mediterranean trade routes; in the Greek confederation of city-states, only Rome was more powerful. As colonizing nations consolidated their political and economic influence, they increasingly sought to expand their access to the natural resources and human labor of other societies. Colonial occupations were repeatedly marked by violence.

By the end of the 15th century, when Christopher Columbus began the first of what would be four voyages (1492–1504) to the New World, many of the nations of Europe were aggressively seeking new territories, establishing what is now called the Age of Discovery (1500s–1700s). During this period, Spain, Portugal, the Netherlands, Belgium, France, Germany, and Great Britain all funded sea and land voyages to seek out new territories in order to expand their global influence. The modern-day European world order of developed and developing nations emerged from the colonialism begun during of the Age of Discovery.

Across the globe, generations of Indigenous peoples contested European colonizers. Often fighting with less effective weaponry; having little or no immunity to Old World diseases such as smallpox, measles, typhus, and cholera, which decimated their populations; and balancing efforts to defend their homelands and families with the desperate need to maintain agricultural production to fend off famines, Indigenous people frequently migrated from one area to another, leaving behind land and crops. In the Andean area, *forasteros*, a group of Indigenous peoples, became nomadic to flee oppression. Declaring ownership and control over lands and people who had few effective means to challenge them, European nations quickly established colonies throughout North and South America, the Caribbean, Africa, and Asia. Politically, most colonies were beset with conflict and periodic uprisings, such as the Great Rebellion of Tupac Amaru II from 1780 to 1783 in Cuzco, Peru, during which Andean peoples came very close to toppling the Spanish government after almost 250 years of oppression. During this period, there also emerged new sociocultural institutions and rituals blending colonizing and Indigenous cultures as aspects such as food and religious beliefs became entangled (Carballo 2020). This blending is referred to as *creolization*. Culturally, the dismantling of Indigenous languages, religions, and other institutions continues to be devastating.

Late European colonialism of the 18th to the 20th century, sometimes called *classic colonialism*, was a period in which the institutions of control and extraction were standardized, especially in

Africa. This period of colonialism is characterized by very specific goals, policies, and attitudes. The colonial relationship was symbolically depicted as one of benevolence between the “mother country” and the colony, with people such as missionaries, colonial advisors, settlers, businesspeople, and teachers all working together to promote economic development and Europeanization in the colony. The official justification for these practices was that European Christians had a “White man’s burden” to spread their civilization worldwide. Beneath this rhetoric, however, the goals were power and control. Colonialism was an extractive and exploitative economic venture with a social structure designed to dehumanize Indigenous peoples. Raw materials were extracted from the colonies using low-paid Indigenous labor and sent to European nations, where they were transformed into goods that were then sold back to the colony and its Indigenous peoples at an enormous profit for the Europeans. Indigenous cultures were severely damaged or destroyed. Frequently, Indigenous peoples were removed from their homelands and settled on reservations or within territories that were of less use to the Europeans, freeing up large swaths of land for European immigrants. Many young Indigenous people, handpicked for their skills and aptitude, were sent to European countries to be educated and acculturated as future leaders in the colonies. The intention of this preparatory system was to disrupt the influence of Indigenous cultures and create enduring pro-European institutions within the colonies. It also served to divide the Indigenous populations, further weakening them. In other cases, Indigenous peoples were bought, sold, and traded as commodities, moving them away from their languages, cultures, and families. From the 16th to the 19th century, it is estimated that between 10 and 12 million Africans were enslaved and transported from Africa to the Americas in the transatlantic slave trade. The massive scale of this forced migration changed the world ethnically, culturally, linguistically, and economically. Untold millions of Africans died in the enslavement process, fracturing families, communities, and societies. While the movement and mixing of so many different peoples resulted in expansive cultural innovation in areas such as languages, foods, religions, and rituals, the cost of this massive displacement in human lives and human potential was incalculably high, leaving scars and challenges that continue today.

These policies, of removing peoples from their homelands and of sending young people far from home for schooling and enculturation, are just two examples of the ways in which colonialism forced people onto new lands and into new cultures. As colonies grew into empires, with many different nations under the control of a single European nation—such as Great Britain, which had colonies in places as far apart as Kenya, Australia, and Canada—there was a global movement of people and cultures across continents.

Colonization also affected those living in European countries, influencing contemporary identities in many ways. The area of modern-day Poland was partitioned several times by neighboring nation-states and was colonized by both Germany and Russia during World War II and its aftermath. In this eastern European nation, the impacts of migration and change continue to affect the way Poland sees itself today. The various movements of peoples and cultures

have left Poland uneasy with its own history and national identity. In her research on culture-focused museums in Poland, sociocultural anthropologist and curator Erica Lehrer (2020) studies the contested narratives within the legacies of collecting, categorizing, and displaying objects in postcolonial countries where prior migrations have changed the nature of national identity.



The Museum of the History of Polish Jews opened in Warsaw, Poland, in 2005. It focuses on Jewish history in Poland, with a mission of promoting openness, tolerance, and truth. (credit: “Warszawa - Muzeum Historii Żydów Polskich POLIN” by Fred Romero/flickr, CC BY 2.0)

In its history, Poland has been both the colonizing nation (in regard to neighboring states in eastern Europe) and the colonized (in regard to its long history as a colony of Russia and its later occupation during World War II). Depleted by wars, out-migration, territorial shifts, and genocide, Poland’s contemporary population is far more homogeneous by race, class, and religion than it was prior to World War II. Museum depictions of Poland’s culture and national identity have created a host of what Lehrer calls “awkward objects” (2020, 290) that hark back to earlier, and sometimes darker, historical periods. These include museums objects made by non-Jewish Poles representing their memory and imagination of Jews in the pre-World War II era, some depicting ambiguous racial stereotypes, as well as hybrid objects that could have been artifacts of either Jewish or Catholic communities but are depicted by object origin and associated with only one of those communities. One example is a collection of children’s noisemakers, which were depicted in the museum as artifacts from a Catholic Polish community without noting that Jewish Polish children would have played with similar toys at that time. And how should a Polish cultural museum handle darker awkward artifacts, such as carvings of a gas chamber at Auschwitz? The roles and responsibilities that contemporary societies have in telling these parts of their history are relevant to museums and cultural institutions around the globe. Museums often house artifacts of colonialism. Think about cultural and historical museums that you have visited. How did they tell the story of the darker parts of history? Are certain historical periods overlooked or underdeveloped?

Lehrer calls for *pluralist contextualization*, meaning that museums should not just include the cultural origins of the object but also indicate how they were obtained and how they connect with other

cultural communities. Citing a need for ethical curatorial principles, she says:

Strategic curatorial approaches can frame objects to function as a source of ethical inspiration and empathy, spurring people to acknowledge and address those histories that are unchosen by national or communal authorities. . . . Decolonising the museum here is not about restitution. These “awkward objects” are most valuable to us curated in ongoing, caring conversation wherever historical injuries still resonate, reminding us that we are tied together by our wounds. (307, 311)

POSTCOLONIALISM, INDIGENOUS IDENTITIES, AND FORCED MIGRATION

Although colonialism as a direct politico-economic policy is usually associated with earlier historical periods, it continues to have effects on the world today. The enduring politico-economic relationships established by colonialism have left behind concentrations of capital and technology, wealth and privilege in the former colonizing countries, mainly in Europe, as well as inequality, racism, and violence in the relationships between these nations and their colonies. These aftereffects of colonial relationships are referred to as **postcolonialism**. As independence movements began to take hold in the early 20th century, former colonies found themselves depleted of resources and competing against European countries whose growth came from their own demise. Today, postcolonialism is a significant topic for anthropologists whose research focuses on the effects of colonialism, marginalization, and **intersectionality**, where race, gender, and class identities come together.

One of the most prominent consequences of colonialism is the inequality between the so-called developed countries and the developing or underdeveloped ones. Following World War II and the rise of a new world order, many political and economic theories began to distinguish between “first world” countries, which had the highest GDPs (gross domestic products) based on the total value of all goods and services produced in a country, and those with the lowest GDPs, referred to as “third world” countries. The “second world” tier was typically reserved for those countries with a socialist or communist government. In this tiered and hierarchical system, the former colonizers were always within the top tier and their former colonies in the lowest ranks. Much of this inequality was due to the exploitation of resources and the brain drain migration of Indigenous peoples, in which the wealthiest and most educated members of Indigenous societies relocated to the former colonizing nation for education and employment, many leaving their homelands permanently. This out-migration devastated many Indigenous families and enhanced the productive capacities of richer nations. Many former colonizing countries thus continued to exert influence

over their former dependencies even after independence. This relationship of unequal influence is referred to as *neocolonialism*.

Many Indigenous societies are involved in neocolonial relationships (meaning relationships that are structured to make one country dependent on another) with the nation-states in which they live, a situation sometimes referred to as *second colonialism* (Gandhi 2001). Indigenous groups continue to be uprooted, and sometimes forcibly removed, from their homelands and moved onto reservations, into “model villages,” or simply into urban areas. This type of **forced migration**, an involuntary or coerced removal from a people’s homeland, can result in poverty, alienation, and loss of cultural identity. Native peoples in the United States have been subjected to repeated waves of forced migration since the arrival of Europeans. Many societies were forced to move multiple times as White settlers pushed them onto more western and less fertile lands. All of this forced dislocation has had significant cultural and economic consequences. As Native Americans Richard Meyers (Oglala Lakota) and Ernest Weston Jr. (Oglala Sioux) write:

Tragedies of many kinds are often all too common for many people who reside on our reservation. Endemic poverty creates endless problems for community members, from violent dog packs to pervasive alcoholism and diabetes. Dismal statistics paint our reservation as the “Third World” right here in the United States. The numbers are hard to pin down but always dreary: Unemployment is sometimes listed as being as high as 85–95 percent, and more than 90 percent of the population lives below the federal poverty line. (Meyers and Weston 2020)

While many Indigenous peoples in Western nations face unique problems of Western historical paralysis, in which the nation-state extols the virtues of Indigenous people at a specific time in its history with little or no regard for contemporary Indigenous identities, some Indigenous peoples are adapting their cultural traditions to urban areas where they have been forced to migrate. In her study of Indigenous Manchineri youth in the Brazilian state of Acre, Finnish anthropologist Pirjo Virtanen (2006) found a cultural revival of traditional puberty rituals for young Manchineri adults. The Manchineri are a lowland Amazonian people who traditionally practiced slash-and-burn cultivation. Over the past century, their access to farmland has become increasingly limited, leaving them unable to make a living in the forest. Many young Manchineri have migrated from their traditional homelands to live in urban areas among other lowland Amazonian Indigenous peoples. These Manchineri sought to strengthen their cultural identity by reviving and adapting certain traditional rituals, such as the ayahuasca

ceremony, in which pubescent boys ingest a hallucinogenic substance as a spiritual experience, and a menstruation ceremony in which girls are instructed by their elders on their new status as adults. Few Manchineri remain on their ancestral homelands, and many of these cultural traditions were in danger of dying out.

In Acre, the urban Manchineri found that being an “Indigenous person” had social value with Westerners who appreciated traditional Indigenous cultures. Much of this growth in appreciation came as a result of the rapid decline of Indigenous cultures and populations and the increasing urbanization and alienation of people from rural environments. The younger generation of Manchineri began to appreciate their traditional cultural roots and see the value of maintaining their specific cultural identity, rather than being “lumped” into a broad category of Indigenous persons, while living in an urban environment. By marking themselves as Manchineri, they were able to leverage a higher social standing. This process of using identity as a way to gain status is an example of symbolic capital, or the use of nonmonetary resources to gain social prestige.

Maintaining a specific Indigenous identity within Western nation-states is challenging, as the numbers of Indigenous peoples continue to decline and migration into urban areas creates a mixture of cultures that frequently results in the loss of traditional identities. Indigenous identity is complex and not monolithic, as specific cultural groups have distinct identities; no single spokesperson can realistically represent all Indigenous people. Recently, pan-Indigenous activist movements have developed worldwide to increase the visibility and strengthen the voices of Indigenous peoples. These global movements of people and ideas make it possible for Indigenous people to form alliances for change.

GLOBALIZATION IN MOTION

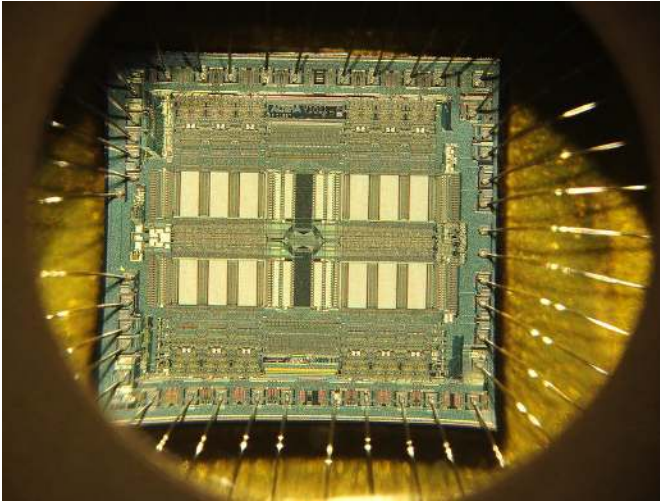
As the connections and interactions between communities, states, countries, and continents have intensified, a global network of linked forces and institutions known as globalization has emerged. Unlike earlier worldwide movements, globalization tends to be decentered, meaning it is not controlled by any particular nation-state or cultural group. Emerging from earlier worldwide historical movements pertaining to exploration, colonialism, and capitalism, globalization has exceeded them with its reach and has created a worldwide interdependence far more intense and transformative on a global scale than anything ever before seen in human history. It involves all aspects of our lives (e.g., political, economic, social, and religious), and it has no center or origin point. Changes and interactions occur within a dynamic and seemingly arbitrary field of connections among people, ideas, countries, and technologies.

Globalization causes the movement of people, resources, and ideas in various ways. Not only do people migrate for work and travel, but they also share ideas and technology, resulting in cultures and populations that are no longer restricted and contained by geographical boundaries. These globalized cultures and networks have changed the way that anthropologists think about culture. Culture is no longer solely attached to a local place and community; rather, it is diffuse and possibly widespread, due to the complicating forces of globalization.

One of the early scholars of globalization is Indian American anthropologist **Arjun Appadurai**. His research is grounded in the idea of a **new global cultural economy** that traffics in multiple simultaneous **flows** of material goods, ideas, images, and people, reminding us that global movements and transformations affect every one, whether or not we actually change the nation or community in which we live. Within globalization, local and global communities are deeply intertwined in fluid and dynamic relationships of mutual influence. These interconnections sometimes lead to unpredictable outcomes. Appadurai (1990) identifies five different global cultural flows, tagging each with the suffix *-scapes* to call attention to the fluidity and multiple ways of viewing these flows:

- *Ethnoscapes*: the flow of new ideas and new ways of living created by the ongoing migration of people—whether tourists, immigrants, refugees, exiles, guest workers, or other groups—across cultures and borders. As just one example, the descendants of the Zainichi Koreans who immigrated to Japan following World War II have established Korean schools and a Korean university in Japan.
- *Technoscapes*: the worldwide movement of technology, both equipment and information, as well as the multinational origins and manufacturing process of technology along a global assembly line. One example is an iPhone, which has component parts and a manufacturing process that involves many different places.
- *Financescapes*: the movement of money and capital through currency markets, national stock exchanges, and commodity speculations. The funds of even the most local investors are intermingled and invested on the global market.
- *Mediascapes*: the various types of media representations that influence the way we experience our world. These are “image-centered, narrative-based . . . strips of reality” (Appadurai 1990, 299) diffused through digital media, magazines, television, and film, introducing characters and plots across cultural settings and meanings.
- *Ideoscapes*: the flow and interaction of ideas and ideologies. Appadurai describes ideoscapes as “terminological kaleidoscopes” (1990, 301) in which words and ideas carrying political and ideological meanings are trafficked across cultures. In this process, their meanings become increasingly amorphous and obscured. One example is the political change that resulted from a reawakening of democratic movements in the Middle East in the 2010s, inspiring the Arab Spring, a series of anti-government protests and rebellions. Anti-government protests in Tunisia spilled over into Egypt, Libya, Yemen, Syria, and Bahrain, toppling government leaders and triggering social violence.

Appadurai speaks of these *-scapes* as primary agencies and intersections within the global cultural economy; in other words, each of these *-scapes* creates change through interactions with others. In this fluid exchange of ideas, material goods, and persons, the *-scapes* interact, overlap, and contradict one another as cultures themselves come to be commodities produced and consumed by the global community.



Semiconductor chips are currently made in only a few countries. The United States imports these chips for use in automobiles, medical technology, and computers. In 2021, facing a worldwide shortage of computer chips, President Joe Biden pledged funding to support the creation of chip manufacturers in the United States. (credit: “EPROM-EPLD ALTERA EP910” by yellowcloud/flickr, CC BY 2.0)

There are multiple perspectives for understanding globalization. It can be interpreted as an imperial force in which certain countries and cultures have dominance over others, with their images, capital, and ideas predominating in the global marketplace. Indian anthropologist Sekh Mondal aptly says, “The people earlier had been the creators and creatures of culture, but today the corporate bodies and media have emerged as the creators and carriers of cultural attributes” (2007, 94). Globalization can also be viewed as an open-access community in which governments and corporations have lost the ability to control and isolate populations, ultimately allowing for more cultural diversity and equality. Globalization today transforms virtually everything about anthropology—its subject matter, the locales for research, its understanding of the concept of culture, and the goals that anthropologists bring to their work. Within this context of great change, anthropology is uniquely capable of making sense of this new global community and its rapidly shifting beliefs and behaviors.

DIASPORA, TRANSNATIONALISM, AND CULTURAL HYBRIDITY

Migration impacts individuals and cultures in diverse ways. It prompts the dissemination and diffusion of cultural ideas and artifacts from one cultural context to another, the development of new cultural forms and practices, and hybridity, in which cultures intermingle in unpredictable ways. **Cultural hybridity** refers to the exchange and innovation of ideas and artifacts between cultures as a product of migration and globalization. It is a commingling of different cultural elements resulting from the interactions of people and their ideas. While individuals and small groups convey their cultures as they migrate, the movement and dispersal of large ethnic groups can bring about far more rapid structural changes. This large-scale movement, which might be caused by warfare, institutionalized violence, or opportunities (most commonly education and employment), is called **diaspora**. Related to diaspora is **transnationalism**, the construction of social, economic, and

political networks that originate in one country and then cross or transcend nation-state boundaries. While diaspora and transnationalism can both be related to large-scale migration, transnationalism also refers to the cultural and political projects of a nation-state as it spreads globally (Kearney 1995). One example of this is transnational corporations, which are anchored in one country with satellites and subsidiaries in others.

