Introduction to Human Geography

FIGURE 1.1 **Baghdad, Iraq.** U.S. Marines pulled down the statue of Saddam Hussein in Firdos Square in the center of Baghdad on April 9, 2003.

Daily Mirror Gulf coverage/3rd Party - Misc/Getty Images

Troops from the United States, the United Kingdom, Poland, and Australia invaded Iraq in March 2003 with the primary goal of bringing peace and stability to Iraq by removing the dictator Saddam Hussein. By April 2003, American Marines toppled a statue of Hussein from a central square in Baghdad (**Fig. 1.1**), but the conflict continues. Why? Leaders of the campaign failed to think geographically.

Nationally, Iraq has arbitrary borders drawn by France and Great Britain that put together diverse ethnic, religious, and cultural groups. Critical resources, especially oil, are unevenly distributed among the ethnic regions. One political party controlled the country for four decades. A dictator created his own security forces and used an iron fist to run the country for 24 years. Iraqis detested the idea of external rule, dating back to the country's rule by the Ottoman Empire for centuries and colonization by Great Britain for 17 years. Regionally, Iraq invaded its neighbor Iran in 1980 and deployed chemical weapons in a war that lasted for 8 years. Tensions between Iraq and Iran remained after the war ended, in part because both countries wanted to lead the Persian Gulf region and because southern Iraq has many sacred sites holy to Shi'ite Muslims, a sect of Islam prominent in Iran. Globally, Iraq has a shaky past with the United States, including the Persian Gulf War, when American troops helped push Iraqi troops out of Kuwait. The United States also plays a balancing act in the region between its alliances with Jewish Israel and Muslim Saudi Arabia.

The ongoing conflict in Iraq stems from a failure to think geographically. Any significant consideration of the geographic complexities of Iraq would have challenged the idea that removing the dictator in Iraq would automatically lead to a more peaceful Middle East. It would have directed more attention to the importance of internal divisions and the relationship between ethnic distributions and access to resources.

Iraq is a reminder that geographical understanding is not an exercise in memorizing trivia. Thinking geographically is fundamentally important to any effort to make sense of people, places, and cultures. The goal of this chapter is to teach you to think geographically and see the many interconnections and complexities of our world.

CHAPTER OUTLINE

1.1   Define Human Geography and Describe the Value of Thinking Geographically.

Geography is the study of the spaces and places people create on the ground and in their minds, and the ways in which people use and shape the environment. The field of **human geography** focuses on how we organize ourselves and our activities in space; how we are connected to one another and the environment; how we make places and how those places in turn shape our lives; and how we think about and organize ourselves locally and globally.

Human geography includes the subdisciplines of political geography, economic geography, population geography, and urban geography. Human geography also includes cultural geography, which is both part of human geography and also its own approach to all aspects of human geography. Cultural geography looks at the ways culture, including religion, language, and ethnicity are distributed and affect human geography. Cultural geography also examines how culture affects our understanding of topics addressed in human geography. Cultural geography can be thought of both as a component of human geography and a perspective on human geography.

How People Make Geography

People have a bigger impact on the world now than at any point in history. In 1900, the world had 1 billion people. The fastest ways to travel were steamships, railroads, and horse and buggy. Now, nearly 8 billion people can cross the globe in a matter of days, with most having easy access to automobiles, high-speed railroads, airplanes, and ships.

Traveling long distances in short times and communicating instantly have globalized the world. An idea can spread across the world and connect people from different places within minutes. **Globalization** is a set of processes that are increasing interactions, deepening relationships, and accelerating connectedness across country borders. It includes the movement of money, the migration of people, the flow of ideas, and the making and trading of goods. You might think of globalization as a blanket covering the world and making every place the same, but that is not the case. Differences from place to place matter. An idea or innovation may spread around the world, but people will interpret or change that idea depending on their own experiences and the particular characteristics of individual places. Globalization creates connections when 2 billion people can read the same tweet at the same time, but it also creates divisions because those 2 billion people can interpret the tweet hundreds of different ways, and many other billions will never see the tweet.

This book devotes considerable attention to globalization and its impacts. We recognize that a globalized process has different impacts in different places because no two places are the same. Moreover, whenever we look at something at one *scale*, we always try to think about how processes that exist at other scales may affect what we are studying (see the discussion of scale later in this chapter).

We come back again and again to globalization because of the profound impacts it has had on the human geography. As geographers Ron Johnston, Peter Taylor, and Michael Watts (2002) explain, "Whatever your opinion may be, any intellectual engagement with social change in the twenty-first century has to address this concept seriously, and assess its capacity to explain the world we currently inhabit." We integrate the concept of globalization into our discussion of human geography because processes at the global scale, processes that are not unique to local places or confined by national borders, are clearly changing people, places, and cultures.

Consider the issue of hunger. On its face, the world's hunger problem might seem easily solvable. Take the total annual food production in the world, divide it by the world's population, and you have enough food for everyone. Yet 11 percent of the world's population is hungry or chronically undernourished. Of the 815 million undernourished people globally, the vast majority are women and children, who have little money and even less power.

Figure 1.2 shows how food consumption is currently distributed—unevenly. Comparing Figure 1.2 with **Figure 1.3** shows that the wealthier countries also are the best fed, whereas Africa has numerous countries in the highest categories of hunger and undernourishment.

Is solving hunger as simple as each country growing enough food to feed its people? Do the best-fed countries have the most farmable (arable) land? Only 4 percent of the land in Norway is suitable for farming, while more than 70 percent of Bangladesh is farmable (**Fig. 1.4**). Yet Norway is a wealthy, well-fed country, while Bangladesh is lower income and undernourished. Norway overcomes its inadequate food production by importing food. Bangladesh depends on rice as its staple crop, and the monsoon rains that flood two-thirds of the country each year between June and October are good for rice production, but they make survival a daily challenge for some. Explaining these differences is impossible without considering the geographical characteristics of individual places and how they are positioned in relation to other peoples, places, and things.