Diasporic communities typically have a sense of identity that has been shaped or transformed by the migration experience. They are characterized by cultural hybridity and often take these new cultural forms with them into their new homelands, generating cultural revival. The African diaspora resulting from the transatlantic slave trade brought a wide array of cultural elements to the United States, including new foods (such as okra and yams), new instruments and musical forms (such as the drums, the banjo, and the development of African slave spirituals), and new language (words such as *jazz*, *gumbo*, and *tilapia*). Besides the common experience of being formed through migration, diasporic communities share other characteristics. These include a collective memory about the ancestral homeland; a social connection to the country of origin, typically through family still living there; a strong identity as a distinct group; and fictive kinship with diasporic members in other countries (“Migration Data Relevant” 2021). Diasporic communities are inherently political (Werbner 2001), as their movements connect nation-states in a variety of ways—economically, socially, religiously, and politically. Some of the best-known diasporas are the African diaspora that was driven by the transatlantic slave trade from the 15th to the 19th century, the Irish diaspora during Ireland’s Great Famine of the mid-1800s, and the Jewish diaspora, which began under the Roman Empire and continued through the establishment of Israel as a Jewish homeland in 1948. Today, India is the source of the largest diaspora in history, with some 18 million Indians living outside of their country of origin. These mass movements, which are becoming more common as a result of globalization, affect cultures worldwide.



An immigrant solidarity rally in Minneapolis, Minnesota, in 2017. About 3,000 people gathered to protest against President Trump’s immigration ban and the increasing militarization of the U.S.-Mexico border. (credit: “Solidarity March with Immigrants & Refugees” by Fibonacci Blue/Wikimedia Commons, CC BY 2.0)

American anthropologist and South Asian scholar Ritty Lukose has done fieldwork in India and in U.S. immigrant communities exploring diaspora and postcolonial identities. In her research with Indian diasporic communities in the United States (2007), she focused on ways in which education could better connect with immigrant families, thus strengthening both. The percentage of

children in the United States population who are immigrant children, defined as those who have at least one foreign-born parent, increased by 51 percent between 1994 and 2017 (Child Trends 2018). Immigrant families constitute a significant portion of the population within American schools today. Based on her research, Lukose argues that there needs to be a realignment in American education that better acknowledges immigrant identities. As an example of the urgency of this need, she cites the 2005–2006 California textbook controversy, in which the Hindu American Foundation (HAF) sued the California State Board of Education for using sixth-grade social studies textbooks that contained what the HAF and many Indian parents deemed to be biased and discriminatory views of Hinduism. Lukose advises that instead of presenting the migrant experience as fractured between voluntary and involuntary immigrants or focusing on conflict between immigrants and other minorities (such as racial minorities), American educational pedagogy, curricula, and practices should present identity formation itself as one of the richest experiences of being a citizen. An educational approach that emphasizes immigrant identity, not as a hybrid of pieces and parts, but as a legitimate and practical way of functioning within a globalized world could better prepare all students in the United States for a future in which we focus on what links us together rather than what divides us.

INEQUALITY ALONG THE MARGINS

CONTEMPORARY TYPES OF MIGRATION

Because of emerging global forces of all kinds—social, economic, environmental, and political—there has been a recent rise in migration within geographical regions and across countries. Four of the most common types of contemporary migration are listed below. Each derives from different causes and is associated with different push and pull factors (Woldeab 2019). In some situations, these types of migration may overlap, such as in the aftermath of a natural disaster.

- **Labor migration** is the movement of people for the purpose of employment and/or economic stability. It may be an internal migration from one town to another within the same country of origin, or it may involve travel across countries in search of opportunities. In 2017, the United Nations International Labour Organization estimated that there were 164 million labor migrants worldwide (Global Migration Data Analysis Centre 2021).
- **Forced migration** or **displacement**, also called *involuntary migration*, is migration due to persecution, conflict, or violence and involves refugees and those seeking asylum. The UN Refugee Agency (UNHCR) estimated that as of the end of 2019, there were some 79.5 million forced migrants or displaced persons worldwide. More than two-thirds (68 percent) of those displaced persons came from just five countries: Syria, Venezuela, Afghanistan, South Sudan, and Myanmar (UNHCR 2020). One out of every 108 people was displaced in 2018 (UNHCR 2019).
- **Forced labor, human trafficking, and modern slavery** are a set of linked terms defined as the recruitment, transportation, transfer, and/or harboring of persons by means of threat or use of

force or coercion for the purpose of exploitation (UN 2020). This includes sexual slavery and forced labor. As of 2016, some 25 million people were involved in forced labor and some 40.3 million in modern slavery worldwide, while an estimated 15.4 million were in forced marriages. While a large proportion of the victims are women, human trafficking involves men and children as well. [The Counter Trafficking Data Collaborative](#) estimates that nearly 80 percent of international human trafficking journeys pass through airports and other official border control points.

- **Environmental migration** is displacement caused by natural disasters, such as earthquakes, hurricanes, or droughts. It can be permanent or temporary and is a rapidly growing area of migration due to global climate change. In 2018, 17.2 million people were displaced due to environmental conditions; by 2019, the number had risen to 24.9 million.

Anthropologists who study migration are often involved in multi-sited ethnographic research, exploring not only migrant populations but their communities of origin as well. Understanding the social and cultural attributes of communities of origin helps researchers gauge the level and types of adaptation caused by migration. Also, communities of origin typically remain part of migrants' wider social networks and are vital to their well-being and success. It is not uncommon for relatives and other members of the migrants' home communities to follow them to their new settlements and reestablish a sense of community and a set of self-help networks there. This process of serial migration from the same community of origin is known as **chain migration**.

LABOR MIGRATION AND MIGRANT ROUTES

While migration, in its widest sense, is any movement that reestablishes a household, many migratory patterns are specifically associated with socioeconomic need, mainly shifting employment opportunities. Labor migration can be permanent or circular. **Circular migration** is a repeated pattern of movement between locations, usually mapped to the availability of work. One type of circular migration is seasonal migration, which is migratory movement that coincides with seasonal labor needs, such as planting, harvesting, service, and construction work. Some seasonal workers migrate, with or without their families, for temporary, often low-paid work. Other seasonal workers have long-term relationships with their employers and legal work permits (also called Employment Authorization Documents, or EADs, in the United States) and will return to the same work sites year after year, sometimes maintaining a joint household with other families at the work site. These individuals will often maintain a family household in their country of origin and send home **remittances**, or transfers of money from workers to their home countries, usually for their families. Today, one in nine people worldwide depends on remittances from migrants (Global Migration Data Analysis Centre 2021).

Many people migrate in search of work and a better life without legal permits or assurance of employment. The migration journey made in search of opportunities can be filled with dangers, hardships, and even death. Some regions of the world have well-

established migrant trails, which are the routes of most worldwide migration. The most congested migration routes are:

- the eastern Mediterranean route, with a flow of migrants from the Middle East and North Africa to Europe, crossing through Turkey;
- the Mediterranean Sea route, with migration from the Middle East and North Africa to Europe, across the Mediterranean Sea;
- the Southeast Asian route, with migrants primarily moving southward from the Asian mainland into Indonesia and Malaysia; and
- the Central American route, which brings migrants from South and Central America into North America.

These migrant trails have a huge impact on the social, political, and economic life of all of the countries that are a part of the route, bringing both benefits and challenges. Those in the United States are most familiar with the Central American route, which begins as far south as South America and extends as far north as Canada. The most contested part of the “trail,” however, is the portion along the Rio Grande, the river that separates Mexico and the United States.

In his remarkable four-field study of undocumented migrants entering the United States across the border with Mexico, *The Land of Open Graves* (2015), Chicano anthropologist Jason De León reveals a less visible side of undocumented migration. He describes a type of cat-and-mouse game between migrants and those attempting to stop them, resulting in widespread suffering and high human and financial costs. De León conducted a multi-sited ethnography, doing research in various locations in both Mexico and the United States and consulting various groups along the migration route, including illegal migrants and border patrol agents as well as smuggling groups and drug traffickers.

In his article “On Not Looking Away,” digital and multimedia advisor Arran Skinner (2019) reports on the tragic deaths of Mexican migrants Óscar Martínez Ramírez and Angie Valeria, his 23-month-old daughter, both of whom drowned and washed up on the shores of the Rio Grande. “We are choosing to ignore this evidence [of atrocity], to actively look away,” Skinner writes. But De León is not looking away. Through his research, he is bringing to light the stories of those who migrate in search of hope and better lives. As global movements become more common because of political, economic, and environmental challenges, studies such as De León’s illustrate the growing importance of migration for our species.

Since 1994, the US Border Patrol has had a policy of “prevention through deterrence” that attempts to prevent undocumented migrants from reaching the U.S. border. Legal international entryways in cities such as Tucson, Arizona, and El Paso, Texas, were heavily fortified with fencing and additional patrol agents to make undocumented crossing exceptionally difficult. As a result, migrant entry points shifted away from urban areas and into more hostile terrain, such as the Sonoran Desert region of Arizona. While this has not significantly lowered the frequency of these crossings, it has made the journey much more dangerous and far less visible to residential populations and humanitarian groups. In addition to the threat of harsh and rugged landscapes, there are the dangers of

extreme weather, dehydration, bandits, and even wild animals. De León concludes, “The Border Patrol has intentionally set the stage so that other actants [agents of deterrence] can do most of the brutal work” (61).

During his study, De León and his team located the body of Maricela Zhagüi Puyas, a woman originally from Cuenca, Ecuador. She had left her family, including her children, in Ecuador in order to seek employment in the United States, hoping to send money home to them. She was in debt for more than \$10,000, most of it to the trail guide (called a *coyote*) who was supposed to guide her on her journey. Such trail guides often extort large sums of money from vulnerable migrants and then leave them to make their way alone. Maricela had made a journey of more than 5,000 miles from Cuenca, Ecuador, all the way to the Sonoran Desert in Arizona, when she died of exhaustion and exposure, technically having reached the United States. In the 14-year period between 2000 and 2014, 2,721 migrants were found dead in Arizona’s Sonoran Desert, approximately 800 of whom remain unidentified today. In 2020, there were an estimated 227 migrant deaths in the Sonoran graveyard, making it the deadliest year on record for that corridor trail (Snow 2021). De León’s work continues today through a series of pop-up exhibitions and workshops entitled *Hostile Terrain 94*.



Migrant routes: (left) the U.S.-Mexico border wall at Nogales, Arizona, in February 2019; and (right) an immigrant camp of asylum seekers in Matamoros, Mexico, near Brownsville, Texas, in January 2020. (credit: (left) “Nogales Border Wall and Concertina Wire” by US Customs and Border Protection/Wikimedia Commons, Public Domain; (right) “Congressional Hispanic Caucus Visit to Matamoros, Mexico 05” by Jimmy Panetta/Wikimedia Commons, Public Domain)

This humanitarian crisis is far from being resolved. In 2020, 400,651 undocumented migrants were apprehended and expelled by the U.S. Border Patrol (U.S. Customs and Border Protection 2020). Immigrants, both documented and undocumented, make up a majority of the farmworkers and meatpacking workforce in the United States today. Once employed, these immigrants, who are frequently separated from their families, face hazardous working conditions, language barriers, long hours, low pay, and substandard housing. Because of their legal status, many also struggle with inadequate access to health care and rising discrimination.

Biocultural anthropologist Shedra Snipes and her team (Snipes et al. 2007) conducted focus group interviews among 69 male and female Mexican immigrant farmworkers in the Yakima Valley of Washington State. They were particularly interested in the ways the farmworkers defined and experienced stress. Their interviewees distinguished between physical and mental stressors and cited the most common causes of stress as work, personal illness, lack of work, family illness, and family stress. Snipes et al. noted that many stressors were linked by a common theme of inconsistent work and the *injusticia* (injustice and unfairness) of low pay and poor working

conditions. One farmworker noted, “Sometimes there are many people wanting to work in the field. You complain about something like not having water, or the bathrooms being dirty, [and] they tell you right away, ‘If you don’t like it go find a job somewhere else’” (366). Another common theme was the stress of living in a different culture. Several farmworkers commented that cultural differences, such as language barriers, communication from schools regarding their children, or complaints from neighbors when they had rowdy family get-togethers, contributed to their experience of stress. As this example shows, at the intersection of culture and migration, many factors affect an individual’s ability to adapt to new living conditions.

REFUGEES BEYOND THE NATION-STATE

Refugees are persons who are forced to cross international boundaries to seek residence. Pushed out of their countries, most commonly because of war, famine, or persecution, they typically arrive under extreme circumstances with little food, clothing, or material possessions. They are frequently separated from their relatives and have little chance of finding employment or reestablishing their household. Because of their status as stateless persons (persons forced to leave their countries) and their inability to procure proper travel documentation, refugees are protected under the 1951 United Nations Refugee Convention, which derives from Article 14 of the Universal Declaration of Human Rights, passed in 1948. The Universal Declaration of Human Rights establishes an international legal right for people to seek **asylum**, which is legal protection extended by one country to citizens of another. The United Nations High Commissioner for Refugees heads the UN Refugee Agency, a global organization that directs troops and aid workers to set up refugee camps and organizes international efforts to ease the suffering of refugees.



(left) An aerial view of the Za’atari refugee camp in Jordan, a camp settlement for Syrian refugees, in 2013; (right) a Syrian refugee family waiting for asylum. (credit: (left) “An Aerial View of the Za’atari Refugee Camp” by US Department of State/Wikimedia Commons, Public Domain; (right) “Idlib Bekaa Refugees” by Russell Watkins/Department for International Development/Wikimedia Commons, CC BY 2.0)

In her ethnographic study of Congolese refugees in the Ugandan capital city of Kampala, cultural anthropologist Georgina Ramsay (2016) focuses on the ways in which refugees protect themselves, both physically and psychologically, by what they call “avoiding poison.” In 2012, there were approximately 50,000 refugees living in Kampala as a result of ongoing political instability, warfare, and corruption in the Democratic Republic of the Congo. Housed initially in a refugee settlement away from urban areas, the group of refugees interviewed by Ramsay opted to move to Kampala for greater opportunities and more security, as the refugee settlements were troubled by crime and violence. As one informant told Ramsay, “There are bad people everywhere in the camp” (115). The

government of the Democratic Republic of the Congo allowed resettlement in Kampala if the refugees procured a legal permit and a way to make a living independent of government funding or humanitarian aid. Given their displacement from their own ethnic communities and social networks, refugees faced unreliable social communities, in which their relationships were recently formed, as well as fear and the looming threat of having to return to the settlements if they lost their jobs or housing arrangements. Many either relied on or supplemented their wages with remittances from relatives living elsewhere in an effort to create greater security in the urban environment.

The “poison” feared by this group of refugees is a symbolic agent administered by “unknown assailants” (113), most often sprinkled into the food they prepare, and capable of making them sick both physically and psychologically. The administering of this poison is not always intended as a personal attack; rather, the refugees believe that their day-to-day life outside of their cultural homelands makes them vulnerable. They believe that they are most vulnerable during cooking and eating. In their home communities, cooking and eating were normally times of social interaction and sharing, but cooking and eating are now highly privatized acts for them. Families eat only with each other, within their own homes, and do not accept any shared food, even when they are hungry. The result is an intentional physical distancing from each other and a strengthening of family-only social bonds. While this approach clearly weakens the refugees’ ability to build a large and sustainable self-help community in Kampala, it does afford them a sense of positive control (agency) over their day-to-day lives. This sense of social agency over the threat of “poison,” giving the refugees an ability to control some aspects of their day-to-day lives, is an example of the adaptive nature of culture under very challenging circumstances.

PANDEMIC AS A GLOBAL MIGRATION

People and goods are not the only things that migrate. Along with human migration, there is a host of secondary movements that can affect the human population globally. Diseases are a prime example. Diseases that may have once been contained in a single region can move, along with their human and animal hosts, into new geographic areas, where they can become even more virulent. When diseases spread more than expected among a given group of people, they are referred to as **epidemics**. An outbreak of a disease over a very broad area, typically crossing international boundaries, is called a **pandemic**. Some early pandemics in Europe were the plague of Athens in 430 BCE (possibly typhus or typhoid fever or Ebola), the Antonine plague from 165 to 180 CE (possibly smallpox), and the Black Death from 1347 to 1351 (caused by a bacterium carried by fleas and infected rodents). In the Americas, Mexico and Central America suffered from various documented pandemics, starting with the arrival of the Spanish in Mexico in 1519, which set off a widespread smallpox outbreak that extended into South America. There have been other pandemics, including the cocoliztli epidemic from 1545 to 1548, likely a form of enteric fever, and the so-called Spanish flu, first detected in the United States in 1918 (Alchon 2003; Vågene et al. 2018). The most serious recent pandemic in the

United States had been the swine flu pandemic of 2009–2010 ... until 2019–2020.

In the last few months of 2019, the viral coronavirus SARS-CoV-2, known as COVID-19, began a global migration from Wuhan, Hubei Province, China, to every continent of the world. Carried between geographically distant locations by human hosts traveling for all sorts of reasons—including work, study, tourism, visitation, and displacement—as well as within towns and communities by people shopping, attending religious services and schools, or even visiting friends and families, COVID-19 quickly became a global emergency. First reported to the World Health Organization (WHO) on December 31, 2019, COVID-19 was officially declared a global pandemic on March 11, 2020. Throughout 2020, the disease continued to spread rapidly, overwhelming medical facilities, ravaging countries' economies, and forcing people to alter the structures of most social institutions, including schools, churches, weddings, and even funerals. By October 2021, some 248 million people had been infected, including several world leaders, and more than 5 million people had died from the disease.



United States vice president Kamala Harris receives a COVID-19 vaccine in January 2021. (credit: "Kamala Harris Getting Her Second COVID-19 Vaccination" by Lawrence Jackson/Wikimedia Commons, Public Domain)

The COVID-19 virus spreads through airborne transmission when someone inhales droplets expelled by an infected person coughing, sneezing, or even exhaling. As with measles and tuberculosis, the only fully effective form of containment outside of a vaccine and the development of antibodies is quarantine. When the WHO declared COVID-19 a global pandemic, the most important advice was to limit all unnecessary movements and gatherings, wear masks, and practice physical distancing. But given the global nature of our lives today, it was very difficult to halt either the movement of people or the spread of the disease. On January 20, 2020, the first reported case in the United States was diagnosed in Washington State, in a man in his thirties who had just returned from Wuhan. By that point, the virus had already spread to Taiwan, Japan, Thailand, and South Korea. On January 24, the first European cases were reported in France. The disease continued to quickly spread all over the world, including on international transport, such as cruise and cargo ships. In December 2020, there were several cases reported in Antarctica. Only 14 countries reported no COVID-19 cases as of April 2021, all except two of them island nations or territories in the Pacific and Atlantic Oceans with strict travel policies: Tuvalu, Tonga, Tokelau, St. Helena, the Pitcairn Islands, Palau, Niue, Nauru, Kiribati, the

Federated States of Micronesia, the Cook Islands, and American Samoa. (The two non-island nations, North Korea and Turkmenistan, are believed to have unreliable data.) As a result of migration, the disease transformed peoples' lives everywhere.

But migration can also bring relief from pandemics. The same conveyances that led to the initial spread of the disease have also brought relief workers, food, medical supplies, and life-saving vaccines to communities worldwide. In addition, scientists and researchers worked tirelessly in multinational efforts to sequence the COVID-19 genome so that vaccine development could proceed rapidly. Globally, several countries developed lifesaving vaccines and began working together to disperse them to communities in need. As our world becomes increasingly interdependent, it is critical that we understand the important role of migration in so many aspects of our survival.

REVISITING APPLIED ANTHROPOLOGY: MEDICINE & THE ENVIRONMENT

Situations like the COVID-19 pandemic have brought to the forefront of our minds much of what is so important about global health. The interconnected global challenges outlined above—from climate change and migration to pandemics and resource scarcity—demand approaches that can bridge multiple dimensions of human experience. While we have identified these critical issues, understanding them requires more than simply cataloging problems. It requires examining how culture, biology, environment, and social structures interact to shape both the challenges themselves and potential solutions. Applied anthropology puts anthropological knowledge and methods to work addressing real-world problems, drawing on the discipline's holistic perspective to develop culturally informed, context-sensitive interventions.

Among the many specialties within applied anthropology, **medical anthropology** and **environmental anthropology** stand out as particularly related to our navigating a globalized world. Medical anthropology examines health, illness, and healing through cultural, biological, and social lenses, revealing how factors like migration, inequality, and cultural beliefs shape health outcomes and access to care. Environmental anthropology investigates the relationships between human societies and their physical environments, analyzing how cultural practices, economic systems, and power dynamics influence resource use, conservation, and responses to environmental change. Together, these two fields illustrate anthropology's special capacity to illuminate the cultural dimensions of seemingly technical problems, to amplify marginalized voices in policy discussions, and to craft solutions that respect both human diversity and the ecological systems upon which all life depends.

The two sub-chapters below (one on each of these specialty fields) show how anthropological thinking transforms our understanding of global challenges and opens pathways toward more equitable and sustainable futures.

- [6.2.1: Health and Medicine](#)
- [6.2.2: Environmental Anthropology](#)

CONCLUSIONS

A lengthy aside on medical anthropology, environmental anthropology, or both help to demonstrate that it is not enough for anthropologists to simply recognize that different cultures understand their health or the environment differently. Given the previous chapter on applied anthropology, we can see now the ways that 'health' and 'the environment' are increasingly global issue—both as part of the *ethnosphere* and as an aspect of globalization. As the global population becomes larger and more connected, it is increasingly challenging to address the needs of the world's population.

As a discipline, anthropology includes academic and applied aspects that focus on, respectively, developing new theories and solving practical problems. Today, we face a growing number of global problems, most of them linked to one another and to long-standing historical inequities and injustice. Many of the problems we experience in our local lives derive from these major issues, and every one of them intersects with and affects cultural traditions and contemporary social behaviors. In 2021, the United Nations identified 22 critical global issues that transcend national boundaries and affect people everywhere, with those who suffer various forms of injustice typically experiencing greater effects from these challenges than those living in more stable communities. Three of the challenges are major action areas for philanthropic organizations such as the Bill and Melinda Gates Foundation: climate change, gender inequality and gender-based violence, and global health. Intersecting with these global issues are the devastating losses we face in terms of biological, cultural, and linguistic diversity.

The term *ethnosphere*, first coined by Canadian cultural anthropologist Wade Davis, refers to the sum total of all human knowledge across time—the human cultural legacy. The diverse ways in which we humans have solved or managed the challenges of our lives are a rich storehouse for our future. Too often, contemporary people feel we have little to learn from those who are different from us or who came before us, but the solutions to our current problems are founded upon this legacy. As globalization proceeds, conjoining our lives in myriad ways, it is important to remember that diversity is a storehouse of critical knowledge from the generations before us and the cultures around us, many of which are fighting today to survive. By preserving and valuing the *ethnosphere's* diversity, we preserve ourselves, our children's futures, and the hopes we have for our planet.

The anthropological approach views humans as part of a wider system of meaning, as actors and change-makers within a dynamic environment populated by others. Across cultures, those others can include other species, plant and animal, and spirits as well as other human beings. It is the human ability to imagine and construct the universe in which we live that most interests anthropologists. The anthropological perspective is grounded by principles and standards of behavior considered important to understanding other people and their ways of life. These include the value of all cultures; the value of diversities, biological and cultural; the importance of change over time; the importance of cultural relativism; and an acknowledgment of the dignity of all human beings. These anthropological values undergird our discipline.

Anthropological studies produce documentation of immeasurable worth. Through anthropological research, we collect, preserve, and share the stories of living humans as well as human artifacts, sites, and bodies. Today, anthropologists and those using an anthropological lens contribute to the 21st century in various ways, including through research, research and development, public policy, and applied or practicing anthropology. Career and employment trends today align with what anthropologists do, whether or not one is a full-time practicing anthropologist. Students heading into any field that addresses the human condition, past or present, will benefit from studies in anthropology.

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6.2.1: MEDICAL ANTHROPOLOGY



LEARNING OBJECTIVES

- Define the biocultural perspective and provide examples of how interactions between biology and culture have affected human biology.
- Identify four ethno-etologies (personalistic, naturalistic, emotionalistic, and biomedical) and describe how each differs in explaining the root cause of illness.
- Explain the significance of faith in healing.
- Examine the relationship between mental health and cultural factors, including stigma, that affect the way people with mental health conditions are perceived.
- Discuss examples of culture-bound syndromes.
- Evaluate the positive and negative effects of biomedical technologies.

What does it mean to be “healthy”? It may seem odd to ask the question, but health is not a universal concept and each culture values different aspects of well-being. At the most basic level, health may be perceived as surviving each day with enough food and water, while other definitions of health may be based on being free of diseases or emotional troubles. Complicating things further is the fact that each culture has a different causal explanation for disease. For instance, in ancient Greece health was considered to be the product of unbalanced humors or bodily fluids. The four humors included black bile, phlegm, yellow bile, and blood. The ancient Greeks believed that interactions among these humors explained differences not only in health, but in age, gender, and general disposition. Various things could influence the balance of the humors in a person’s body including substances believed to be present in the air, changes in diet, or even temperature and weather. An imbalance in the humors was believed to cause diseases, mood problems, and mental illness.^[1]

The World Health Organization (WHO) recognizes that the health of individuals and communities is affected by many factors: “where we live, the state of our environment, genetics, our income and education level, and our relationships with friends and family.”^[2] Research conducted by the WHO suggests that these characteristics play a more significant role in affecting our health than any others, including having access to health care. For this reason, anthropologists who are interested in issues related to health and illness must use a broad holistic perspective that considers the influence of both biology and culture. **Medical anthropology**, a distinct sub-specialty within the discipline of anthropology, investigates human health and health care systems in comparative perspective, considering a wide range of bio-cultural dynamics that affect the well-being of human populations. Medical anthropologists study the perceived causes of illness as well as the techniques and treatments developed in a society to address health concerns. Using cultural relativism and a comparative approach, medical anthropologists seek to understand how ideas about health, illness, and the body are products of particular social and cultural contexts.

ANTHROPOLOGY AND THE BIOCULTURAL PERSPECTIVE

Evolutionary biology is a field of study that investigates the ways that natural processes have shaped the development of life on Earth, producing measurable changes in populations over time. Humans, *Homo sapiens*, are a special case in the discussion of evolution. We are a relatively young species that has been on Earth for only about 195,000 years.^[3] Although this may sound like a long time, compared with other animals, humans are newcomers and we have been subject to processes of natural selection and adaptation for less time than many other living things. In that short time period, human lifestyles have changed dramatically. The first humans evolved in Africa and had a foraging lifestyle, living in small, kin-based groups. Today, millions of people live in crowded, fast-paced, and technologically advanced agricultural societies. In evolutionary terms, this change has happened rapidly. The fact that these rapid changes were even possible reveals that human lifestyles are **biocultural**, products of interactions between biology and culture. This has many implications for understanding human health.

The theory of natural selection suggests that in any species there are certain physical or behavioral traits that are **adaptive** and increase the capacity of individuals to survive and reproduce. These adaptive traits will be passed on through generations. Many human traits contributed to the survival of early human communities. A capacity for efficient walking and running, for instance, was important to human survival for thousands of years. However, as cultural change led to new lifestyles, some human characteristics became **maladaptive**.

One example is the obesity epidemic that has emerged all over the world. According to the Center for Disease Control and Prevention, more than one-third of the population of the United States is obese.^[4] Obesity is considered to be a “disease of civilization,” meaning that it did not exist in early human populations. Taking a biocultural evolutionary approach to human health, we can ask what traits characteristic of early human foraging populations might have encouraged an accumulation of fat in the human body. The answer comes from the evidence of food shortages among foraging populations. In fact, 47 percent of societies that forage experience food shortages at least once per year. Another 24 percent experience a shortage at least every two years.^[5] When taking this into account, the ability to retain body fat would have been advantageous for humans in the past. Women with more body fat could give birth to healthy babies and breastfeed them, even in periods of food scarcity. It is also possible that women and men would have viewed body fat as a sign of health and access to resources, choosing sexual partners based on this characteristic. If so, powerful biological and cultural forces would have contributed to genetic traits that led to efficient metabolism and higher body fat.

With the development of agriculture, calories became more easily available while many people in the population became more sedentary. Traits that were once adaptive became maladaptive. The development of cultural preferences for foods high in fat and sugar,

such as the “standard American diet” (SAD) is directly associated with obesity. These cultural changes have had a negative impact on health in many places. In Polynesia, for instance, obesity rates were around 15 percent in traditional farming communities, but climbed to over 35 percent as people moved to cities.^[6] This is an example of the biocultural nature of many human health challenges.

Another example of this biocultural dynamic is sickle cell anemia, an inherited disease that can be fatal. A person who inherits the sickle cell gene from both parents will have red blood cells with an unusual sickle (crescent) shape. These cells cannot carry oxygen as efficiently as normal red blood cells and they are also more likely to form painful and dangerous blood clots. Ordinarily, genetic conditions that make it more difficult for individuals to survive or have children, will become less common in populations over time due to the effects of natural selection. From an evolutionary perspective, one might ask why a deadly genetic condition has remained so common in human populations.

The cultural context is important for answering this question. The sickle cell gene is found most often in human populations in Africa and Southeast Asia where malaria is widespread. Malaria is a mosquito-borne illness that can be deadly to humans. People who have inherited one copy of the sickle cell anemia trait (instead of the two copies that cause sickle cell disease) have resistance to malaria. This is a significant adaptive trait in parts of the world where malaria is widespread. There is some evidence that malaria became a significant threat to human health only after the invention of agriculture. The deforested areas and collections of standing water that characterize agricultural communities also attract the mosquitos that carry disease.^[7] In this case, we can see biocultural dynamics in action. Because resistance to malaria is an adaptive trait, the sickle cell gene remained common in populations where malaria is present. In parts of West and Central Africa, up to 25 percent of the population has the sickle cell gene. While sickle cell anemia is still a deadly disease, those who inherit a single copy of the gene have some protection from malaria, itself a deadly threat in many places. This example illustrates the biocultural interaction between genes, pathogens, and culture.

Infectious diseases generally do not have an adaptive function for humans like the examples above, but many infectious diseases are influenced by human cultural systems. Because early human communities consisted of small groups with a foraging lifestyle, viruses and bacteria transmitted from person to person were unlikely to result in large-scale epidemics. Healthy individuals from neighboring groups could simply avoid coming into contact with anyone who was suffering from illness and outbreaks would be naturally contained.^[8]

The rapid increase in the size of human communities following the invention of agriculture changed this pattern. Agriculture can support more people per unit of land and, at the same time, agriculturalists need to live in permanent urban settlements in order to care for their crops. In a cyclical way, agriculture provides more food while also requiring that people have sizeable families to do the necessary farm work. Over the course of several thousand years, agricultural communities became increasingly densely populated.

This had many implications for local ecology: problems disposing of waste and difficulty accessing clean water. A prime example of the health effects of the transition to urban settlements is cholera, a water-borne illness that spreads through water that has been polluted with human feces. Cholera, which was first detected in urban populations in India, has killed tens of thousands of people throughout history and continues to threaten populations today, particularly in developing countries, where access to clean water is limited, and in places that have experienced natural disasters.^[9]

From an adaptive perspective, human beings die from infectious diseases because they do not have immunity to them. Immunity can be built up over time for some diseases, but unfortunately only after the illness or death of many members of a population.^[10] When a new infectious disease reaches a population, it can wreak havoc on many people. Historically, several new infectious diseases are known to have been introduced to human populations through contact with livestock. Tuberculosis and smallpox were linked to cattle and influenza to chickens. When humans domesticated animal species, and began to live in close proximity to them, new routes for the transmission of **zoonotic** disease, illnesses that can be passed between humans and animals, were established.^[11] Living in cities accelerates the spread of infectious diseases and the scale of outbreaks, but may also contribute to the natural selection of genetic traits that confer resistance to disease. This biocultural evolutionary process has been documented in urban populations where there are genes providing some resistance to leprosy and tuberculosis.^[12]

ETHNOMEDICINE

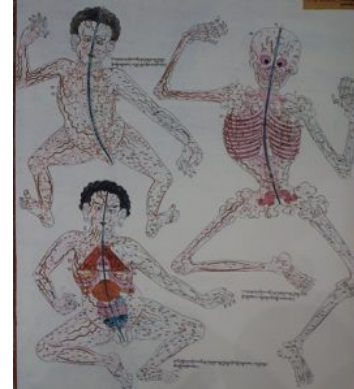


Figure 1: Traditional Tibetan Medicine Poster.

Ethnomedicine is the comparative study of cultural ideas about wellness, illness, and healing. For the majority of our existence, human beings have depended on the resources of the natural environment and on health and healing techniques closely associated with spiritual beliefs. Many such practices, including some herbal remedies and techniques like acupuncture, have been studied scientifically and found to be effective.^[13] Others have not necessarily been proven medically effective by external scientific evidence, but continue to be embraced by communities that perceive them to be useful. When considering cultural ideas about health, an important place to start is with **ethno-etiology**: cultural explanations about the underlying causes of health problems.

In the United States the dominant approach to thinking about health is **biomedical**. Illnesses are thought to be the result of specific,

identifiable agents. This can include pathogens (viruses or bacteria), malfunction of the body's biochemical processes (conditions such as cancer), or physiological disorders (such as organ failure). In biomedicine as it is practiced in the United States (Western biomedicine), health is defined as the absence of disease or dysfunction, a perspective that notably excludes consideration of social or spiritual well-being. In non-Western contexts biomedical explanations are often viewed as unsatisfactory. In his analysis of ideas about health and illness in non-Western cultures, George Foster (1976) concluded that these ideas could be categorized into two main types of ethno-etiology: personalistic and naturalistic.^[14]

ETHNO-ETIOLOGIES: PERSONALISTIC AND NATURALISTIC

Personalistic ethno-etologies view disease as the result of the "active, purposeful intervention of an agent, who may be human (a witch or sorcerer), nonhuman (a ghost, an ancestor, an evil spirit), or supernatural (a deity or other very powerful being)."^[15] Illness in this kind of ethno-etiology is viewed as the result of aggression or punishment directed purposefully toward an individual; there is no accident or random chance involved. Practitioners who are consulted to provide treatment are interested in discovering *who* is responsible for the illness—a ghost, an ancestor? No one is particularly interested in discovering *how* the medical condition arose in terms of the anatomy or biology involved. This is because treating the illness will require neutralizing or satisfying a person, or a supernatural entity, and correctly identifying the being who is the root cause of the problem is essential for achieving a cure.

The Heiban Nuba people of southern Sudan provide an interesting example of a personalistic etiology. As described by, S.F. Nadel in the 1940s, the members of this society had a strong belief that illness and other misfortune was the result of witchcraft.

A certain magic, mysteriously appearing in individuals, causes the death or illness of anyone who eats their grain or spills their beer. Even spectacular success, wealth too quickly won, is suspect; for it is the work of a spirit-double, who steals grain or livestock for his human twin. This universe full of malignant forces is reflected in a bewildering array of rituals, fixed and occasional, which mark almost every activity of tribal life.^[16]

Because sickness is thought to be caused by spiritual attacks from others in the community, people who become sick seek supernatural solutions. The person consulted is often a **shaman**, a person who specializes in contacting the world of the spirits.

In Heiban Nuba culture, as well as in other societies where shamans exist, the shaman is believed to be capable of entering a trance-like state in order to cross between the ordinary and supernatural realms. While in this state, the shaman can identify the individual responsible for causing the illness and sometimes the spirits can be convinced to cure the disease itself. Shamans are common all around the world and despite the proverbial saying that "prostitution is the oldest profession," shamanism probably is! Shamans are religious and medical practitioners who play important social roles in their communities as healers with a transcendent ability to navigate the spirit world for answers. In addition, they often have a comprehensive

knowledge of the local ecology and how to use plants medicinally. They can address illnesses using both natural and supernatural tools.

In **naturalistic** ethno-etologies, diseases are thought to be the result of natural forces such as "cold, heat, winds, dampness, and above all, by an upset in the balance of the basic body elements."^[17] The ancient Greek idea that health results from a balance between the four humors is an example of a naturalistic explanation. The concept of the yin and yang, which represent opposite but complementary energies, is a similar idea from traditional Chinese medicine. Achieving balance or harmony between these two forces is viewed as essential to physical and emotional health. Unlike personalistic explanations, practitioners who treat illness in societies with naturalistic ethno-etologies are interested in understanding how the medical condition arose so that they can choose therapeutic remedies viewed as most appropriate.

Emotional difficulties can be viewed as the cause of illness in a naturalistic ethno-etiology (an **emotionalistic explanation**). One example of a medical problem associated with emotion is *susto*, an illness recognized by the Mixe, an indigenous group who live in Oaxaca, Mexico, as well as others throughout central America. The symptoms of *susto* include difficulty sleeping, lack of energy, loss of appetite and sometimes nausea/vomiting and fever. The condition is believed to be a result of a "fright" or shock and, in some cases at least, it is believed to begin with a shock so strong that it disengages the soul from the body.^[18] The condition is usually treated with herbal remedies and *barrida* (sweeping) ceremonies designed to repair the harm caused by the shock itself.^[19] Although physicians operating within a biomedical ethno-etiology have suggested that *susto* is a psychiatric illness that in other cultural contexts could be labeled anxiety or depression, in fact *susto* does not fit easily into any one Western biomedical category. Those suffering from *susto* see their condition as a malady that is emotional, spiritual, and physical.^[20]

In practice, people assess medical problems using a variety of explanations and in any given society personalistic, naturalistic, or even biomedical explanations may all apply in different situations. It is also important to keep in mind that the line between a medical concern and other kinds of life challenges can be blurry. An illness may be viewed as just one more instance of general misfortune such as crop failure or disappointment in love. Among the Azande in Central Africa, witchcraft is thought to be responsible for almost all misfortune, including illness. E.E. Evans-Pritchard, an anthropologist who studied the Azande of north-central Africa in the 1930s, famously described this logic by describing a situation in which a granary, a building used to store grain collapsed.