Take the case of the east African country of Kenya. It has enough farmable land to feed its population, but the most productive land in the western highlands is used to produce coffee and tea instead of foods for local consumption. Foreign corporations own the coffee and tea plantations, and they sell the crops abroad. While the foreign income from selling coffee and tea helps the trade balance and economy of Kenya as a whole, small farmers in Kenya face challenges. Small farms in the
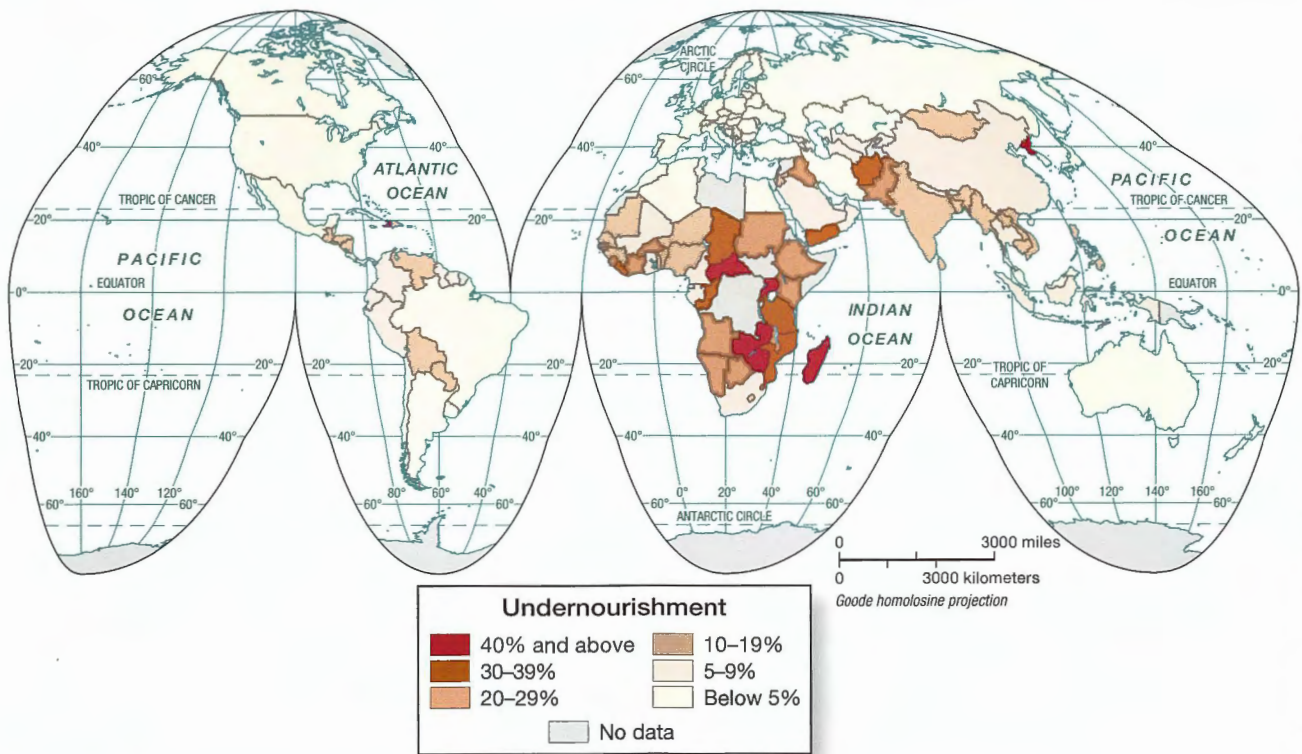
Data from: FAO/World Bank. Visualization by E.H. Fouberg and A.B. Murphy.
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FIGURE 1.2 **World Undernourishment.** Undernourishment rates are higher in Africa and Asia than in North America and Europe. The World Food Program estimates that just under one billion people worldwide are malnourished, with the highest rates in Africa, South America, and Asia.