In Zandeland sometimes an old granary collapses. There is nothing remarkable in this. Every Zande knows that termites eat the supports in course of time and that even the hardest woods decay after years of service. Now a granary is the summerhouse of a Zande homestead and people sit beneath it in the heat of the day and chat or play the African hole-game or work at some craft. Consequently it may happen that there are people sitting beneath the granary when it collapses and they are injured...Now why should these particular people have been sitting under this particular granary at the

particular moment when it collapsed? That it should collapse is easily intelligible, but why should it have collapsed at the particular moment when these particular people were sitting beneath it...The Zande knows that the supports were undermined by termites and that people were sitting beneath the granary in order to escape the heat of the sun. But he knows besides why these two events occurred at a precisely similar moment in time and space. It was due to the action of witchcraft. If there had been no witchcraft people would have been sitting under the granary and it would not have fallen on them, or it would have collapsed but the people would not have been sheltering under it at the time. Witchcraft explains the coincidence of these two happenings.^[21]

According to this logic, an illness of the body is ultimately caused by the same force as the collapse of the granary: witchcraft. In this case, an appropriate treatment may not even be focused on the body itself. Ideas about health are often inseparable from religious beliefs and general cultural assumptions about misfortune.^[22]

IS WESTERN BIOMEDICINE AN ETHNO-ETIOLOGY?

The **biomedical** approach to health strikes many people, particularly residents of the United States, as the best or at least the most “fact based” approach to medicine. This is largely because Western biomedicine is based on the application of insights from science, particularly biology and chemistry, to the diagnosis and treatment of medical conditions. The effectiveness of biomedical treatments is assessed through rigorous testing using the scientific method and indeed Western biomedicine has produced successful treatments for many dangerous and complex conditions: everything from antibiotics and cures for cancer to organ transplantation.

However, it is important to remember that the biomedical approach is itself embedded in a distinct cultural tradition, just like other ethno-etiologicals. Biomedicine, and the scientific disciplines on which it is based, are products of Western history. The earliest Greek physicians Hippocrates (c. 406-370 BC) and Galen (c. 129-c. 200 AD) shaped the development of the biomedical perspective by providing early insights into anatomy, physiology, and the relationship between environment and health. From its origins in ancient Greece and Rome, the knowledge base that matured into contemporary Western biomedicine developed as part of the Scientific Revolution in Europe, slowly maturing into the medical profession recognized today. While the scientific method used in Western biomedicine represents a distinct and powerful “way of knowing” compared to other etiologies, the methods, procedures, and forms of reasoning used in biomedicine are products of Western culture.^[23]



Figure 2: The Taiyang bladder meridian, one of several meridians recognized in Traditional Chinese medicine. From Shou Hua's Jushikei Hakki, 1716, Tokyo

In matters of health, as in other aspects of life, ethnocentrism predisposes people to believe that their own culture's traditions are the most effective. People from non-Western cultures do not necessarily agree that Western biomedicine is superior to their own ethno-etiologicals. Western culture does not even have a monopoly on the concept of “science.” Other cultures recognize their own forms of science separate from the Western tradition and these sciences have histories dating back hundreds or even thousands of years. One example is Traditional Chinese Medicine (TCM), a set of practices developed over more than 2,500 years to address physical complaints holistically through acupuncture, exercise, and herbal remedies. The tenets of Traditional Chinese Medicine are not based on science as it is defined in Western culture, but millions of people, including a growing number of people in the United States and Europe, regard TCM as credible and effective.

Ultimately, all ethno-etiologicals are rooted in shared cultural perceptions about the way the world works. Western biomedicine practitioners would correctly observe that the strength of Western biomedicine is derived from use of a scientific method that emphasizes objectively observable facts. However, this this would not be particularly persuasive to someone whose culture uses a different ethno-etiology or whose understanding of the world derives from a different tradition of “science.” From a comparative perspective, Western biomedicine may be viewed as one ethno-etiology in a world of many alternatives.

TECHNIQUES FOR HEALING

Western biomedicine tends to conceive of the human body as a kind of biological machine. When parts of the machine are damaged, defective, or out of balance, chemical or surgical interventions are the preferred therapeutic responses. Biomedical practitioners, who can be identified by their white coats and stethoscopes, are trained to detect observable or quantifiable symptoms of disease, often through the use of advanced imaging technologies or tests of bodily fluids like blood and urine. Problems detected through these means will be addressed. Other factors known to contribute to wellness, such as the patient's social relationships or emotional state of mind, are considered less relevant for both diagnosis and treatment. Other forms of healing, which derive from non-biomedical ethno-etiologicals, reverse this formulation, giving priority to the social and spiritual.

In Traditional Chinese Medicine, the body is thought to be governed by the same forces that animate the universe itself. One of these is *chi* (qi), a vital life force that flows through the body and energizes the body and its organs. Disruptions in the flow or balance of *chi* can lead to a lack of internal harmony and ultimately to health problems so TCM practitioners use treatments designed to unblock or redirect *chi*, including acupuncture, dietary changes, and herbal remedies. This is an example of **humoral healing**, an approach to healing that seeks to treat medical ailments by achieving a balance between the forces or elements of the body.

Communal healing, a second category of medical treatment, directs the combined efforts of the community toward treating illness. In this approach, medical care is a collaboration between multiple people. Among the !Kung (Ju/'hoansi) of the Kalahari Desert in southern Africa, energy known as *num* can be channeled by members of the community during a healing ritual and directed toward individuals suffering from illness. Richard Katz, Megan Bisele, and Verna St. Davis (1982) described an example of this kind of ceremony:

The central event in this tradition is the all-night healing dance. Four times a month on the average, night signals the start of a healing dance. The women sit around the fire, singing and rhythmically clapping. The men, sometimes joined by the women, dance around the singers. As the dance intensifies, *num*, or spiritual energy, is activated by the healers, both men and women, but mostly among the dancing men. As *num* is activated in them, they begin to *kia*, or experience an enhancement of their consciousness. While experiencing *kia*, they heal all those at the dance.^[24]

While communal healing techniques often involve harnessing supernatural forces such as the *num*, it is also true that these rituals help strengthen social bonds between people. Having a strong social and emotional support system is an important element of health in all human cultures.

FAITH AND THE PLACEBO EFFECT

Humoral and communal approaches to healing, which from a scientific perspective would seem to have little potential to address the root causes of an illness, present an important question for medical anthropologists. What role does faith play in healing? Sir William Osler, a Canadian physician who was one of the founders of Johns Hopkins Hospital, believed that much of a physician's healing ability derived from his or her ability to inspire patients with a faith that they could be cured.^[25] Osler wrote:

Faith in the Gods or in the Saints cures one, faith in little pills another, suggestion a third, faith in a plain common doctor a fourth...If a poor lass, paralyzed apparently, helpless, bed-ridden for years, comes to me having worn out in mind, body, and estate a devoted family; if she in a few weeks or less by faith in me, and faith alone, takes up her bed and walks, the Saints of old could not have done more.^[26]

In fact, there is a considerable amount of research suggesting that there is a **placebo effect** involved in many different kinds of healing treatments. A placebo effect is a response to treatment that occurs

because the person receiving the treatment *believes it will work*, not because the treatment itself is effective.

In Western biomedicine, the placebo effect has been observed in situations in which a patient believes that he or she is receiving a certain drug treatment, but is actually receiving an inactive substance such as water or sugar.^[27] Research suggests that the body often responds physiologically to placebos in the same way it would if the drug was real.^[28] The simple act of writing a prescription can contribute to the successful recovery of individuals because patients trust that they are on a path that will lead to wellness.^[29] If we consider the role of the placebo effect in the examples above, we should consider the possibility that humoral and communal healing are perceived to “work” because the people who receive these remedies have faith in them.

An interesting example of the complexity of the mind-body connection is found in studies of intercessory prayer: prayers made to request healing for another person. In one well-known study, researchers separated patients who had recently undergone heart surgery into two groups, one containing people who know they would be receiving prayers for their recovery and another group who would receive prayers without being aware of it. Those patients who knew they were receiving prayers actually had *more* complications and health problems in the month following surgery.^[30] This reflects an interesting relationship between faith and healing. Why did the patients who knew that others were praying for them experience more complications? Perhaps it was because the knowledge that their doctors had asked others to pray for them made patients more stressed, perceiving that their health was at greater risk.



Figure 3: A botánica store selling herbal folk medicines.

However, it can also be a lack of faith that drives people to look for alternative treatments. In the United States, alternative treatments, some of which are drawn from humoral or communal healing traditions, have become more popular among patients who believe that Western biomedicine is failing them. Cancer research facilities have begun to suggest acupuncture as a treatment for the intense nausea and fatigue caused by chemotherapy and scientific studies suggest that acupuncture can be effective in relieving these symptoms.^[31] Marijuana, a drug that has a long recorded history of medical use starting in ancient China, Egypt, and India, has steadily gained acceptance in the United States as a treatment for a variety of ailments ranging from anxiety to Parkinson's disease.^[32] As growing numbers of people place their faith in these and other remedies, it is important to recognize that many alternative forms of healing or medicine lack scientific evidence for their efficacy. The results derived from these practices may owe as much to faith as medicine.

MENTAL HEALTH

Unlike other kinds of illnesses, which present relatively consistent symptoms and clear biological evidence, mental health disorders are experienced and treated differently cross-culturally. While the discipline of psychiatry within Western biomedicine applies a disease-framework to explain mental illness, there is a consensus in medical anthropology that mental health conditions are much more complicated than the biological illness model suggests. These illnesses are not simply biological or chemical disorders, but complex responses to the environment, including the web of social and cultural relationships to which individuals are connected.

Medical anthropologists do not believe there are universal categories of mental illness.^[33] Instead, individuals may express psychological distress through a variety of physical and emotional symptoms. Arthur Kleinman, a medical anthropologist, has argued that every culture frames mental health concerns differently. The pattern of symptoms associated with mental health conditions vary greatly between cultures. In China, Kleinman discovered that patients suffering from depression did not describe feelings of sadness, but instead complained of boredom, discomfort, feelings of inner pressure, and symptoms of pain, dizziness, and fatigue.^[34]

Mental health is closely connected with social and cultural expectations and mental illnesses can arise as a result of pressures and challenges individuals face in particular settings. Rates of depression are higher for refugees, immigrants, and others who have experienced dislocation and loss. A sense of powerlessness also seems to play a role in triggering anxiety and depression, a phenomenon that has been documented in groups ranging from stay-at-home mothers in England to Native Americans affected by poverty and social marginalization.^[35]

Schizophrenia, a condition with genetic as well as environmental components, provides another interesting example of cross-cultural variation. Unlike anxiety or depression, there is some consistency in the symptom patterns associated with this condition cross culturally: hallucinations, delusions, and social withdrawal. What differs, however, is the way these symptoms are viewed by the community. In his research in Indonesia, Robert Lemelson discovered that symptoms of schizophrenia are often viewed by Indonesian communities as examples of communication with the spirit world, spirit possession, or the effects of traumatic memories.^[36] Documenting the lives of some of these individuals in a [film series](#), he noted that they remained integrated into their communities and had significant responsibilities as members of their families and neighborhoods. People with schizophrenia were not, as often happens in the United States, confined to institutions and many were living with their condition without any biomedical treatments.

In its multi-decade study of schizophrenia in 19 countries, the World Health Organization concluded that societies that were more culturally accepting of symptoms associated with schizophrenia integrated people suffering from the condition into community life more completely. In these cultures, the illness was less severe and people with schizophrenia had a higher quality of life.^[37] This finding has been controversial, but suggests that stigma and the resulting social isolation that characterize responses to mental illness

in countries like the United States affect the subjective experience of the illness as well as its outcomes.^[38]

THE EXPERIENCE OF ILLNESS IN PLACE

SOCIAL CONSTRUCTION OF ILLNESS

As the above examples demonstrate, cultural attitudes affect how medical conditions will be perceived and how individuals with health problems will be regarded by the wider community. There is a difference, for instance, between a disease, which is a medical condition that can be objectively identified, and an illness, which is the subjective or personal experience of feeling unwell. Illnesses may be caused by disease, but the experience of being sick encompasses more than just the symptoms caused by the disease itself. Illnesses are, at least in part, social constructions: experiences that are given meaning by the relationships between the person who is sick and others.

The course of an illness can worsen for instance, if the dominant society views the sickness as a moral failing. Obesity is an excellent example of the social construction of illness. The condition itself is a result of culturally induced habits and attitudes toward food, but despite this strong cultural component, many people regard obesity as a preventable circumstance, blaming individuals for becoming overweight. This attitude has a long cultural history. Consider for instance the religious connotations within Christianity of “gluttony” as a sin.^[39] Such socially constructed stigma influences the subjective experience of the illness. Obese women have reported avoiding visits to physicians for fear of judgment and as a result may not receive treatments necessary to help their condition.^[40] Peter Attia, a surgeon and medical researcher who delivered a [TED Talk](#) on this subject, related the story of an obese woman who had to have her foot amputated, a common result of complications from obesity and diabetes. Even though he was a physician, he judged the woman to be lazy. “If you had just tried even a little bit,” he had thought to himself before surgery.

Subsequently, new research revealed that insulin resistance, a precursor to diabetes, often develops as a result of the excess sugars used in many kinds of processed foods consumed commonly in the United States. As Attia observes, high rates of obesity in the United States are a reflection of the types of foods Americans have learned to consume as part of their cultural environment.^[41] In addition, the fact that foods that are high in sugars and fats are inexpensive and abundant, while healthier foods are expensive and unavailable in some communities, highlights the economic and social inequalities that contribute to the disease.



Figure 4: AIDS prevention art, Mozambique. The text reads “think of the consequences, change behavior, prevent HIV/AIDS.”

The HIV/AIDS virus provides another example of the way that the subjective experience of an illness can be influenced by social attitudes. Research in many countries has shown that people,

including healthcare workers, make distinctions between patients who are “innocent” victims of AIDS and those who are viewed as “guilty.” People who contracted HIV through sex or intravenous drug use are seen as guilty. The same judgment applies to people who contracted HIV through same-sex relationships in places where societal disapproval of same-sex relationships exists. People who contracted HIV from blood transfusions, or as babies, are viewed as innocent. The “guilty” HIV patients often find it more difficult to access medical care and are treated with disrespect or indifference in medical settings compared with superior treatment provided to those regarded as “innocent.” In the wider community, “guilty” patients suffer from social marginalization and exclusion while “innocent” patients receive greater social acceptance and practical assistance in responding to their needs for support and care.^[42]

The stigma that applies to “guilty” patients also ignores the socioeconomic context in which HIV/AIDS spreads. For instance, in Indonesia, poor women can make considerably more money as sex workers than in many other jobs: \$10 an hour as a sex worker compared to 20 cents an hour in a factory.^[43] Sex work may be the only form of employment available in a patriarchal society. In a similar way, poverty and a lack of other choices contribute to a decision to engage in sex work in other societies, including in sub-Saharan Africa where rates of HIV infection are among the highest in the world. Poverty itself is one of the greatest “risk factors” for HIV infection.^[44] The clear relationship between poverty, gender, and HIV infection has been the topic of a great deal of research in medical anthropology. One example is Paul Farmer’s classic book, *AIDS and Accusation: Haiti and the Geography of Blame* (1992), which was one of the earliest books to critically evaluate the connection between poverty, racism, stigma, and neglect that allowed HIV to infect and kill thousands of Haitians. Projects like this are critical to developing holistic views of the entire cultural, economic, and political context that affects the spread of the virus and attempts to treat the disease. [Partners in Health](#), the non-profit medical organization Paul Farmer helped to found, continues to pursue innovative strategies to prevent and treat diseases like AIDS, strategies that recognize that poverty and social marginalization provide the environment in which the virus flourishes.

CULTURE-BOUND SYNDROMES

A **culture-bound syndrome** is an illness recognized only within a specific culture. These conditions, which combine emotional or psychological with physical symptoms, are not the result of a disease or any identifiable physiological dysfunction. Instead, culture-bound syndromes are **somatic**, meaning they are physical manifestations of emotional pain. The existence of these conditions demonstrates the profound influence of culture and society on the experience of illness.

ANOREXIA

Anorexia is considered a culture bound syndrome because of its strong association with cultures that place a high value on thinness as a measure of health and beauty. When we consider concepts of beauty from cultures all over the world, a common view of beauty is one of someone with additional fat. This may be because having additional fat in a place where food is expensive means that one is

likely of a higher status. In societies like the United States where food is abundant, it is much more difficult to become thin than it is to become heavy. Although anorexia is a complex condition, medical anthropologists and physicians have observed that it is much more common in Western cultural contexts among people with high socioeconomic status.^[45] Anorexia, as a form of self-deprivation, has deep roots in Western culture and for centuries practices of self-denial have been associated with Christian religious traditions. In a contemporary context, anorexia may address a similar, but secular desire to assert self-control, particularly among teenagers.^[46]

During her research in Fiji, Anne Becker (2004) noted that young women who were exposed to advertisements and television programs from Western cultures (like the United States and Australia) became self-conscious about their bodies and began to alter their eating habits to emulate the thin ideal they saw on television. Anorexia, which had been unknown in Fiji, became an increasingly common problem.^[47] The same pattern has been observed in other societies undergoing “Westernization” through exposure to foreign media and economic changes associated with globalization.^[48]

SWALLOWING FROGS IN BRAZIL

In Brazil, there are several examples of culture-bound syndromes that affect children as well as adults. Women are particularly susceptible to these conditions, which are connected to emotional distress. In parts of Brazil where poverty, unemployment, and poor physical health are common, there are cultural norms that discourage the expression of strong emotions such as anger, grief, or jealousy. Of course, people continue to experience these emotions, but cannot express them openly. Men and women deal with this problem in different ways. Men may choose to drink alcohol heavily, or even to express their anger physically by lashing out at others, including their wives. These are not socially acceptable behaviors for women who instead remark that they must suppress their feelings, an act they describe as having to “swallow frogs” (*engolir sapos*).^[49]

Nervos (nerves) is a culture-bound syndrome characterized by symptoms such as headaches, trembling, dizziness, fatigue, stomach pain, tingling of the extremities and even partial paralysis. It is viewed as a result of emotional overload: a state of constant vulnerability to shock. Unexplained wounds on the body may be diagnosed as a different kind of illness known as “blood-boiling bruises.” Since emotion is culturally defined as a kind of energy that flows throughout the body, many believe that too much emotion can overwhelm the body, “boiling over” and producing symptoms. A person can become so angry, for instance, that his or her blood spills out from under the skin, creating bruises, or so angry that the blood rises up to create severe headaches, nausea, and dizziness. A third form of culture-bound illness, known as *peito aberto* (open chest) is believed to occur when a person, most often a woman, is carrying too much emotional weight or suffering. In this situation, the heart expands until the chest becomes spiritually “open.” A chest that is “open” is dangerous because rage and anger from other people can enter and make a person sick.^[50]

In stressful settings like the communities in impoverished areas of northeastern Brazil, it is common for people to be afflicted with

culture-bound illnesses throughout their lives. Individuals can suffer from one condition, or a combination of several. Sufferers may consult *rezadeiras/rezadores*, Catholic faith healers who will treat the condition with prayer, herbal remedies, or healing rituals. Because these practitioners do not distinguish between illnesses of the body and mind, they treat the symptoms holistically as evidence of personal turmoil. This approach to addressing these illnesses is consistent with cultural views that it is the suppression of emotion itself that has caused the physical problems.

BIOMEDICAL TECHNOLOGIES

In the history of human health, technology is an essential topic. Medical technologies have transformed human life. They have increased life expectancy rates, lowered child mortality rates, and are used to intervene in and often cure thousands of diseases. Of course, these accomplishments come with many cultural consequences. Successful efforts to intervene in the body biologically also have implications for cultural values and the social organization of communities, as demonstrated by the examples below.

ANTIBIOTICS AND IMMUNIZATIONS

Infectious diseases caused by viruses and bacteria have taken an enormous toll on human populations for thousands of years. During recurring epidemics, tens of thousands of people have died from outbreaks of diseases like measles, the flu, or bubonic plague. The Black Death, a pandemic outbreak of plague that spread across Europe and Eurasia from 1346-1353 AD, killed as many as 200 million people, as much as a third of the European population. Penicillin, discovered in 1928 and mass produced for the first time in the early 1940s, was a turning point in the human fight against bacterial infections. Called a “wonder drug” by Time magazine, Penicillin became available at a time when bacterial infections were frequently fatal; the drug was glorified as a cure-all.^[51] An important factor to consider about the introduction of antibiotics is the change to an understanding of illness that was increasingly scientific and technical. Before science could provide cures, personalistic and naturalistic ethno-etologies identified various root causes for sickness, but the invention of antibiotics contributed to a strengthening of the Western biomedical paradigm as well as a new era of profitability for the pharmaceutical industry.

The effects of antibiotics have not been completely positive in all parts of the world. Along with other technological advances in areas such as sanitation and access to clean water, antibiotics contributed to an **epidemiological transition** characterized by a sharp drop in mortality rates, particularly among children. In many countries, the immediate effect was an increase in the human population as well as a shift in the kinds of diseases that were most prevalent. In wealthy countries, for instance, chronic conditions like heart disease or cancer have replaced bacterial infections as leading causes of death and the average lifespan has lengthened. In developing countries, the outcome has been mixed. Millions of lives have been saved by the availability of antibiotics, but high poverty and lack of access to regular medical care mean that many children who now survive the

immediate dangers of infection during infancy succumb later in childhood to malnutrition, dehydration, or other ailments.^[52]



Figure 5: Women and children waiting to enter a medical clinic in Somalia. The clinic is open 2 days each week and treats 400-500 people each day.

Another difficulty is the fact that many kinds of infections have become untreatable as a result of bacterial resistance. Medical anthropologists are concerned with the increase in rates of infectious diseases like tuberculosis and malaria that cannot be treated with many existing antibiotics. According to the World Health Organization, there are nearly 500,000 cases of drug resistant tuberculosis each year.^[53] New research is now focused on drug resistance, as well as the social and cultural components of this resistance such as the relationship between poverty and the spread of resistant strains of bacteria.

Immunizations that can provide immunity against viral diseases have also transformed human health. The eradication of the smallpox virus in 1977 following a concerted global effort to vaccinate a large percentage of the world's population is one example of the success of this biotechnology. Before the development of the vaccine, the virus was killing 1-2 million people each year.^[54] Today, vaccines exist for many of the world's most dangerous viral diseases, but providing access to vaccines remains a challenge. The polio virus has been eliminated from most of the world following several decades of near universal vaccination, but the disease has made a comeback in a handful of countries, including Afghanistan, Nigeria, and Pakistan, where weak governments, inadequate healthcare systems, or war have made vaccinating children impossible. This example highlights the global inequalities that still exist in access to basic medical care.

Because viruses have the ability to mutate and to jump between animals and people, human populations around the world also face the constant threat of new viral diseases. Influenza has been responsible for millions of deaths. In 1918, a pandemic of the H1N1 flu infected 500 million people, killing nearly 5 percent of the human population.^[55] Not all influenza strains are that deadly, but it remains a dangerous illness and one that vaccines can only partially address.^[56] Each year, the strains of the influenza virus placed in the annual “flu shot” are based on predictions about the strains that will be most common. Because the virus mutates frequently and is influenced by interactions between human and animal populations, there is always uncertainty about future forms of the virus.^[57]

REPRODUCTIVE TECHNOLOGIES

Today, the idea of “contraception” is linked to the technology of hormone-based birth control. “The pill” as we now know it, was not available in the United States until 1960, but attempts to both prevent or bring about pregnancy through technology date back to the earliest human communities. Techniques used to control the birthrate are an important subject for medical anthropologists because they have significant cultural implications.

Many cultures use natural forms of birth control practices to influence the spacing of births. Among the !Kung, for instance, babies are breastfed for many months or even years, which hormonally suppress fertility and decrease the number of pregnancies a woman can have in her lifetime. In Enga, New Guinea, men and women do not live with one another following a birth, another practice that increases the time between pregnancies.^[58] In contrast, cultures where there are social or religious reasons for avoiding birth control, including natural birth spacing methods, have higher birth rates. In the United States, the Comstock Act passed in 1873 banned contraception and even the distribution of information about contraception.

Although the Comstock Act is a thing of the past, efforts in the United States to limit access to birth control and related medical services like abortion are ongoing. Many medical anthropologists study the ways in which access to reproductive technologies is affected by cultural values. Laury Oaks (2003) has investigated the way in which activists on both sides of the abortion debate attempt to culturally define the idea of “risk” as it relates to women’s health. She notes that in the 1990s anti-abortion activists in the United States circulated misleading medical material suggesting that abortion increases rates of breast cancer. Although this claim was medically false, it was persuasive to many people and contributed to doubts about whether abortion posed a health risk to women, a concern that strengthened efforts to limit access to the procedure.^[59]

Other forms of reproductive technology have emerged from the desire to increase fertility. The world of “assisted reproduction,” which includes technologies such as in vitro fertilization and surrogate pregnancy, has been the subject of many anthropological investigations. Marcia Inhorn, a medical anthropologist, has written several books about the growing popularity of in vitro fertilization in the Middle East. Her book, *The New Arab Man* (2012), explores the way in which infertility disrupts traditional notions of Arab masculinity that are based on fatherhood and she explores the ways that couples navigate conflicting cultural messages about the importance of parenthood and religious disapproval of assisted fertility.^[60]

CONCLUSION

As the global population becomes larger, it is increasingly challenging to address the health needs of the world’s population. Today, 1 in 8 people in the world do not have access to adequate nutrition, the most basic element of good health.^[61] More than half the human population lives in an urban environment where infectious diseases can spread rapidly, sparking pandemics. Many of these cities include dense concentrations of poverty and healthcare systems that are not adequate to meet demand.^[62] Globalization, a

process that connects cultures through trade, tourism, and migration, contributes to the spread of pathogens that negatively affect human health and exacerbates political and economic inequalities that make the provision of healthcare more difficult.

Human health is complex and these are daunting challenges, but medical anthropologists have a unique perspective to contribute to finding solutions. Medical anthropology offers a holistic perspective on human evolutionary and biocultural adaptations as well as insights into the relationship between health and culture. As anthropologists study the ways people think about health and illness and the socioeconomic and cultural dynamics that affect the provision of health services, there is a potential to develop new methods for improving the health and quality of life for people all over the world.

Discussion Questions

1. This chapter describes several examples of diseases that result from interactions between biology and culture such as obesity. Why is it important to consider cultural factors that contribute to illness rather than placing blame on individuals? What are some other examples of illnesses that have cultural as well as biological causes?
2. Many cultures have ethno-etologies that provide explanations for illness that are not based in science. From a biomedical perspective, the non-scientific medical treatments provided in these cultures have a low likelihood of success. Despite this, people tend to believe that the treatments are working. Why do you think people tend to be satisfied with the effectiveness of the treatments they receive?
3. How does poverty influence the health of populations around the world? Do you see this in your own community? Who should be responsible for addressing health care needs in impoverished communities?

GLOSSARY

Adaptive: Traits that increase the capacity of individuals to survive and reproduce.

Biocultural evolution: Describes the interactions between biology and culture that have influenced human evolution.

Biomedical: An approach to medicine that is based on the application of insights from science, particularly biology and chemistry.

Communal healing: An approach to healing that directs the combined efforts of the community toward treating illness.

Culture-bound syndrome: An illness recognized only within a specific culture.

Emotionalistic explanation: Suggests that illnesses are caused by strong emotions such as fright, anger, or grief; this is an example of a naturalistic ethno-etiology.

Epidemiological transition: The sharp drop in mortality rates, particularly among children, that occurs in a society as a result of improved sanitation and access to healthcare.

Ethno-etiology: Cultural explanations about the underlying causes of health problems.

Ethnomedicine: The comparative study of cultural ideas about

wellness, illness, and healing.

Humoral healing: An approach to healing that seeks to treat medical ailments by achieving a balance between the forces, or elements, of the body.

Maladaptive: Traits that decrease the capacity of individuals to survive and reproduce.

Medical anthropology: A distinct sub-specialty within the discipline of anthropology that investigates human health and health care systems in comparative perspective.

Naturalistic ethno-etiology: Views disease as the result of natural forces such as cold, heat, winds, or an upset in the balance of the basic body elements.

Personalistic ethno-etiology: Views disease as the result of the actions of human or supernatural beings.

Placebo effect: A response to treatment that occurs because the person receiving the treatment *believes it will work*, not because the treatment itself is effective.

Shaman: A person who specializes in contacting the world of the spirits.

Somatic: Symptoms that are physical manifestations of emotional pain.

Zoonotic: Diseases that have origins in animals and are transmitted to humans.

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6.2.2: ENVIRONMENTAL ANTHROPOLOGY



LEARNING OBJECTIVES

- Identify the methods and theories anthropologists use to examine human interactions with the environment.
- Define political ecology and explain its relationship to anthropology.
- Describe the Anthropocene and discuss how anthropology contributes to understanding the human role in environmental destruction.
- Explain how anthropology contributes to public discussions and the creation of public policy with lawmakers, activists, corporations, and others regarding major environmental challenges.

LIVING IN THE ANTHROPOCENE

We live on a planet where the climate—winds, precipitation, weather, temperatures—is being modified by the collective impact of the human species. I arrived at anthropology through an interest in understanding human impacts on the environment. I began by studying ethnobotany as an undergraduate and received a master's degree in environmental science. As I researched human-environmental dynamics, I realized that scientists had largely identified what needed to be done to address many of the world's pressing environmental problems, but few of the recommended changes had been adopted, thwarted by political, cultural, and economic forces. Anthropologists' approach is holistic; they seek to simultaneously understand all of the interactions of political, cultural, and economic factors to fully explore the complexity of human-environmental interactions. Thus, I felt that anthropology provided a good place to start to understand and begin to address some of the most important questions facing our species. For example, how can we provide for basic human needs while not sacrificing the welfare of other species? Why do many people say that they care about protecting the environment but then do nothing about it? What political, economic, and cultural factors are prohibiting world leaders from agreeing on solutions to global environmental challenges? To answer such questions, we must understand how humans think and act as groups, our socially and culturally mediated ways of interacting with each other, other species, and the world around us.

ARRIVING AT ENVIRONMENTAL ANTHROPOLOGY

In many ways, anthropology as a discipline is only now starting to address these questions. In December 2014, Bruno Latour, a French anthropologist, spoke to a standing-room-only audience at the American Anthropological Association annual meeting in Washington, D.C., to discuss the relationship between the **Anthropocene** and anthropology.^[1] Anthropocene is a term used to describe the period (or epoch) in geological time in which the effects of human activities have altered the fundamental geochemical cycles of the earth as a result of converting forests into fields and pastures and burning oil, gas, and coal on a large scale. Because human activities have changed the earth's atmosphere, anthropologists can

make important contributions to studies of geology, chemistry, and meteorology by considering the effects of humans and their cultural systems. As Latour noted, the discipline of anthropology is uniquely qualified to provide insight into key components of current environmental crises by determining the reasons behind choices various groups of humans make, bridging the social and natural sciences, and studying contradictions between cultural universals (traits all humans have in common) and particularities (interesting cultural differences).

This chapter summarizes how anthropologists have contributed to analysis and resolution of environmental concerns. I begin with a brief overview of anthropological analysis of human interactions with the environment and then explore how anthropological perspectives toward human-environmental interactions have changed over time. I end the chapter with a call to action—an invitation for students to use lessons they have learned from anthropology to challenge the kinds of thinking that have produced current environmental crises and see where those anthropological approaches take them. Environmental anthropology is an exciting subfield that will grow in importance as questions of environmental sustainability become increasingly central to scientific and popular conversations about the future of our species and the planet.

HUMANS AND THE ENVIRONMENT

If we think about anthropology from the classic four-field approach, which includes both physical anthropology and archaeology, many of the questions with which those disciplines have historically wrestled were related to our species' long-term relationship with the environment. Around two million years ago, climate changes decreased the amount of forest and expanded grasslands in Africa, which led to the early **Hominin** radiation (the geographic expansion of multiple Hominin species). It also led hominin species to walk upright, which freed their hands to make and use tools. Subsequent climate changes, particularly expansions and contractions of glaciers associated with ice ages, also contributed to *Homo sapiens* expanding to new parts of the globe.

Fast-forwarding to the beginning of human agriculture roughly 10,000 years ago, we can see how the global expansion of *Homo sapiens* and their first permanent settlements and urban centers led to the development of agriculture, a profound new way of interacting with the environment. The ability of early humans to shape the landscape, first by simply encouraging wild plants to grow and later by planting and irrigating crops and domesticating plants and animals, set humans on the path toward our current problematic relationship with the planet. Archaeologists' questions about human diets, tools, and architecture inevitably explore how ancient civilizations interacted with their environments. For example, archaeologists examine the relative frequency of different kinds of pollen and tree rings over thousands of years to understand how landscapes changed over time through both human and natural processes.

Many archaeologists credit increased productivity that came with agriculture as the foundation of civilization, allowing humans to live

in larger settlements, specialize in craft production, and develop social hierarchies and eventually math, writing, and science. From this perspective, the seeds of social complexity were contained within the first grains domesticated in the hills surrounding the Fertile Crescent. Others have questioned the idea that the effects of agriculture were purely beneficial. For example, Marshall Sahlins called foraging (hunter-gatherer) societies “the original affluent societies” and noted that hunter-gatherers had more leisure time, healthier diets, more time to socialize, and greater social equality than agricultural or even industrial societies.^[2] He also noted that they were affluent not because they had everything, but because they could easily meet their basic needs of food, shelter, and sociality. Others have looked at the advances in science, medicine, and communication technology and disagreed with Sahlins, arguing that we are better off with the developments brought by agriculture. Sahlins’ critique of agriculture (and subsequently of civilization) should not be seen as a suggestion to deindustrialize; rather, it is a challenge to assumptions that Western civilization and its technological developments necessarily represent improvements for human societies. Perhaps the strongest argument against capitalism and industrialization is the real possibility of environmental collapse that those systems have brought.

Sahlins’ analysis calls into question the idea that humans as a species are necessarily progressing through history and encourages us to think about how “necessities” are culturally constructed. Do we really need cars or cell phones to be happy? How about books and vaccines? Because many of our innovations in technology, agriculture, and transportation have come at the expense of the natural systems that support us, we need to think about human “progress” in relationship to its impact on the environment. The impacts of climate change from our dependence on fossil fuel, toxic byproducts from expanding chemical industries, and pollution of land, soil, and water from industrialized agriculture are a significant challenge to a vision of human history in which we expect things to get better and better.

Archaeological evidence of collapses of earlier societies—Harappan cities in the Indus River Valley, the Mayans in Central America, and the Rapa Nui of Easter Island, for example—provides a sobering warning as many pre-historic cultures’ practices were, at some level, environmentally unsustainable, leading to deforestation, soil salinization, or erosion.



Figure 1: The ball courts at Copan show the complexity and development of early Mayan society. Research suggests that deforestation was one of the causes of the collapse of the city-state.

For example, archaeologists have explored the collapse of a number of Mayan cities from an environmental perspective.^[3] After

examining samples of pollen from nearby lakebeds, they determined the relative abundance of various ecosystems, such as cornfields and pine forests, over time. They found that deforestation in the uplands associated with an expanding population around the Mayan city of Copan was one of the factors that led to the city’s decline. Land was cleared to increase agricultural production and to harvest wood for the construction of houses, fueling cooking fires, and producing lime, which was used to make plaster for large-scale construction projects. The study suggests that prehistoric groups’ lack of adequate environmental management systems could have affected their ability to maintain their complex urban societies—a warning for society today.

Another fascinating story of the complex relationships between culture, plants, and the economy relates to development of sugar cane plantations in the Caribbean. Anthropologist Sidney Mintz documented how our sweet tooth led to development of the slave trade, industrialization, capitalism, and colonization in the Americas.^[4] He examined how sugar went from being a luxury good associated with the upper class as a spice and medicine to a regular staple for factory workers. The increased consumption of sugar associated with industrialization provided financial incentives for continuing slavery and colonization projects in the Americas. Mintz’s work is not usually described as environmental anthropology, but his careful documentation of the relationship between people and sugar cane clearly demonstrates the importance of certain species of plants in shaping human history.

The question of how humans interact with their environment through hunting and gathering, agriculture, and deforestation is central to understanding how human groups meet their basic needs and continue to survive and develop. By examining these past and present cultural configurations critically and carefully, anthropology provides a valuable perspective from which to understand such environmental questions.

SUSTAINABILITY AND PUBLIC ANTHROPOLOGY

Environmental anthropology provides an opportunity for anthropologists to engage in larger public debates. The American Anthropological Association, for example, recently issued a [Statement on Humanity and Climate Change](#) meant to “to recognize anthropological contributions to global climate change-related issues, articulate new research directions, and provide the American Anthropological Association with actions and recommendations to support and promote anthropological investigation of these issues including the development of course curricula and application of anthropological theory and methods to the issues.”^[5] Such statements emphasize the importance of anthropological contributions to current scientific and political debates.

Anthropologists have become involved in environmental causes around the world. In Brazil, for example, they have worked with indigenous groups to maintain land claims, prevent deforestation, and organize against construction of large hydropower projects that threaten the river ecosystems.^[6] Others have challenged development of parks throughout the world as a major conservation strategy for biodiversity and explored the impacts of those parks on local communities.^[7] Studies of these diverse topics benefit from

incorporation of an ethnographic perspective that emphasizes the importance of identity politics, connection to place, and cultural beliefs for understanding how groups of people interact with their environment. This work also reminds us that environmentalism and conservation are grounded in sets of beliefs, assumptions, and world views developed in Western Europe and North America and must be translated as environmentalists work in other cultures.