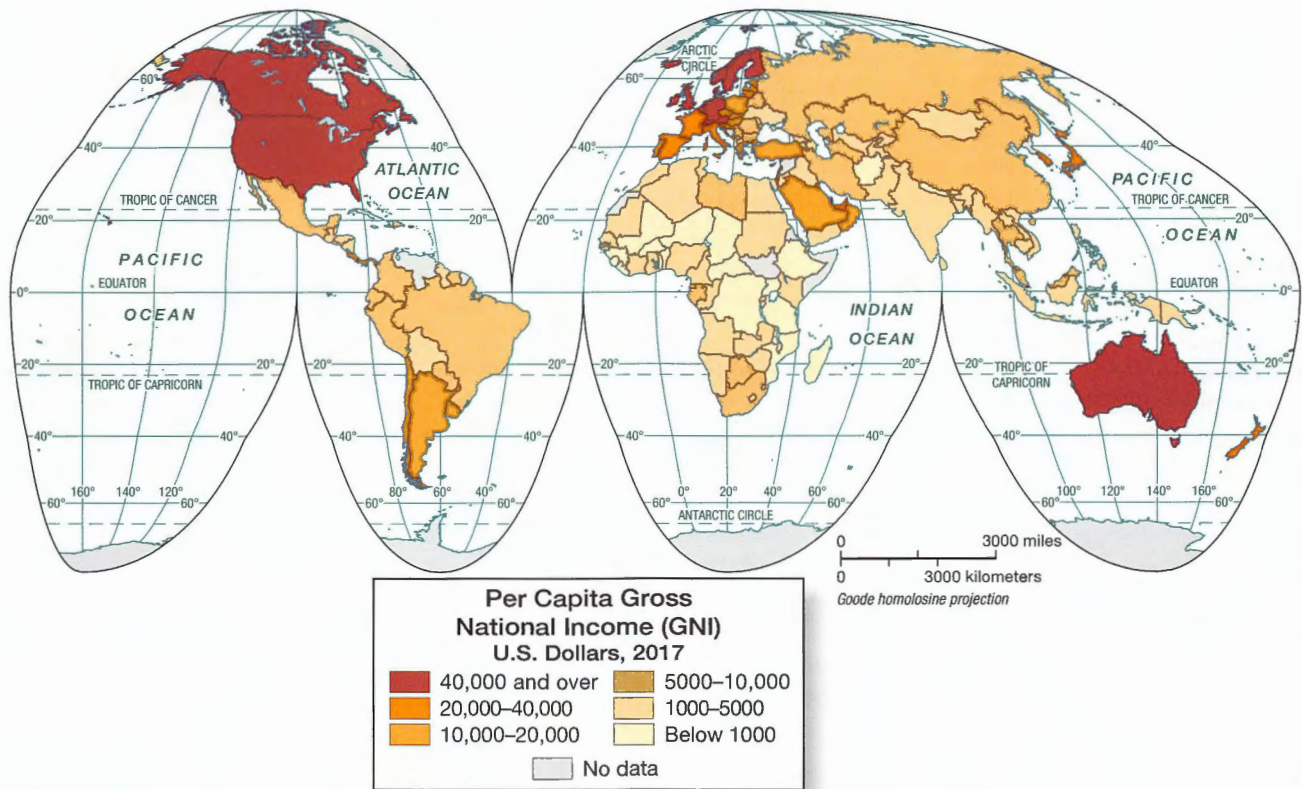
Data from: World Bank. Visualization by E.H. Fouberg and A.B. Murphy.
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FIGURE 1.3 **Per Capita Gross National Income (in U.S. Dollars).** Wealth is distributed unevenly, with countries in the global north having higher incomes than countries in the global south. Maps that report data by country like this one do not tell us about differences within countries.
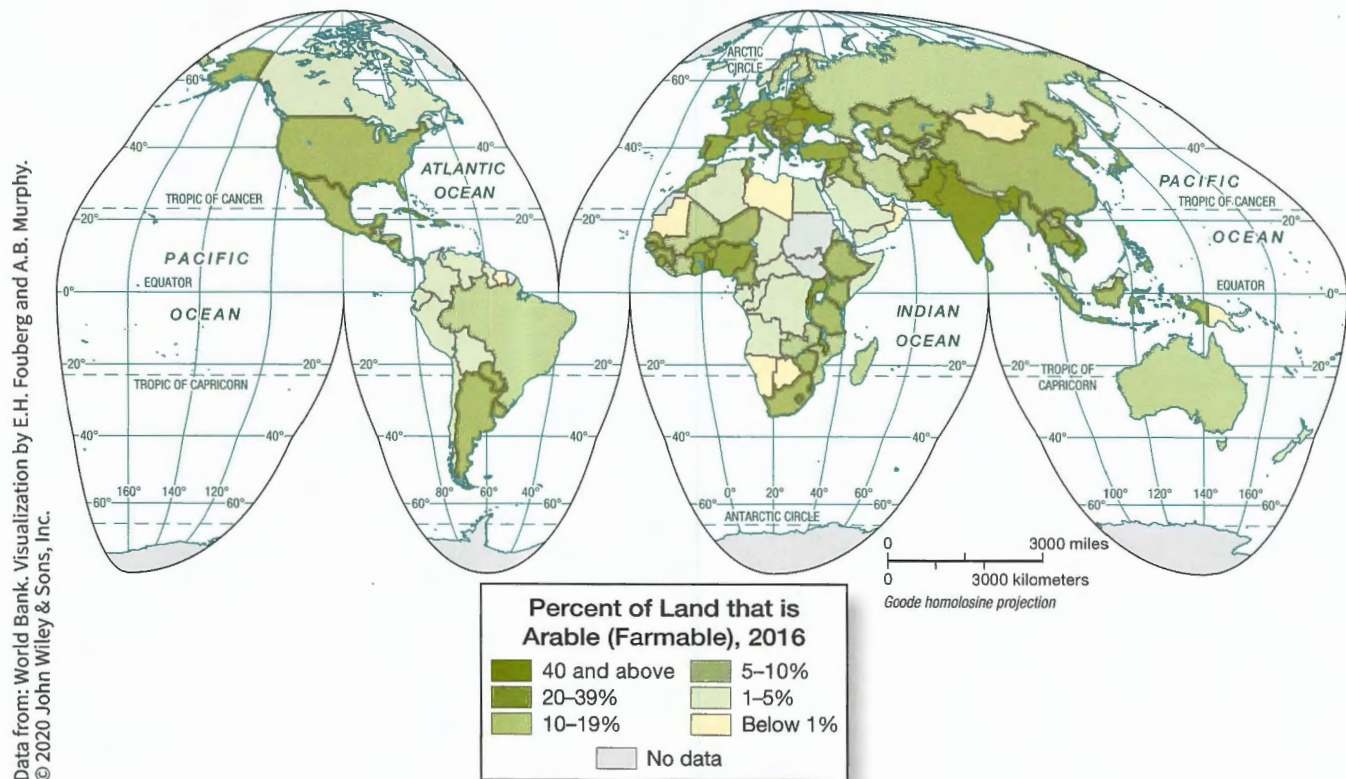
FIGURE 1.4 **Arable (Farmable) Land.**   The percent of arable (farmable) land varies by country. South Asia and eastern Europe have the highest rates. Arable land tells us potential for agriculture, but it does not necessarily correlate with nourishment or undernourishment. Countries with limited arable land and higher incomes, like Japan and Norway, import the food needed to feed their population.