Environmental anthropology naturally lends itself to use of anthropological perspectives to inform and engage in public policy decisions, land-use management, and advocacy for indigenous communities, urban minorities, and other groups that are often under-represented in places of power and in traditional environmental movements. In that sense, environmental anthropology is a way to inform and connect with a variety of other disciplines that address similar questions of sustainability. Regardless of whether you decide to study anthropology, understanding the value of anthropological insights for environmental questions will allow you to better appreciate and understand the complexity of environmental questions in modern society and potential solutions. The next section examines the diverse ways that anthropologists have historically looked at the human-environmental dynamic, highlighting some of the key theories, methods, and approaches and how they have developed over time.

CULTURAL ECOLOGY

EARLY CULTURAL ECOLOGISTS

One of the earliest anthropologists to think systematically about the environment was Leslie White. His work built on earlier anthropological concepts of cultural evolution—the idea that cultures, like organisms, evolve over time and progress from simple to more complex. White described how cultures evolved through their ability to use energy as they domesticated plants and animals, captured the energy stored in fossil fuels, and developed nuclear power.^[8] From this perspective, “human cultural evolution was best understood as a process of increasing control over the natural environment” through technological progress.^[9] White’s conclusions are at odds with Franz Boas’ historical particularism, which rejected theories based on evolution that labeled cultures as more advanced or less advanced than others and instead looked at each society as a unique entity that had developed based on its particular history. Like earlier anthropologists, White viewed anthropology as a natural science in which one could generate scientific laws to understand cultural differences. His model is useful, however, when exploring the nature of change as our society increasingly harnessed new sources of energy to meet our wants and needs. He was writing at a time when the U.S. economy was booming and our technological future seemed promising, before the environmental movement raised awareness about harm caused by those technologies.

📌 HOW THE FUTURE LOOKED 50 YEARS AGO

This National Public Radio [Planet Money episode](#) captures the enthusiasm for technological progress at the 1964 World’s Fair, when little was known about the environmental damage such

technologies would cause. How did people see the future in 1964? How is their idea of the future different ours today?

Anthropologist Julian Steward first used the term **cultural ecology** to describe how cultures use and understand their environments. His fieldwork among the Shoshone emphasized the complex ways they had adapted to the dry terrain of the Great Basin between the Sierra Nevada and Rocky Mountain ranges. He described how a hunting and gathering subsistence economy that relied on pine nuts, grass seeds, berries, deer, elk, sheep, antelope, and rabbits shaped Shoshone culture. Their detailed knowledge of various microclimates and seasonal variations in resource availability structured their migration patterns, social interactions, and cultural belief systems.^[10] Rather than looking for single evolutionary trajectories for cultures as White had done, Steward looked for multiple evolutionary pathways that led to different outcomes and stressed the variety of ways in which cultures could adapt to ecological conditions.

Both White and Steward were influenced by **materialism**, a Marxist concept that emphasized the ways in which human social and cultural practices were influenced by basic subsistence (economic) needs. Both were trained as scientists, which shaped how they looked at cultural variation. Steward was also influenced by **processual archaeology**, a scientific approach developed in the 1960s that focused primarily on relationships between past societies and the ecological systems they inhabited. The shift in anthropology represented by White and Steward’s work led to increased use of scientific methods when analyzing and interpreting data. In subsequent decades, movements in both anthropology and archaeology criticized those scientific perspectives, challenging their objectivity, a process I examine in greater detail later in this chapter.

PIGS AND PROTEIN

Subsequent anthropologists built on the work of White and Steward, looking for ecological explanations for cultural beliefs and practices. They also drew on newly developed computer science to think about dynamic feedback systems in which cultural and ecological systems self-regulate to promote social stability—**homeostasis**. Some fascinating examples of this work include Roy Rappaport’s work in Papua New Guinea and Marvin Harris’ work in India.

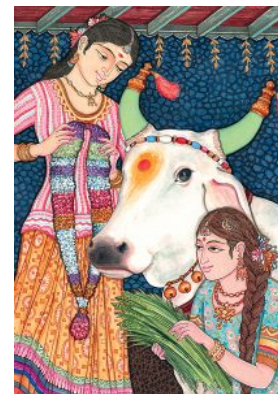


Figure 2: Honoring the cow, is a part of Hindu religious tradition.

Marvin Harris examined Hindu religious beliefs about sacred cattle from functional and materialist perspectives. Among Hindus in India, eating beef is forbidden and cows are seen as sacred animals

associated with certain deities. From the perspective of a Western beef-loving country, such beliefs may seem irrational. Why would anyone not want to eat a juicy steak or hamburger? Rejecting earlier academics who regarded the Hindu practice as illogical, Harris argued that the practice makes perfect sense within the Hindu ecological and economic system. He argued that cows were sacred not because of cultural beliefs; instead, the cultural beliefs existed because of the economic and ecological importance of cows in India. Thus, Hindu restrictions regarding cows were an “adaptive” response to the local ecological system rather than the result of Hindu theology.^[11] Harris explored the importance of cattle for milk production, dung for fuel and fertilizer, labor for plowing, and provision of meat and hides to the lowest caste, untouchables, who were able to slaughter and eat cows and tan their hides because they were already seen as ritually impure.

Roy Rappaport examined subsistence practices of the Tsembaga in Highland New Guinea, a group that planted taro, yams, sweet potatoes, and sugar cane and raised pigs. Rappaport used scientific terms and concepts such as caloric intake, carrying capacity, and mutualism to explain methods used by the Tsembaga to manage their resources. A population of pigs below a certain threshold provided a number of benefits, such as keeping villages clean by eating refuse and eating weeds in established gardens that had relatively large fruit trees that would not be damaged by the pigs. Once the population reached the threshold, the pigs ate more than weeds and garbage and began to create problems in gardens. In response, the people used periodic ritual feasts to trim the population back, returning the ecological system to equilibrium. Rappaport, like Harris, used ecological concepts to understand the Tsembaga subsistence practices, thus downplaying the role of cultural beliefs and emphasizing ecological constraints.

These early cultural ecologists viewed cultures as trying to reach and maintain social and ecological equilibrium. This idea aligned with ecological thinking at the time that emphasized the balance of nature and the importance of the various components of an ecosystem in maintaining that balance. However, environments and cultures were rapidly changing as colonization, globalization, and industrialization spread throughout the world. In many of those early cases, anthropologists had ignored the larger processes.

As ecologists began to develop more-complex models of how ecosystems change through long-term dynamic processes of **succession** and disturbances (such as storms, droughts, and El Nino events), anthropological approaches to the environment also changed. The next sections examine those shifts in anthropology as environmental movements developed in response to increasing degradation of natural environments.

Early anthropologists were notable for their attempts to understand how different groups of people interacted with their environments over time. Their work paved the way for future environmental anthropologists even though they generally were not directly concerned with environmental problems associated with modernity, such as pollution, tropical deforestation, species extinctions, erosion, and global warming. As people around the world became more familiar with such issues, environmental anthropologists took note

and began to analyze those problems and accompanying conservation movements, especially in the developing world, which was still the primary focus of most anthropological research.

ETHNOECOLOGY

SLASH-AND-BURN VERSUS SWIDDEN CULTIVATION

Traditionally, anthropologists studied small communities in remote locations rather than urban societies. While much of that work examined rituals, political organizations, and kinship structures, some anthropologists focused on **ethnoecology**: use and knowledge of plants, animals, and ecosystems by traditional societies. Because those societies depended heavily on the natural world for food, medicine, and building materials, such knowledge was often essential to their survival.

As anthropologists, Harris and Rappaport worked to make the strange familiar by taking seemingly bizarre practices such as ritual slaughtering of pigs and sacredness of cows in India and explaining the practices within the context of the people’s culture and environment. This work explains not only how and why people do what they do, but also the advantages of their systems in the environments in which they live. An indigenous practice long demonized by the media, environmental activists, and scientists is slash-and-burn agriculture in which small-scale farmers, mostly in tropical developing countries, cut down a forest, let the wood dry for a few weeks, and then burn it, clearing the land for cultivation. Initially, the farmers plant mostly perennial crops such as rice, beans, corn, taro, and manioc. Later, they gradually introduce tree crops, and the plot is left to regrow trees while they open new fields for crops. Every year, as the soil’s fertility declines and insects become a problem in the original plot, new land is cleared to replace it. Environmentalists and developers have decried slash-and-burn cultivation as a major cause of deforestation, and governments in many tropical countries have prohibited farmers from cutting and burning forests.



Figure 3: Beans and bananas planted in a swidden field in Acre, Brazil. Note the fallen and burnt logs and the proximity of the forest. Photo by Christian Palmer.

Anthropologists have challenged these depictions and have documented that slash-and-burn cultivators possess detailed knowledge of their environment; their agricultural processes are sustainable indefinitely under the right conditions.^[12] When there is a low population density and an adequate supply of land, slash-and-burn cultivation is a highly sustainable type of elongated crop rotation in which annuals are planted for a few years, followed first

by tree crops and then by forest, rebuilding soil nutrients and mimicking natural processes of forest disturbance in which tree falls and storms periodically open up small patches of the forest. They used the term **swidden** cultivation instead of slash and burn to challenge the idea of the practice as inherently destructive. The surrounding forest allows the fields to quickly revert to forest thanks to seeds planted in the cleared area as birds roost in the trees and defecate into the clearing and as small rodents carry and bury the seeds. Furthermore, by mimicking natural processes, the small patches can enhance biodiversity by creating a greater variety of microclimates in a given area of forest.

The system breaks down when cleared forests are not allowed to regrow and instead are replaced with industrial agriculture, cattle raising, or logging operations that transform the open fields into pasture or permanent agricultural plots.^[13] The system can also break down when small-holders are forced to become more sedentary because the amount of land they control is reduced by arrival of new migrants or government land seizures. In that case, local farmers must replant areas more frequently and soil fertility declines. A desire to plant cash crops for external markets can also exacerbate these changes because food is no longer grown solely for local consumption and more land is put into agriculture. Anthropologists' studies uncovered the sustainability of these traditional practices, which were destructive only when outside forces pressured local farmers to modify their traditional farming systems.

PLANTS, PEOPLE, AND CULTURE

One branch of ethnoecology is ethnobotany, which studies traditional uses of plants for food, construction, dyes, crafts, and medicine. Scientists have estimated that 60 percent of all of the current medicinal drugs in use worldwide were originally derived from plant materials (many are now chemically manufactured). For example, aspirin came from the bark of willow trees and an important muscle relaxant used in open-heart surgery was developed from curare, the poison used on arrows and darts by indigenous groups throughout Central and South America. In light of such discoveries, ethnobotanists traveled to remote corners of the world to document the knowledge of shamans, healers, and traditional medical experts. They have also looked at psychoactive plants and their uses across cultures.

📌 WHAT THE PEOPLE OF THE AMAZON KNOW THAT YOU DON'T

This [TED talk by ethnobotanist Mark Plotkin](#) describes some important cases of knowledge of medicinal plants learned from indigenous people in the Amazon.



Ethnobotanical work is interdisciplinary, and while some ethnobotanists are anthropologists, many are botanists or come from other disciplines. Anthropologists who study ethnobotany must have a working knowledge of scientific methods for collecting plant specimens and of botanical classification systems and basic ecology. Similarly, archaeologists and paleobotanists study prehistoric people's relationships and use of plants, especially in terms of domestication of plants and animals.

The Kayapó project is a famous ethnobotanical study organized by Darrell Posey and a group of twenty natural and social scientists who examined how the Kayapó people of Brazil understood, managed, and interacted with the various ecosystems they encountered as the region was transformed from a dry savanna-like *Cerrado* to Amazonian rainforest.^[14] By documenting Kayapó names for different ecosystems and methods they used to drop seeds and care for certain plants to expand islands of forest in the savanna, the project illustrated the complex ways in which indigenous groups shape the environments in which they live by documenting how the Kayapó cared for, managed, and enhanced forests to make them more productive.

Posey was also an activist who contributed to drafting of the Declaration of Belem, which called for governments and corporations to respect and justly compensate the intellectual property rights of indigenous groups, especially regarding medicinal plants. He accompanied Kayapó leaders to Washington, D.C., to protest construction of a large dam using funds from the World Bank. Pressure from numerous international groups led to a halt in the dam's construction (plans for the dam have recently been resurrected). Posey's identification of the Kayapó as guardians of the rainforest provided a powerful symbol that resonated with Western ideas of indigeneity and the moral high ground of environmental conservation.

In recent years, some anthropologists have questioned whether the idea of indigenous people having an innate positive connection to the environment—what some call the myth of the ecologically noble savage—is accurate.

THE MYTH OF THE ECOLOGICALLY NOBLE SAVAGE

The image of the noble savage developed many centuries ago in Western culture. From the beginning of European exploration and colonialism, Europeans described the “natives” they encountered primarily in negative terms, associating them with sexual promiscuity, indolence, cannibalism, and violence. The depictions changed as Romantic artists and writers rejected modernity and industrialization and called for people to return to an idealized, simpler past. That reactionary movement also celebrated indigenous societies as simple people living in an Eden-like state of innocence. French painter Paul Gauguin's works depicting scenes from his travels to the South Pacific are typical of this approach in their celebration of the colorful, easygoing, and natural existence of the natives. The continuing influence of these stories is evident in Disney's portrayal of Pocahontas and James Cameron's 2009 film *Avatar* in which the primitive Na'vi are closely connected to and defenders of an exotic and vibrant natural world. Cameron's

depiction, which includes a sympathetic anthropologist, criticizes Western capitalism as willing to destroy nature for profit.

DISNEY'S POCAHONTAS: COLORS OF THE WIND SONG

Disney's Pocahontas presents many of the stereotypes of the ecologically noble savage. What are these stereotypes? Where else do we see these kinds of depictions?



Despite its positive portrayals of indigenous groups, the idea of the ecologically noble savage tends to treat indigenous peoples as an imagined “other” constructed as the opposite of Western culture rather than endeavoring to understand the world views and complexities of indigenous cultures. Similarly, a naive interpretation of indigenous environmentalism may merely project an imaginary Western ideal onto another culture rather than make a legitimate observation about that culture on its own terms.

The Kayapó in the Amazon and another group known as the Penan, who live in the Indonesian rainforest, were both confronted in the past by plans to open logging roads in their traditional territories and build dams that would flood vast amounts of their land. These indigenous communities organized, sometimes with the aid of anthropologists who had connections to media and environmental organizations, to protest the forest. The combination of two causes—rainforest conservation and indigenous rights—was powerful, successfully grabbing media attention and raising money for conservation. Their success led to later instances of indigenous groups joining efforts to halt large-scale development projects. These movements were especially powerful symbolically because they articulated the longstanding Western idea of the environmentally noble savage as well as growing environmental concerns in Europe and North America.^[15]

Some anthropologists have noted that these alliances were often fragile and rested on an imagined ideal of indigenous groups that was not always accurate. The Western media, they argue, imagined indigenous groups as ecologically noble savages, and the danger in that perspective is that the indigenous communities would be particularly vulnerable if they lost that symbolic purity and the power that came with it. The image of ecologically noble savages could break down if they were seen as promoting any kind of non-environmental practices or became too involved in messy national politics. Furthermore, indigenous groups’ alliances with international activists tended to cast doubt on their patriotism and weaken their position in their own countries. Though these indigenous groups achieved visibility and some important victories, they remained vulnerable to negative press and needed to carefully manage their images.

It is important to note that depictions such as the ecologically noble savage rely on an overly simplistic portrayal of the indigenous “other.” For example, some indigenous groups have been portrayed as inherently environmentalist even when they hunt animals that Western environmentalists want to preserve. Often, the more important questions for indigenous groups revolve around land rights and political sovereignty. Environmental concerns are associated with those issues rather than existing separately. The ramifications of these differences are explained in the next section, which discusses the people-versus-parks debate.

LAND CLAIMS AND MAPPING

One way that anthropologists have successfully used traditional ecological knowledge to advance indigenous rights is through advocacy on behalf of indigenous groups seeking to establish legal ownership or control over their traditional lands. This was first done in Alaska and Canada in the 1960s and 1970s. Indigenous groups wanted to map their seasonal movements for hunting, gathering, and other subsistence practices. The maps would demonstrate that they used the land in question and that it was important for their continued physical and cultural survival.

Since then, communities throughout the developing world have adopted similar strategies with the help of geographers and anthropologists to demarcate their lands. Often, lands used by indigenous groups are seen as empty because their population densities are quite low, and developers imagine the land as unused and open for taking. The production of maps by indigenous communities challenges those notions by inscribing the landscape with their names, relationships, and the human histories that mark their claim to the land. The maps become important symbols and tools for organizing local resistance against large development projects.

The non-governmental organization (NGO) Native Lands, for example, assisted in mapping the Mosquitia region of Honduras. Although the area, which consisted of 20,000 square kilometers, included 170 communities, most government maps showed it as practically empty. Earlier, in a backroom deal, the entire area had been granted as a logging concession to Stone Container Corporation, a Chicago-based company that made cardboard boxes and paper bags.^[16] When Native Lands became involved in the early 1990s, mapping was used to bring the diverse communities in the region together to communicate their presence and advocate for an end to the logging concession. The power of maps to communicate the presence of indigenous people on the land is critical, especially when the indigenous groups lack legal ownership.

POLITICAL ECOLOGY

QUESTIONING SCIENCE

In the 1960s, theoretical movements in the social sciences and humanities began to challenge the presumed benefits of modernity and science. These movements were led in part by feminist and post-colonial theorists who saw science as part of a patriarchal system that was complicit in the subjugation of women and colonized people throughout the world. In environmental sciences, this move to question the objectivity of science can be seen in political

ecology, a diverse field that includes many anthropologists along with geographers, political scientists, sociologists, and other social scientists. Political ecology's primary message is the importance of examining environmental questions that seem, at first glance, to be strictly scientific (i.e., apolitical). Questions of cause and effect, for instance, are comprised of political and economic agendas that can be masked by a seemingly neutral language of scientific objectivity. By focusing our attention on the power dynamic in political dimensions of conservation, principally in the developing world, political ecologists illustrate why conservation efforts so often fail to achieve the desired goals.

In an early and influential study of political ecology, Piers Blaikie and others argued that soil erosion was not caused by many of the factors blamed by state governments, including overpopulation, bad farming practices, and environmental stresses. Instead, they found that state policies such as taxes forced farmers into capitalist economic systems that encouraged unsustainable farming practices.^[17] From this perspective, soil erosion, which seemed to be primarily a local problem, was actually connected to national politics and needed to be addressed in that larger context. Once attention had been drawn to the relationship between state policies and soil erosion, the solution to the problem could no longer come from simply teaching small-scale farmers better soil conservation techniques. It required eliminating government practices and economic conditions that provided an incentive to use unsustainable farming practices.