lowlands have been subdivided to the point that many are too small to be productive farms. Kenya has a gendered legal system that disempowers women, who make up most of the country's agricultural labor force, which makes it nearly impossible for small farmers who are women to create, invest in land and technology and grow their production. In the northeast, Kenyan farmers have suffered through severe droughts, diseases attacking their herds, and conflict in neighboring Somalia.

Solving one of the Kenya's problems often raises another. If Kenyans converted the most productive farmlands to growing crops for local markets and local consumption, how would lower income families afford the crops that were grown? What would happen to the rest of Kenya's economy and the government itself if there were significantly less export revenue from tea and coffee? If Kenya lost its export revenue, how could the country pay the loans it owes to global financial and development institutions?

Answering each of these questions requires thinking geographically because the answers are rooted in the characteristics of places and the connections those places have to other places. Geographers often use on-the-ground **fieldwork** to gain insights into such questions. Geographers have a long tradition of fieldwork. We go out in the field and see what people are doing, we talk to people and observe how their actions and reactions vary across space, and we develop maps and other visualizations that help us situate and analyze what we learn. We, the authors, have countless field experiences, and we share many with you to help you understand the diversity of people and the influences shaping the development of places.

Addressing major global problems such as hunger or inequality is complicated in our interconnected world. Any solution will play out differently from place to place, and how things play out will have regional and global consequences over time. Our goals in this book are to help you make connections among people and places, enable you to recognize **patterns** and processes in human geography, give you an appreciation for the uniqueness of place, and teach you to think geographically.

The Spatial Perspective

Geographers study human phenomena, including language, religion, identity, settlement patterns, and land use. They also examine the interactions between people and the physical environment. Human geography is the study of the spatial and material characteristics of human-made places and people, and **physical geography** is the study of the spatial and material characteristics of the physical environment. Human

and physical geographers may study different things, but they adopt a similar perspective.

Geographer Marvin Mikesell once gave a shorthand definition of geography as the "why of where." How does *where* something happens affect *what* happens? Why and how do things come together in certain places to produce particular outcomes? Why are some things found in certain places but not in others? To what extent do developments in one place create unintended consequences in another place? To these questions, we add "so what?" Why do differences across geographic space matter, and what do those differences mean for people there and elsewhere? Questions like these are at the core of thinking geographically, and they are of critical importance if we are to make sense of our world.

Since geography covers so many things, from people and places to migration and climates, you might be wondering what everything geographers study has in common. Geographers study the world with a spatial perspective. Geographers are interested in the spatial arrangement of places and phenomena, how they are laid out, organized, and arranged; how they appear on the landscape; and how the various characteristics of individual places—physical and human—influence one another.

Mapping the **spatial distribution** of a phenomenon can be an important first step to understanding it. Maps raise questions about how arrangements come about, what processes create and sustain them, and what relationships exist among different places and things. Mapping the distribution of a disease, for example, is often the first step to finding its cause.

Understanding the Causes and Spread of Cholera

In 1854, Dr. John Snow, an anesthesiologist in London, mapped cases of cholera in a neighborhood of London called Soho. Cholera is a disease that causes diarrhea and dehydration, and it was found mainly in India until the beginning of the nineteenth century. Between 1816 and 1823, cholera diffused to China, Japan, East Africa, and Mediterranean Europe in the first of several **pandemics**, worldwide outbreaks of the disease. Death by cholera was horribly convulsive and would come in a matter of days, perhaps a week, and no one knew what caused the disease or how to avoid it.

A second cholera pandemic struck between 1826 to 1837 when cholera crossed the Atlantic and arrived in North America. During the third pandemic, from 1842 to 1862, England was severely hit. When cholera swept through Soho, Dr. Snow made a map. He marked the home of each person who died from cholera with a dot, and he also marked the water pumps where people went to get fresh water for their homes (**Fig. 1.5**). Approximately 500 deaths occurred in Soho, and as the map took shape, it showed that an especially large number of those deaths clustered around the water pump on Broad Street. At the doctor's request, city authorities removed the handle from the Broad Street pump, making it impossible to get water from it. The result was dramatic. Almost immediately the number of reported new cases fell to nearly zero, confirming Snow's theory that cholera is spread through contaminated water.

Cholera bacteria are carried in feces of people who have the disease. Cholera is still common in places where water is not adequately treated or sewage seeps into water supplies. People ingest cholera bacteria by eating contaminated food or water. In places without a sanitary sewer system, human feces can easily contaminate the water supply. Even in places with sanitary sewer systems, cholera contamination can occur when rivers, which are typically the water supply, flood the sanitary sewer system.

Cholera remains a threat in urban slums (see Chapter 9) where access to sanitation and clean water are lacking. Cholera outbreaks also occur in places with armed conflict and in places with natural hazards, including earthquakes and hurricanes. Cholera spreads quickly, so an outbreak can easily diffuse regionally and turn into an **epidemic**, a regional outbreak of a disease. Starting in 2016, a cholera outbreak in Yemen, on the Arabian Peninsula, became the fastest-spreading outbreak in modern history. More than 1 million people were quickly infected because an estimated 16 million of the 29 million people in Yemen do not have access to clean water and basic sanitation as the result of a civil war and bombing of infrastructure from neighbor Saudi Arabia (who supports the government in exile).

In January 2010, an earthquake that registered 7.0 on the Richter scale hit Haiti, near the capital of Port-au-Prince. Months later, there was a cholera outbreak in the Artibonite region of Haiti (**Fig. 1.6**). The United Nations (UN) acknowledges that peacekeepers from Nepal who were sent to help Haiti after the earthquake brought cholera with them. The UN camp that hosted the peacekeepers was located on a small river that flowed into the Artibonite River, and the sewage from the camp's residents was discharged into the river. Cholera broke out among the thousands of Haitians who used the Artibonite River for their water supply. The disease spread quickly, reaching the capital city of Port-au-Prince. More than 9200 Haitians died in an outbreak that infected 770,000 people.

Boiling water before consumption and thorough washing of hands prevent the spread of cholera, but water contaminated with cholera and a lack of access to soap are commonplace problems in many parts of world cities. A vaccine exists, but its effectiveness is limited, and it is costly. Dr. Snow achieved a victory by thinking geographically, but the war against cholera is not yet won.