Political ecology often focuses on the impacts of governments and corporations in establishing political and economic systems that constrain local behavior and challenges standard narratives regarding environmental destruction and conservation. Learning about political ecology can be difficult for environmentally minded people because it requires them to rethink many of their own positions and the science that supports them.

REVISIONIST ENVIRONMENTAL HISTORY

Some of my favorite work in political ecology challenges the causes and effects of tropical deforestation. James Fairhead and Melissa Leach, for example, looked at tropical deforestation in the West African country of Guinea.^[18] The state's forestry department and later conservation organizations described the savanna as containing only small fragments of a once extensive tropical forest. Administrators, foresters, and botanists had created forest policies based on the idea that this degradation was caused by local villagers as they cleared and burned forests to create fields for agriculture. Through careful study of historical archives, oral histories, and historical aerial photographs, Fairhead and Leach challenged these narratives. Instead, they argued that the remaining fragments of forest had been planted by local villagers who had gradually planted useful species around their villages, improving the soil for planting and generating other positive ecological changes. Rather than being the cause of the deforestation in areas that was previously forest, the villagers were creating the forest in an area that had previously been savanna through generations of hard work, turning the colonial narrative on its head.

Another fascinating tale comes from William Balee's work in the Amazon. Balee was a friend of Darrell Posey, and their work

together got Balee thinking about the extent to which the Amazon rainforest is a product of human productive activities and not entirely natural processes. Balee disagreed with earlier anthropologists who had described how primitive groups were forced to adapt to the constraints imposed by fragile tropical ecosystems, such as declining soil fertility, a lack of plants and animals that provided protein, and other limiting factors that constrained their behavior. Balee examined a wide variety of ecosystems in the Amazon that seemed to have been created or significantly modified by human activity, including the forest islands of the Kayapó discussed by Posey, babassu palm forests, bamboo forests, Brazil nut forests near Marabá, and liana forests. His conservative estimate was that at least 12 percent of the Amazon, the largest rainforest on the planet, was a product of indigenous intervention. This conclusion challenged two major assumptions made about the rainforest and the people who lived there. First is the notion that indigenous groups were forced to adapt to the harsh environment of the rainforest. Instead, Balee found that they were resource managers who had developed ecosystems to better provide for their needs. Second is the notion that the Amazon was primeval, untouched, and pristine.^[19] If we extend this analysis to other regions and ecosystems, it challenges the entire notion of "untouched nature." If the wildest, least populated, and largest rainforest in the world is already highly **anthropogenic**, or shaped by humans, what can we say about supposed ideas of wilderness in other places?

Environmental historian William Cronon tackled this question directly in his essay, "The Trouble with Wilderness, or Getting Back to the Wrong Nature."^[20] Cronon argued that, by celebrating a nature supposedly untouched by human hands, we tend to forget about preserving the nature with which we come in contact every day. If we focus exclusively on a concept of **wilderness**, which excludes humans and human activities by definition, we may ignore ways to help humans better interact with nature, leading to conservation policies that try to create parks without anyone inside of them and do not fully consider agricultural and urban areas. It means that one must leave civilization behind to be in contact with nature. Cronon ended his essay with a plea:

If wilderness can stop being (just) out there and start being (also) in here, if it can start being as humane as it is natural, then perhaps we can get on with the unending task of struggling to live rightly in the world, not just in the garden, not just in the wilderness, but in the home that encompasses them both.^[21]

Cronon's call to action is for humans to consider themselves fully part of nature and to look for ways to behave responsibly in that relationship. In a way, his message is similar to Bruno Latour's about the Anthropocene. By recognizing that nature does not exist outside of human activities, we must come to terms with the impacts of our lifestyles on the environment. Some may believe that this cheapens nature, making it less sacred and significant, but understanding the diverse ways in which humans have affected the environment should make us better able to appreciate and evaluate our interactions with it. Instead of seeing nature as outside of human activities, we need to consider how our food production, transportation, and habitation systems affect the environment.

PEOPLE VERSUS PARKS

Generally, when we think of nature, we tend to think of national parks and other kinds of **protected areas** set aside for conservation under various categories. In the United States, these include national and state parks, forests, wilderness areas, recreation areas, and wildlife conservation areas. In most cases, people are allowed to visit these areas for recreational or scientific purposes but cannot live directly in them, and regulations control the kinds of activities allowed. Protected areas developed from the Western vision of nature that separates it from culture and assumes that one must exclude humans to conserve nature. This model of setting aside protected areas has been exported to the rest of the world and persists as the most common strategy for numerous environmental goals, including protection of watersheds, endangered plants and animals, and providing space for people to interact with nature.



Figure 4: Yosemite Valley, one of the first national parks in the United States, established a precedent of setting aside natural areas for their scenic beauty, recreation, and conservation. Photo by Christian Palmer.

The most common example of a protected area is a national park. In the United States, national parks are so popular that they have been called “America’s Best Idea.” While I am an enthusiastic fan of national parks, I also recognize problems associated with the concept. We often forget, for example, that the “natural” state of such parks is mostly a recent phenomenon. Many Native American groups were systematically removed from parks (and rarely compensated) to make the parks “natural,” and some parks, such as Mt. Rushmore in the Black Hills of South Dakota and Devil’s Tower in Wyoming, are directly on top of sacred sites for Native Americans. In other areas of the world, especially in developing countries, most protected areas are occupied by groups of people who have lived there for decades or centuries and have legitimate claims to the land. Some may not be aware that their land is being transformed into a park and, once informed, are shocked by all of the new regulations they are expected to obey. In worst-case scenarios, they are evicted without compensation, becoming environmental refugees. From the perspective of such groups, the government seems to value elephants, tigers, or scenic vistas more than the people living on the land.

The conflicts that have developed between local communities in and around protected areas and state conservation officials and international conservation NGOs that advocate for the parks is referred to as the “people-versus-parks debate.”^[22] Communities, rather than seeing parks as preserving a public good that benefits

everyone, view creation of a park as an effort by government officials to extend their power to remote rural areas. And those negative views can thwart conservation efforts when locals resent preferential treatment of animals and choose to poach or simply ignore the new regulations.

Conservation groups have begun to recognize that they must support economic development of local communities to get them on board with conservation efforts. When local residents benefit from jobs as park guards, tour guides, and research assistants, they recognize the positive economic benefits of conservation and support the initiatives. This approach aims to combine conservation and development, bringing together typically different objectives. Initially, this approach was a response to development policies associated with building infrastructure such as roads and dams that had huge environmental impacts and created negative press for the World Bank, the U.S. Agency for International Development (USAID), and other institutions that funded the projects. Now, most conservation projects incorporate development objectives, and the environmental impacts of development projects usually must be assessed. In addition, the failure of many of these projects has inspired governments and NGOs to include local communities in planning and operating conservation and development schemes.

CONSERVATION AND SUSTAINABLE DEVELOPMENT

Since the early 1990s, environmental conservation organizations such as the Nature Conservancy and Conservation International and development organizations such as the World Bank and USAID have been working to bring conservation and development together. The structures and success of these approaches vary widely. Some aim to help local communities develop industries that depended on rainforests in nondestructive ways, such as non-timber forest products like rattan, rubber, medicines, and fruit. By assisting local communities in developing and marketing such products, the programs have provided them with economic alternatives that encourage people to preserve rainforests instead of chopping them down, a form of **sustainable development**.

The conservation and development project with which I am most familiar is related to **extractive reserves** in the Brazilian Amazon. I spent a summer doing research for my master’s thesis on extractive reserves established by Brazilian rubber tappers in Acre, which is in the northwestern corner of the Brazilian Amazon. These rubber tappers live in the rainforest and tap natural rubber by scraping a long thin cut into the bark of the tree and returning later in the day to collect the sap that had dripped into a small container hung on the tree. Rubber trees do not grow together; they are spread out throughout the forest, requiring rubber tappers to walk several trails each day. Many also collect and sell Brazil nuts, which fall from ancient trees that live for centuries. Brazil nuts cannot be commercially grown so they must be collected from rainforests. Both of these economic activities require a healthy, mature forest. And although rubber can be produced synthetically, natural rubber is stronger, longer lasting, more flexible, and more resistant to heat than synthetic alternatives, making it ideal for use in medical and aeronautic industries where high-quality material is essential.

As cattle ranching expanded in the Amazon, rubber tappers were being evicted because they did not have formal title to the land on which they lived and worked. Led by local activist Chico Mendes, the rubber tappers organized and petitioned the government for the right to remain on the land. Mendes was eventually assassinated by owners of some of the cattle ranches who were unhappy about his activism, but ultimately, the movement was successful. Environmentalists who were worried about Amazonian deforestation joined forces with the rubber tappers, who were worried about their livelihoods, and together they created extractive reserves—protected areas owned by the federal government but managed by local communities of rubber tappers who could stay on the land indefinitely as long as they followed the environmental regulations they established. The model was successful and has since been expanded to include millions of hectares throughout the Amazon.

As with many conservation and development projects, the economic benefits of the extractive reserves were slow to accrue. When rubber prices fell in response to international commodity markets, many families stopped tapping rubber and focused on subsistence agriculture. In fact, some turned to cattle ranching, mimicking on a smaller scale many of the destructive processes they had originally protested. Because the regulations were poorly enforced, a number of families gradually turned old swidden fields into pastures instead of letting the fields revert to rainforest.

Despite these challenges, development of the land was significantly reduced relative to the original plan of allowing owners of large tracts to move in and convert large areas to pasture and soy plantations. Likewise, the rubber tappers, though still poor, had access to greater resources than they would if they have been evicted and forced to move to urban slums. Extractive reserves succeeded because they were implemented across vast areas of the Brazilian Amazon and provided rights to thousands of small-holders.

Significant challenges remain for organizations working to improve the standard of living of rubber tappers in Brazil and conserve biodiversity, and this case study illustrates many of the problems associated with conservation and development models. Often, the economic gains are limited and require compromises in terms of conservation benefits. Usually, neither local communities nor environmentalists are completely happy with the models and their results but also agree that compromise is better than the rampant destruction averted by a reserve. Research on political ecology from such case studies forces us to recognize that the debates are not solely about environmental ethics; they also involve control over valuable resources such as land, timber, and oil. Political ecology invites us to think about the local political and cultural processes that shape the outcomes of conservation projects and determine who benefits from such projects.

FIRST WORLD POLITICAL ECOLOGY

A significant challenge for political ecologists is that most of the research so far has been done in the developing world; relatively few studies have been conducted in the United States and Europe. Some newer studies are aiming to showcase what political ecology might look like when applied to similar questions in the developed world. One such study came from the Sierra Nevada foothills in California.

There, a participatory conservation project was being developed that would have included local conservation organizations, government offices, and other groups. Their goal was to create an environmental management plan for the region that would limit development and urban growth. They tried to bring together a variety of environmental and pro-development groups to dialogue but were met with an intense political backlash. Pro-development forces, rather than participating, mobilized politically to remove supporters of the plan from county government seats and derail the process. In first world countries, local groups can mobilize significant political and economic resources to influence the fate of a project. This is an unlikely scenario in the developing world where conservation organizations are generally more powerful than local communities.^[23]

Clashes between environmentalists, who are often **exurban** migrants who moved from urban to rural areas for outdoor activities and scenic nature, and longtime residents who are involved in extractive industries such as mining, ranching, and agriculture are common in the western United States. In many cases, communities are bitterly divided over the importance of nearby public lands and the role of the federal government in managing those lands. In developing countries, political ecologists as a group tend to side with local communities and against government intervention. In the United States, left-leaning and environmental sympathies can push them to side with government intervention at the expense of local communities. Some political ecologists have noted this contradiction and called for local movements and their pushes against extension of states power to be taken more seriously, including in the United States.^[24]

Another fascinating political ecology associated with the first world is a study by Paul Robbins and Julie Sharp that looked at the American lawn, noting that 23 percent of urban land in the United States is dedicated to lawns and that urban areas are growing at a rate of 675,000 hectares a year.^[25] In addition, the vast majority of those lawns are sprayed with fertilizers, herbicides, and pesticides. Because these chemicals wash into waterways, lawns have an enormous collective environmental impact. Robbins and Sharp analyzed advertisements for lawn care products and interviewed and surveyed households across the country, leading to some startling discoveries. One of the strongest indicators of intensive and toxic lawn care was not a lack of knowledge about the environmental impacts of the products, but how well they knew the names of their neighbors. They describe the moral economy of a turf grass commons in which maintaining a healthy lawn signified important values of being connected to the community, your family, and nature. The aesthetics and family values associated with lawns outweighed concerns about environmental impacts, suggesting that water conservation activists must understand and address underlying cultural ideas about lawns in the United States.

WHERE'S THE ECOLOGY?

Political ecologists Andrew Vayda and Bradley Walters have noted that the field of political ecology seems to be increasingly political, overemphasizing how different groups use environmental issues to gain control over land and resources and ignoring important

ecological considerations.^[26] They argue that political ecologists need to take the limits, constraints, and challenges associated with natural systems more seriously and research those systems in addition to local cultural and political systems. In a study of the destruction of mangrove forests in the Philippines, they examined both the role of local communities in the destruction and management of mangrove ecosystems and the natural limits that impede replanting in the area. The next section presents examples of anthropologists who thought creatively about how to integrate theories from the natural sciences back into anthropology while simultaneously questioning whether science provides unbiased objective results. This requires a careful balancing act but is necessary to generate an approach that respects the contributions of scientific and anthropological knowledge.

ADDITIONAL APPROACHES TO ENVIRONMENTAL ANTHROPOLOGY

ECO-JUSTICE: RACE, GENDER, AND ENVIRONMENTAL DESTRUCTION

Many environmental justice advocates are anthropologists and political ecologists. They examine environmental questions from the perspective of social equality, identifying impacts and risks associated with environmental damage that have disproportionately affected socially marginalized groups. For example, on the Hawaiian island of Oahu the trash incinerator and landfill are on the west side of the island where many native Hawaiians and other low-income groups live.^[27] Locating landfills, incinerators, chemical plants, industrial factories, nuclear waste storage, and other environmentally hazardous facilities near communities of color, Native American reservations, and relatively poor communities is not accidental. A lack of economic and political power prevents residents of such communities from influencing the large industries and government agencies that determine where such facilities are placed.

The same process is at work when environmentally toxic jobs and waste storage facilities are outsourced. For example, many computers and other electronic appliances that contain toxic components made from heavy metals are shipped to West Africa for disassembly and recycling.^[28] This arrangement makes economic sense for consumers in relatively rich countries in North America and Europe, but the workers in Africa are out of sight and out of mind, often working without proper protection from the toxic metals or even training on their dangers. And as global supply chains have expanded, consumers in the United States rarely know where the clothes, electronics, and toys they purchase are made, the impacts of that production, or what happens to them after they dispose of them. By looking at these long complex commodity or supply chains, which cover products from their cradle to grave, social scientists interested in **eco-justice** can create awareness of these issues.

Anthropologists also work to connect **ecocide** (environmental destruction) with **ethnocide** (cultural destruction). In many indigenous communities worldwide, cultural activities and beliefs are connected to specific landscapes and ecologies. Consequently, as a logging or mining company moves in, it destroys both the environment and culture. Eco-justice studies call attention to these connections and seek to protect both culture and the environment

and the relationship between them. Barbara Rose Johnston's work with Marshallese Islanders in Micronesia documented the impact of U.S. atomic bomb testing on the atolls and supported their claims for compensation from the United States for damage by carefully documenting the relationship between their culture and the contaminated landscapes ruined by nuclear testing.^[29]

Anthropologists are often involved in these kinds of research projects because they are on the ground in remote locations around the world and share a disciplinary interest in raising awareness of cultural differences and inequality. They are also trained to examine categories of race, class, nationality, and other social factors that differentiate groups of people and are the basis for unequal treatment. While valuing cultural diversity, anthropologists also argue for a holistic perspective that universally values human life regardless of such differences.

SCIENCE AND TECHNOLOGY STUDIES

The study of science and technology is a diverse field that uses social science methods to analyze the culture of science in industrialized and modern societies. Like political ecology and ethnoecology, science and technology studies question the objectivity of modern science to some extent and view science as a product of specific cultural understandings. These studies often look to the history of a science to understand its development in a specific cultural, political, and economic context.

An early developer of the discipline is Bruno Latour, who introduced the idea of the Anthropocene discussed at the beginning of this chapter. Latour's earlier work included a study, *Laboratory Life: The Social Construction of Scientific Facts* (1979), written with Steve Woolgar, that used the ethnographic technique of participant observation in a laboratory at the Salk Institute for Biological Sciences to determine how scientific knowledge is produced and challenged dominant narratives about the scientific method.^[30] Other studies have examined concepts of race and indigeneity in the Human Genome Project and how remote sensing technologies shape how anthropologists interact with ecosystems in the Guatemalan rainforest.^[31] As science and technology become increasingly important parts of our lived experiences and our understanding of the environment around us, anthropologists naturally analyze those connections.

Many anthropologists who study science and technology endeavor to make sure they do not throw the baby out with the bath water. They do not deny the important contributions of science and the scientific method. However, they also pay attention to the limitations and biases inherent in those methods.

MULTISPECIES ETHNOGRAPHIES

Multispecies ethnographies challenge the centrality of humans in the world. Most of the stories we tell about ourselves and our place in the world and especially stories told by anthropologists revolve around *Homo sapiens*. Increasingly, though, some anthropologists have begun to think about how other species make decisions and exercise a degree of agency that can influence history. For example, Donna Haraway writes about dogs and how the relationship between dogs and humans has evolved over time. She criticizes people who

anthropomorphize dogs and challenges her readers to understand dogs on their own terms.^[32]

We can also think about the role of bacteria in human evolution and cultural development and remind ourselves that diseases, parasites, and symbiotic gut bacteria that allow us to eat certain kinds of foods have been very influential in shaping human history and cultural development over time. Other works have, for example, re-examined plant and animal domestication from non-human perspectives and explored how forests “think.”^[33] By carefully considering other species and ecological processes, we decenter our increasingly human-centered focus. Much of the work on multispecies ethnography has been done by feminist anthropologists who have already been at work for decades on similarly decentering male-focused histories of our species.

APPLYING ANTHROPOLOGY IN CONSERVATION REFORESTATION

Anthropological analyses of the environment may seem overly theoretical and abstract, far removed from actual practices and the work of learning to live with and within our environment. Anthropologists may be seen as hidden in ivory towers of academia, disconnected from real world issues and problems. However, applied and activist anthropology offer avenues for anthropologists to tackle problems on the ground and make a direct difference. Applied anthropologists often work with conservation and development organizations to implement projects that depend on an accurate understanding of local cultures and practices to succeed.

Anthropologist Gerald Murray’s doctoral dissertation examined land tenure among small-holders in Haiti. After finishing his dissertation work, Murray delivered a presentation to USAID on a Haitian reforestation project. He joked that if they gave him “a jeep and carte blanche access to a \$50,000 checking account” he could prove his “anthropological assertions about peasant economic behavior and produce more trees on the ground than their multi-million-dollar Ministry of Agriculture charade.”^[34] USAID program officers accepted his challenge, inviting him to head a \$4 million project to reforest Haiti. Using his understanding of Haitian small-holders, he drastically changed the USAID’s approach. Instead of trying to convince small-holders that trees were valuable for their environmental services, he emphasized fast-growing species that could be sold for firewood, charcoal, and lumber. By giving the trees to the small-holders and allowing them to harvest and sell them whenever they wanted, he motivated them to plant and care for the seedlings like any other valuable cash crop. In prior projects, tree-cutting was prohibited and the trees belonged to the government. Consequently, no one took care of the trees and they were eventually destroyed by livestock or neglect and rarely reached maturity. Treating the trees as a cash crop motivated farmers to plant trees on their own land, thus meeting USAID’s goals of stabilizing the soil and reducing illegal tree cutting (since farmers had access to stands of their own) and providing a direct economic benefit from selling wood. The project was a stunning success—20 million trees were planted in the first four years. By understanding local farmers’

perspectives, Murray was able to work with Haitian small-holders instead of seeing them as an impediment to reforestation efforts.

A number of anthropologists are working with conservation and development organizations to assist them in understanding local cultures and implementing conservation and develop projects. This work is often done in teams in which anthropologists join with foresters, conservation biologists, agronomists, and others to implement projects. Because they often speak the local language, understand the peoples’ perspectives, and are interested in close, on-the-ground observations, anthropologists make valuable contributions in support of conservation and economic development.

CLIMATE CHANGE

In 2014, the American Anthropological Association’s Global Climate Change Task Force submitted a report on climate change that summarized anthropology’s engagement with the issue. Currently, climate change is perhaps the single most important environmental issue worldwide, and our responses to it will shape the future of our species on the planet. The report identified the human causes and contributions to climate change and emphasized that climate change is already having an impact as rising sea levels are forcing residents of places such as Kiribati to flee their island homes and melting ice shelves threaten the subsistence practices and the lifestyle of Inuit groups in Alaska. These examples illustrate how the impacts of climate change will disproportionately affect groups who have contributed the least to the accumulation of greenhouse gases, highlighting the social inequality of impacts of climate change around the world.

The report analyzed drivers of climate change, focusing on consumption, land use, energy, and population growth. An anthropological analysis of consumption reminds us that the categories of “necessities” and “luxuries” are cultural constructs. For example, Western societies now accept cell phones as necessities despite the fact that humans survived perfectly well for thousands of years without them. As the global middle class expands and places new demands on ecosystems, a cultural understanding of social classes and related consumption practices will be increasingly important to analyses the causes of climate change and potential solutions.

The report also criticized much of the language of climate change and its focus on concepts of adaptation, vulnerability, and resilience that elided the differential impacts of climate change on different groups of people. The task force noted that proposed global solutions focused on top-down management strategies that did not take existing social issues of “poverty, marginalization, lack of education and information, and loss of control over resources” that structure vulnerability of different populations to the impacts of a warming planet into account.^[35] The report also illustrates the power of language to shape certain debates and potential solutions to problems, an important piece of anthropological analysis.

At the end of the report, the task force recommended actions anthropologists could take to contribute to efforts to address global climate change, including reducing the carbon footprint of anthropological meetings, working with interdisciplinary research teams to continue research, and maintaining a research agenda that

stresses the importance of anthropological contributions to discussions of climate change. Perhaps most interesting is their conclusion that many of the most innovative and creative approaches to addressing and mitigating the effects of climate change were occurring at local and regional levels, recognizing communities' innovative efforts to bypass national and international gridlock and develop approaches that reflect local realities and address local problems. The anthropological focus on local communities is a welcome change of perspective when, by definition, the scale of global climate change seems to preclude local involvement and solutions.

ANTHROPOLOGISTS AT WORK IN CONSERVATION ORGANIZATIONS

Anthropologists work for international conservation organizations like Conservation International, The Nature Conservancy, and the World Wildlife Fund and with government agencies like the National Park Service, the Peace Corps, and USAID. They also work for smaller conservation organizations, urban planning initiatives, environmental education groups, environmental activist networks, and other initiatives aimed at reducing our negative impact on the planet.

CULTURAL RESOURCES MANAGEMENT

Management of cultural resources is a growing field of anthropology that catalogs and preserves archaeological sites and historic places threatened by development, bringing together various principles developed in anthropology over the years. First, it recognizes the need to preserve both "natural" ecosystems and ecosystems shaped by past human activities. By connecting natural and human diversity, anthropologists recognize humans' interdependence with the environment over time. Second, cultural resource managers recognize the need for continuing involvement of indigenous communities with archaeological sites and seek their input to inform management plans and practices. As cultural resource management has become standard operating procedure, archaeologists have begun to meet with members of the local community and others who have a stake in their research. These interactions improve archaeological research and create the kind of cross-cultural bridges that strengthen the discipline. Finally, destruction of historical places and archaeological sites is a form of environmental destruction that, like climate change and species extinctions, requires us to critically examine the cultural values underlying that destruction.

CONCLUSION

The discipline of anthropology provides a unique perspective on human-environmental interactions and thus generates valuable insights into the social, political, and cultural complexity of modern environmental problems. Anthropologists are hard at work with governments, conservation organizations, and community groups to understand and solve complex environmental problems. I hope this discussion has challenged you to think about the environment and conservation in a new way, allowing you to help reframe these debates and develop innovative solutions to the complex problems that confront us.

Discussion Questions

1. In what ways have anthropologists examined human interactions with the environment over time?
2. What is the myth of the ecologically noble savage? What are some recent examples of this myth? What is the impact of this idea on indigenous people?
3. How has research in political ecology challenged traditional conservation efforts? What are some of the problems with promoting parks or ecological reserves as solutions to environmental problems?
4. What is the Anthropocene? How has research in anthropology contributed to an improved understanding of how humans interact with the "natural" world?
5. What insights from anthropology do you think would be most useful to the public, environmental activists, and government officials when considering policies related to current environmental challenges?

GLOSSARY

Anthropocene: a term proposed to describe the current moment (or epoch) in geological time in which the effects of human activities have altered the fundamental geochemical cycles of the earth. There is some disagreement about when the Anthropocene period began—most likely, it began with industrialization.

Anthropogenic: environments and pollutants produced by human activities.

Cultural ecology: a subfield of cultural anthropology that explores the relationship between human cultural beliefs and practice and the ecosystems in which those beliefs and practices occur.

Cultural evolutionism: a theory popular in nineteenth and early twentieth century anthropology suggesting that societies evolved through stages from simple to advanced. This theory was later shown to be incorrect.

Ecocide: destruction of an environment, especially when done intentionally by humans.

Eco-justice: a movement to recognize and remedy the adverse relationship between social inequality and the harms and risks that come from environmental destruction and pollutants.

Ethnocide: destruction of a culture, often intentionally, through destruction of or removal from their territory, forced assimilation, or acculturation.

Ethnoecology: the relationships between cultural beliefs and practices and the local environment. Components include ethnobiology, ethnobotany, and ethnozoology.

Extractive reserves: community-managed protected areas designed to allow for sustainable extraction of certain natural resources (such as fish, rubber, Brazil nuts, and rattan) while maintaining key ecosystems in place.

Exurban: migration of generally affluent people from urban areas to rural areas for the amenities of nature, recreation, and scenic beauty associated with rural areas.

Historical particularism: the theory that every culture develops in a unique way due to its history, including the interaction of people with the natural environment.

Homeostasis: the movement of a particular system (a human body, an ecosystem) towards equilibrium. In ecology this is associated

with the idea that ecosystems should remain at a climax ecosystem associated with an area.

Hominin: Humans (*Homo sapiens*) and their close relatives and immediate ancestors.

Materialism: a Marxist theory emphasizing the ways in which human social and cultural practices are influenced by basic subsistence (economic) needs.

Multispecies ethnographies: an ethnographic approach in which anthropologists include non-human species as active participants in a society or culture and study their influence and actions.

Political ecology: an interdisciplinary field of research that emphasizes the political and economic dimensions of environmental concerns.

Processual archaeology: a shift in archaeological studies toward scientific methods, testing of hypotheses, quantitative analysis, and theory-driven approaches and away from an earlier emphasis on typologies and descriptive analysis.

Protected areas: lands set aside for conservation of the environment for their scenic beauty, biodiversity, recreational value, and other reasons.

Succession: changes in types of species in an area over time. For example, it would describe the different ecosystems that gradually replace one other after a forest fire.

Sustainable development: development that can meet present needs without damaging the environment or limiting the potential for future generations.

Swidden: an agricultural practice, also called shifting cultivation and slash-and-burn, in which fields are cleared, burned, and planted for several seasons before being returned to fallow for an extended period.

Wilderness: a natural area that is untouched or unchanged by human activities and often seen as a cultural construct of the American West.

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32. Donna Haraway, *The Companion Species Manifesto: Dogs, People, and Significant Otherness* (New York: Paradigm, 2003). ↵
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34. Gerald F. Murray, "The Domestication of Wood in Haiti: A Case Study in Applied Evolution," *Anthropological Praxis* (1987): 218. ↵
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INDEX

GLOSSARY

Analytic Other | A group, people, or culture which is foreign to us or whom we make foreign so as to study them with qualified objectivity.

Anthropology | The study of humans in all aspects, times, and places; it is a holistic, comparative, and evolution-based discipline with a focus shaped by the concept of 'culture.'

Artefacts | Portable *items* that were made and used by humans.

Communication | The transfer of information from a sender to a receiver

Context | How an artifact or other type of archaeological data was found in relation to everything else at the archaeological site

Cultural Relativism | The idea that we should seek to understand another person's beliefs and behaviors from the perspective of their own culture rather than our own; understanding people's beliefs within the system they themselves have for explaining things.

Culture | The system of shared values, beliefs, behaviors, and artifacts, transmitted from one generation to the next, that the members of a group use to cope with their world and with each another.

Culture (Geertz) | An historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which [humans] communicate, perpetuate, and develop their knowledge about and their attitudes toward life.

Ecofacts | Natural objects that have been used or moved by humans.

Economy | The central way in which societies meet basic material needs and wants; a system for making, circulating, and using things, including material goods, services, and information.

Emic | From the perspective of the studied culture

Enculturation | The process by which individuals learn and adopt the norms, values, behaviors, language, and customs of their culture.

Epistemology | The philosophical study of knowledge. Theories of knowledge. The attempt to distinguish 'justified beliefs' from 'opinions.'

Etic | From the perspective of the observer

Features | Non-portable human creations.

Folk taxonomies | The systems of categories people use to organize their knowledge of the world

Holism | The perspective on the human condition that assumes that mind, body, individuals, society, and the environment interpenetrate, and even define one another; the anthropological view that the whole of a culture is greater than the sum of its parts.

Hypothesis | An explanation of observed facts, relying on a scientist's knowledge-based experiences and background research, stating how and why observed phenomena are the way they are.

Kinship | A network of social and biological relationships between individuals.

Knowledge System | A unified way of knowing that is shared by a group of people and is used to explain and predict phenomena.

Law | A statement of prediction about what will happen given certain conditions.

Material culture | The physical objects, resources, and spaces that people create, use, and share as part of their culture.

Modes of Production | Solutions to meet human wants and needs by generating materials from the environment, developing techniques of labor and forms of technology to process those materials, organize society to get the necessary work done, and ways of trading and circulating things.

Myth | A well-known story that explains primary principles, beliefs, and values outside of chronological time; a sacred or sacred-like story that reflects and reinforces a community's worldview

Reflexivity | The practice, process, or ability to examine one's thoughts, feelings, assumptions, and biases and how they influence one's understanding and actions.

Religion | A shared system of beliefs and practices regarding the interaction of natural and supernatural phenomena.

Religion (Durkheim) | A unified system of beliefs and practices relative to sacred things, that is to say, things set apart and forbidden—beliefs and practices which unite into one single moral community called a church, all those who adhere to them.

Religion (Geertz) | (1) a system of symbols which acts to (2) establish powerful, pervasive, and long-lasting moods and motivations in [humans] by (3) formulating conceptions of a general order of existence and (4) clothing these conceptions with such an aura of factuality that (5) the moods and motivations seem uniquely realistic.

Ritual | A special kind of repeated, patterned action conventionally associated with a particular meaning. Performative acts by which we carry out our religious beliefs, public and private.

Sorcery | The use of *material elements* (object, potions, leavings) to cause a change in circumstances (positive or negative) to another person.

Symbol | A object, image, gesture, vocalization, or event conventionally and arbitrarily associated with a particular meaning.

Technology | The specialized knowledge and skills used for making material culture

Theory | An explanation of observations that address a wide range of phenomena.

Witchcraft | The use of intangible (*not material*) means to cause a change (positive or negative) in circumstances to another person.

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Appendix A: Recommended Readings

1.1: What is Anthropology?

- Bohannon, Laura. "[Shakespeare in the Bush](#)"
- Nelson, Richard. "[Understanding Eskimo Science](#)"
- Lévi Strauss, Claude. "The Science of the Concrete" from *The Savage Mind*

1.2: The Four Fields

Lee, Richard Borshay. "[Eating Christmas in the Kalahari](#)"

2.1: Evolution

- Shermer, Michael. "The Facts of Evolution" from *Why Darwin Matters*

2.2: Our Primate Relatives

- de Waal, Frans. "One for All" (Scientific American, 2014)
- Stanford, Craig. "Got Culture?" from *The New Chimpanzee*

2.3: Biological Humans

- Gadsby, Patricia. "[The Inuit Paradox](#)"
- Heinrich, Joseph. "What Are Big Brains For? Or, How Culture Stole Our Guts" from *The Secret of Our Success*
- Stix, Gary. "The 'It' Factor" (Scientific American, 2014)

2.4: Today's Human Variation

- Hawks, John. "Still Evolving (After All These Years)" (Scientific American, 2014)
- Mukhopadhyay, Carol and Rosemary C. Henze. "How Real Is Race? Using Anthropology to Make Sense of Human Diversity" (Phi Delta Kappan, 2003)

3.1: What is Culture?

- Miner, Horace. "[Body Ritual among the Nacirema](#)"

3.2: Participant Observation

- Chagnon, Napoleon A. "Doing Fieldwork Among the Yanomamo" from *The Yanomamo*
- Rosaldo, Renato. "[Grief and a Headhunter's Rage](#)"
- Shermer, Michael. "Spin-Doctoring the Yanomamö" (Skeptic, 2001)

3.3: Myth, Magic, and Ritual

- Evans-Pritchard, Edward Evan. Excerpts from "The Notion of Witchcraft explains Unfortunate Events" from *Witchcraft, Oracles, And Magic Among The Azande*
- Freed, Stanley A. and Ruth S. Freed. "Taraka's Ghost" (Natural History, 1999)
- Gmelch, George. "Baseball Magic" (Elysian Fields Quarterly, 1992)

- Saitoti, Tepilit Ole. "The Initiation of a Maasai Warrior" (originally "My Circumcision" from *The Worlds of a Maasai Warrior*)
- Sosis, Richard. "The Adaptive Value of Religious Ritual" (American Scientist, 2004)

3.4: Exchange and Social Systems

- Counts, David. "Too Many Bananas, Not Enough Pineapples, and No Watermelon at All" from *The Humbled Anthropologist: Tales from the Pacific*
- Harris, Marvin. "Life Without Chiefs" (New Age Journal, 1989)
- Mauss, Marcel. Excerpts from *The Gift*. **and/or** Douglas, Mary. Forward from *The Gift* (1990 Routledge)

3.5: Marriage and Kinship

- Blaffer Hrdy, Sarah. "[Mothers and Others](#)" (Natural History, 2001)
- Goldstein, Melvyn C. "When Brothers Share a Wife" (Natural History, 1987)
- Nanda, Serena. "Arranging a Marriage in India" from *Stumbling Toward Truth: Anthropologists at Work*
- Scheper-Hughes, Nancy. "Death Without Weeping" (Natural History, 1989)
- Yuan, Lu and Sam Mithcell. "Land of the Walking Marriage" (Natural History, 2000)

3.6: Insider, Outsider, and Identity

- Fish, Jeffrey M. "Mixed Blood" (Psychology Today, 1995)
- Nanda, Serena. "The Hijras: An Alternative Gender in India" (Manushi, 1992)
- Moe, Karine and Dianna Shandy. "The Professionalization of At-Home Motherhood" in *Glass Ceilings and 100-Hour Couples* (2009)
- Williams, Walter L. "The Berdache Tradition"

4.1: Material Culture

- Binford, Lewis. "Archaeology as Anthropology" (1962)
- Rogers, Deborah. "The Evolution of Inequality"
- Tucker, Abigail. "The Great New England Vampire Panic"

4.2: Excavation and Context

- Anderson, Sonja. "Archaeologists Digging Beneath Britain's Houses of Parliament Discover 6,000-Year-Old Flint Artifacts and a 2,000-Year-Old Roman Altar Fragment"
- Harris, Edward C. "The Laws of Archaeological Stratigraphy" (1979)

- Lyman, R. Lee. "A Historical Sketch on the Concepts of Archaeological Association, Context, and Provenience"

4.3: Interpretation and Ethics

- Atalay, Sonya, Jennifer Shannon, and John G. Swogger. *Journeys to Complete the Work... And changing the way we bring Native American ancestors home.*
- Bonnicksen, Robson and Alan L. Schneider. "Battle of the Bones"
- Pringle, Heather. "New Evidence Ties Illegal Antiquities Trade to Terrorism, Violent Crime"
- Watson, Richard A. "Inference in Archaeology" (1976)

5.1: Language and Society

- Pagel, Mark. "War of Words"
- Tannen, Deborah. "Conversation Style: Talking on the Job"
- Tannen, Deborah. "Why Don't You Say What You Mean?"

5.2: Language Change and Digital Communication

- Abu-Lughod, Lila. "The Interpretation of Culture(s) After Television"
- Boroditsky, Lera. "How Language Shapes Thought"

- Mellor, Belle. "Anthropologists Investigate Communications Technology"
- Posner, Eric. "A Terrible Shame"
- Yong, Ed. "Armor against Prejudice"

6.1: Putting Anthropology to Good Use

- Farmer, Paul and Arthur Kleinman. "AIDS as Human Suffering"
- McCurdy, David. "Using Anthropology"
- Omohundro, John. T. "Career Advice for Anthropology Undergraduates"
- Silltoe, Paul. "Anthropologists Only Need Apply: Challenges of Applied Anthropology"

6.2: Contemporary Issues

- Moore Lappé, Frances. "Why Can't People Feed Themselves?"
- Janus, Noreene. "Advertising and Global Culture"
- Ofri, Danielle. "Heidi Larson, Vaccine Anthropologists"
- Patten, Sonia. "Medical Anthropology: Improving Nutrition in Malawi"
- Nietschmann, Bernard. "When the Turtle Collapses"
- Reed, Richard K. "Forest Development the Indian Way"

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