The Value of Thinking Geographically

The Snow example shows that thinking geographically involves much more than memorizing places on a map. Place locations are to geography what dates are to history. History is not merely about memorizing dates. To understand history is to appreciate how events, circumstances, and ideas came together at particular times to produce certain outcomes. Knowledge of history, of how different people created and experienced events that have developed over time, is critical to understanding who we are and where we are going.
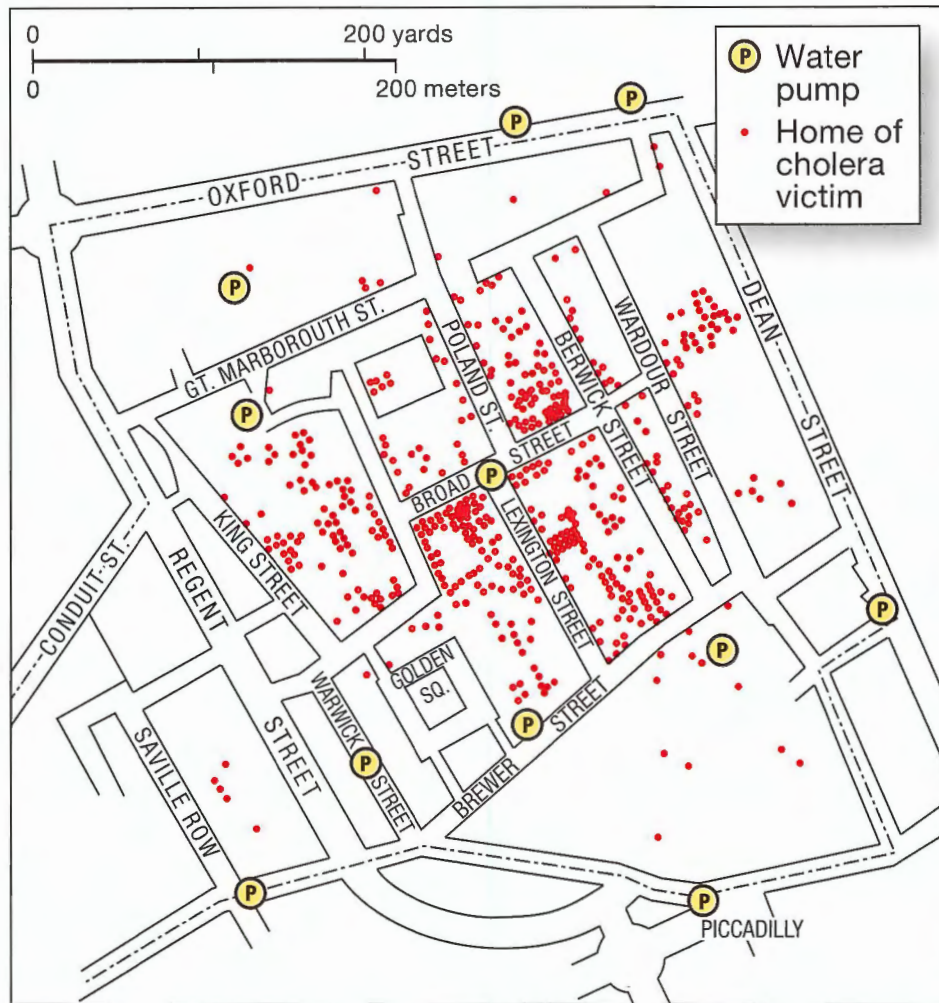
FIGURE 1.5 **Deaths from Cholera in the Soho Neighborhood of London, England, 1854.**
Dr. Snow mapped the deaths caused by cholera in the Soho neighborhood of London along with the locations of the water pumps and noticed a spatial correlation. Most of the deaths were clustered around a single water pump. As Dr. Snow's experience showed, maps are not just attractive or interesting representations of the world. Maps also help us understand and confront problems.

Understanding change across space is equally important to understanding change over time. The great German philosopher Immanuel Kant argued that we need disciplines focused not only on particular concrete attributes of the world around us (such as economics and sociology), but also on time (history) and space (geography). The disciplines of history and geography have intellectual cores defined by their perspectives as opposed to a particular subject of study. The **spatial perspective** that human geographers bring to studying the world offers a particular way of looking at a multitude of phenomena, ranging from political elections and urban slums to race and migration.

Because the spatial perspective gives insight across a broad range of topics, human geographers have careers as location analysts, urban planners, diplomats, remote sensing analysts, geographic information scientists, area specialists, travel consultants, political analysts, intelligence officers, cartographers, educators, soil scientists, transportation planners, park rangers, and environmental consultants. All of these careers and more are open to geographers because each of these fields requires a spatial perspective to understand people and places.

TC **Thinking Geographically**

Imagine you are studying the 2010 outbreak of cholera in Haiti before the United Nations admitted the role of their peacekeeping camp in the outbreak. Knowing cholera **diffuses** from bacteria in human waste that gets into the water supply, and thinking geographically like Dr. Snow did, determine what layers of data you would need to add to Figure 1.6 to find the **hearth**, the origin, of the outbreak in Haiti.
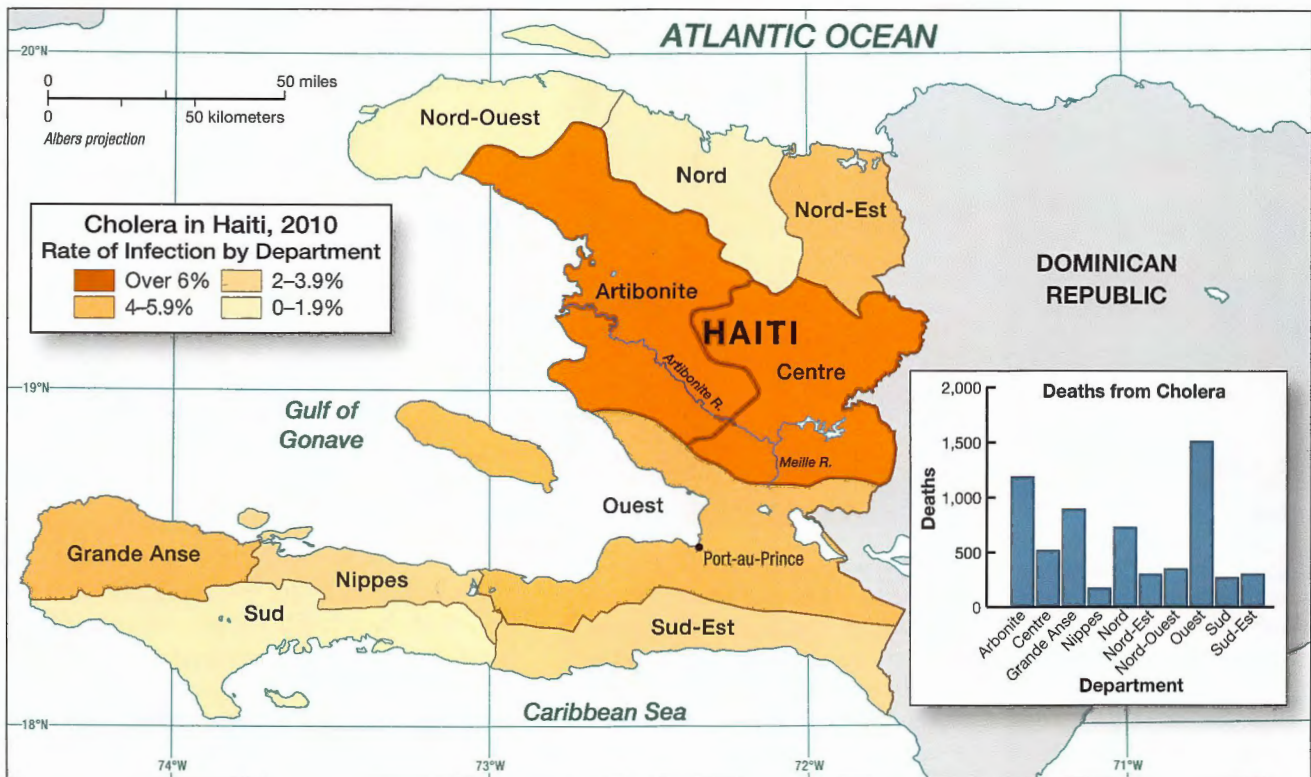
Data from: Centers for Disease Control, 2011. Visualization by E.H. Fouberg and A.B. Murphy. © 2020 John Wiley & Sons, Inc.

FIGURE 1.6 **Cholera in Haiti, 2010.** Artibonite and Centre departments were hit hard by a cholera outbreak in Haiti just after the 2010 earthquake. Sewage from a UN peacekeepers camp contaminated the Artibonite River with cholera bacteria. The cholera outbreak was amplified because a large number of Haitians displaced from Port-au-Prince fled to camps in Artibonite and Centre.

1.2 Identify and Explain Geography's Core Concepts.

Geographic concepts help us think geographically, make connections, and understand case studies. Eight major concepts in geography that both human geographers and physical geographers use to study the world include location (absolute and relative), human-environment interactions, region, place, movement, cultural landscape, scale, and context.[1]

Location

Location refers to the geographical position of people and things on Earth's surface. A concern with location underlies almost all geographical work. If we are studying a place or

[1]Four geography organizations in the United States formed the Geography Educational National Implementation Project in the 1980s with the goal of improving geography education in the United States. They identified five themes of geography: location, human–environment interactions, region, place, and movement. The other 3 concepts we incorporate in Chapter 1 are based on research on threshold concepts in geography conducted by Dr. Erin H. Fouberg. She found students identified four geographic concepts as threshold concepts, helping them think like expert geographers: scale, cultural landscape, context, and region (also one of the five themes).

a specific hazard, we need to know the **absolute location**, the precise location of a place, usually defined by locational coordinates (latitude and longitude). Geographers prefer to go to the location to do field work to see the place and meet the people. But location is not only about coordinates; it is about considering how the place plays a role in the larger region and how that affects what happens in the location and why. **Relative location** is the location of a place or attribute relative to another place or attribute. Absolute and relative location provide starting points for context. To understand what happened and why, you first need to know where—both in absolute and relative terms.

Geographers develop models describing the locational properties of particular phenomena—even predicting where things are likely to occur. Geographers, especially economic geographers, use **location theory** to answer theoretical and practical locations about where something should be located or why it is located where it is. An economic geographer who knows location theory might ask whether a Whole Foods should be built downtown or in a suburb. Using geographic information systems (GIS), the economic geographer would consider characteristics of existing neighborhoods and new developments, median incomes, locations of other shopping areas and grocery

pisaphotography/Shutterstock.com

FIGURE 1.7 **Florida Everglades.** The Florida Everglades are part of the watershed of Lake Okeechobee. When the lake overflows its banks, water drains downhill and south toward the tip of Florida, forming the Everglades, a tropical wetland that once covered the southern third of Florida. As early as 1881, developers and the U.S. Army Corps of Engineers built a series of dikes and canals to drain much of the Everglades to develop agriculture and urbanism on the land.

stores, and existing and future road systems. Similarly, a geographer could determine the best location for a wildlife refuge by analyzing existing wildlife habitats and migration patterns, human settlement patterns, land use, and road networks.

Human–Environment Interactions

Thinking geographically requires understanding the reciprocal (mutually affecting each other) relationship between humans and the physical world, a relationship geographers call **human–environment interactions**. People change environments and changing environments place pressure on people to react. For example, the U.S. Army Corps of Engineers drained part of the Florida Everglades, which changed the physical environment (**Fig. 1.7**). Changes in Florida's environment, including draining wetlands, flattening coastal sand dunes, building on barrier islands, and removing mangrove trees make an easier path of destruction for hurricanes. People respond by building up seawalls and infrastructure, creating new paths for water to flow, and erecting taller homes on stilts. Each human action will create new environmental impacts, which will spur another iteration of human-environment interaction. Thinking geographically often requires looking at the reciprocal relationship between humans and environments.

To understand how contemporary geographers look at human–environment interactions, it is easiest to start by defining what we do not do. The ancient Greeks noticed that some of the people who came within their expanding empire were relatively peaceful while others were rebellious, and they attributed such differences to differences in climate. Over 2000 years ago, Aristotle described northern European people as "full of spirit . . . but incapable of ruling others," and he characterized

Asian people (by which he meant the inhabitants of modern-day Turkey) as "intelligent and inventive . . . [but] always in a state of subjection and slavery." Aristotle attributed peoples' response to being taken over by an outside power to the climates of the regions where they lived. In his mind, the cold northern European environment encouraged people to rebel and the warmer climate of Southwest Asia forced people to become enslaved.

Aristotle's views on this topic had a long lasting impact. As recently as the first half of the twentieth century, similar notions still had strong support. In 1940, in the *Principles of Human Geography*, Ellsworth Huntington and C. W. Cushing wrote: "The well-known contrast between the energetic people of the most progressive parts of the temperate zone and the inert inhabitants of the tropics and even of intermediate regions, such as Persia, is largely due to climate . . . the people of the cyclonic regions rank so far above those of the other parts of the world that they are the natural leaders."

Huntington and Cushing claim that climate is the critical factor in how people behave. Yet what constitutes an "ideal" climate lies in the eyes of the beholder. For Aristotle, it was the Mediterranean climate of Greece. Through the eyes of more recent commentators from western Europe and North America, the climates most suited to progress and productiveness in culture, politics, and technology are (you guessed it) those of western Europe and the northeastern United States. These theories are examples of **environmental determinism**—the idea that individual and collective human behavior is fundamentally affected by, or even controlled by, the physical environment.

Environmentally deterministic theories that explain Europe as "superior" to the rest of the world because of its climate and location ignore the fact that for thousands of years, the most technologically advanced civilizations were not in Europe. The places where the agricultural and urban revolutions originally took place—their **hearths**, the area or place where an idea, innovation, or technology originates—were in North Africa, Southwest Asia, Southeast Asia, and East Asia, not Europe. The same can be said for the hearths of the world's major religions.

Chipping away at environmentally deterministic explanations helped move the human-environment interactions in more insightful directions. Everyone agrees that the natural environment affects human activity in some ways, but people are the decision makers and the modifiers—not just the slaves of environmental forces. People shape environments, constantly altering the landscape and altering environmental systems.

In response to environmental determinism, geographers argued that the natural environment merely serves to limit the range of choices available to a culture. The choices that a society makes depend on what its members need and on what technology is available to them. Geographers called this doctrine **possibilism**.

Even possibilism has its limitations, partly because it encourages a line of inquiry that starts with the physical environment and asks what it allows. Human cultures, however, frequently push the boundaries of what is "environmentally possible" through their own ideas and advances in technology. For example, one theory in sustainable development is **carrying capacity**, which holds that an area of land can support a certain number of people and species. While carrying capacity makes intuitive sense, it is not easy to identify a particular area of land's carrying capacity. Also, in the interconnected, technologically dependent world, it is possible to transcend many of the limitations imposed by the natural environment.

Today, much research in human geography focuses on how and why people have altered their environment and on the sustainability of their practices. In the process, two overlapping fields of study have developed: cultural ecology and political ecology. **Cultural ecology** is concerned with culture as a system of adaptation to and alteration of the environment. **Political ecology** is fundamentally concerned with the environmental consequences of dominant political-economic arrangements and assumptions (see Chapter 13). The fundamental point is that human societies are diverse and the human will is too powerful to be determined by environment.

Barcroft Media/Getty Images

FIGURE 1.8 Guilin, China.   The South China karst region, bisected here by the Li River outside Guilin, is a UNESCO World Heritage Site. The landforms of the region clearly distinguish it from surrounding areas.

Regions

Regions are another central concept in geography. A **region** is an area of Earth with a degree of similarity that differentiates it from surrounding areas. Human phenomena (e.g., languages and religions) and physical phenomena (e.g., tornadoes and earthquakes) are not evenly distributed across Earth. Instead, they tend to be concentrated in regions. A region can be an area dominated by an individual feature, such as the Corn Belt in the United States or the French-language region in Canada. Regions can also be products of political developments (the European Union) or people's perceptions (the Midwest).

Geographers use fieldwork and both quantitative and qualitative methods to develop descriptions of different regions of the world. Novelist James Michener once wrote that whenever he started writing a new book, he first prepared himself by turning to books written by regional geographers about the area where his book would be set. Understanding the regional geography of a place allows us to make sense of much of the information we have about it.

Formal Regions   Geographers identify three kinds of regions: formal, functional, and perceptual. A **formal region** has a shared trait, either physical or cultural. A formal physical region shares a certain geographic feature, such as the karst

region of China (**Fig. 1.8**). In a formal cultural region, people might share one or more **cultural traits**. For example, the region of Europe where French is spoken by a majority of the people is a formal region. Whether physical or cultural, when we change the scale of analysis, the formal region changes. If we move up to the global scale, the karst region globally includes limestone regions along coastlines and in interiors of continents that were historically under water. At the global scale, the French-speaking formal region expands beyond France to include former French colonies of Africa, French Quebec, and overseas territories that are still under control of the French government.

Functional Regions   A **functional region** is an area that shares a common purpose. Functional regions have **nodes**, places that function as central connecting points for a functional region. Functional regions have a shared political, social, or economic purpose. For example, a city has a commuter flow region (see **Fig. 9.18**) that can also be considered a trade regions. People drive into the major city to work, shop, or visit doctors. Trade regions or commuter flow regions are functional regions. The function is shopping or work, and the major city to which people flow is the node.

Functional regions are often culturally diverse. A functional region is not defined by similar cultural traits, but rather by the fact that the people within the region function together politically, socially, or economically. Connections to the node help define the boundaries of a functional region. For example, the city of Chicago is a functional region because the people within the city's limits pay city taxes, look to the city for services, and vote in city elections. Once you start thinking about functional regions, you will realize that at this moment you are in hundreds or thousands of functional regions at the same time.

A neighborhood in Chicago is part of the city, a delivery zone for a restaurant, a school district, a trade region, the state of Illinois, the seventh Federal Reserve district, and hundreds (maybe thousands) more. Each functional region the neighborhood is in has a purpose or a function—whether political, social, or economic.

Perceptual Regions   Perceptual regions are images people carry in their minds based on accumulated knowledge of peoples, places, and things (**Fig. 1.9**). Perceptual regions can include people and their cultural traits (dress, food, language, and religion), places and their physical traits (mountains, plains, or coasts), and built environments (windmills, barns, skyscrapers, or beach houses). For example, Cajun country in the U.S. Southeast is associated with particular foods like étoufée and jambalaya and also a joie de vivre (joy of life)—a positive disposition people share that is centered on families and communities.

Whether we are conscious of it or not, we use perceptual regions to make sense of the world. When a news report says something happened "in the Middle East," we have perceptions of where the Middle East is and what the region looks like. Our perceptual regions can change over time. Before September 11, 2001, most Americans thought the Middle East region included Iraq and Iran, but stretched no farther east. As the hunt for Osama bin Laden began and the media focused attention on the harsh rule of the Taliban in Afghanistan, perceptions of the Middle East changed. For many Americans, their perceptions of the Middle East stretched east to include Afghanistan and Pakistan. Scholars who specialize in this part of the globe had long studied the relationship among parts of Central Asia, South Asia, and the traditional "Middle East," but prior to 9/11 the connections between Afghanistan and Pakistan and the rest of the Middle East were almost invisible to most Americans.

Perceptual regions are also called vernacular regions. A vernacular is a local language people use to communicate. A **vernacular region** is a perceptual region that has such strong significance to the people in the perceptual region that it becomes the lens through which they see their world and a way people identify themselves. For example, if Cajun people identify strongly with a Cajun region in Louisiana, they may see things happening at the scale of Louisiana or the scale of the U.S. in terms of how the happenings impact Cajun country. Driving through the Cajun region, you may see signs saying things like "This is Cajun country!" or "Welcome to Cajun country." By calling themselves a region and identifying strongly with that region, the perceptual region of Cajun country has become vernacular—part of the language used to make sense of the people and the place.

Perceptual Regions in the United States   Cultural geographer Wilbur Zelinsky analyzed the names businesses chose in major cities to identify 12 perceptual regions in the United States and southern Canada. To make his regional map of the United States, Zelinsky analyzed telephone directories of 276 metropolitan areas in the United States and Canada, noting the frequency with which businesses and other enterprises use regional or locational terms (such as *Southern Printing Company* or *Western Printing*) in their listings.
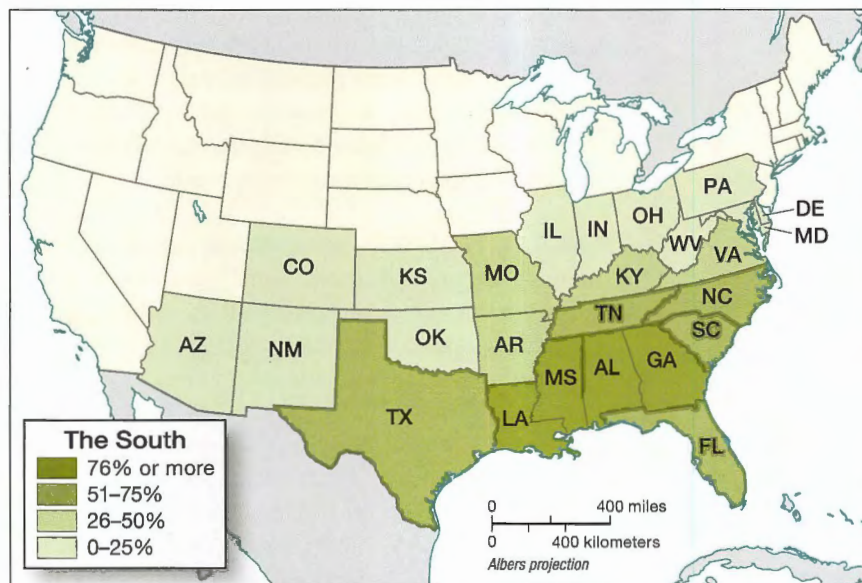
The resulting map of Zelinsky's perceptual regions (**Fig. 1.10**) may align well with formal cultural regions based on ethnicity, race, settlement patterns, and shared history identified by geographers. When you examine Zelinsky's map, you will notice that some of the regions overlap in certain places. For example, the more general term *the West* incorporates part of the Northwest and part of the Southwest. Like formal regions, perceptual regions often overlap and do not have clear-cut boundaries.

Perceptual regions are not static. How we identify different regions and how people in the perceptual regions see themselves and their region changes over time. The perceptual region of the South has changed since the civil rights movement of the 1960s (**Fig. 1.11**). A "New South" has emerged, forged by immigration from other countries, urbanization, and the movement of people from other parts of the United States to the South. At the same time, the South continues to carry imprints of a culture with deep historical roots through language, religion, music, food preferences, and other traditions and customs.

The South
- 76% or more
- 51–75%
- 26–50%
- 0–25%

0   400 miles
0   400 kilometers
Albers projection

FIGURE 1.9   **The South.**   The boundaries of perceptual regions are difficult to define precisely. Nate Silver's blog FiveThirtyEight (owned by ESPN) teamed up with SurveyMonkey to poll people on the web who identified themselves as a Midwesterner or Southerner "a lot" or "some," and generated maps of the perceptual regions of those who identify with the regions. Lifestyle editor Walt Hickey analyzed the data and found Midwesterners have less agreement on what states are in the region (Illinois was chosen most frequently, with 80 percent agreeing it's part of the Midwest), whereas Southerners have a clearer idea of the states definitively in the South (about 90 percent agreed Georgia and Alabama are in the South and more than 80 percent put Louisiana and Mississippi in the South).
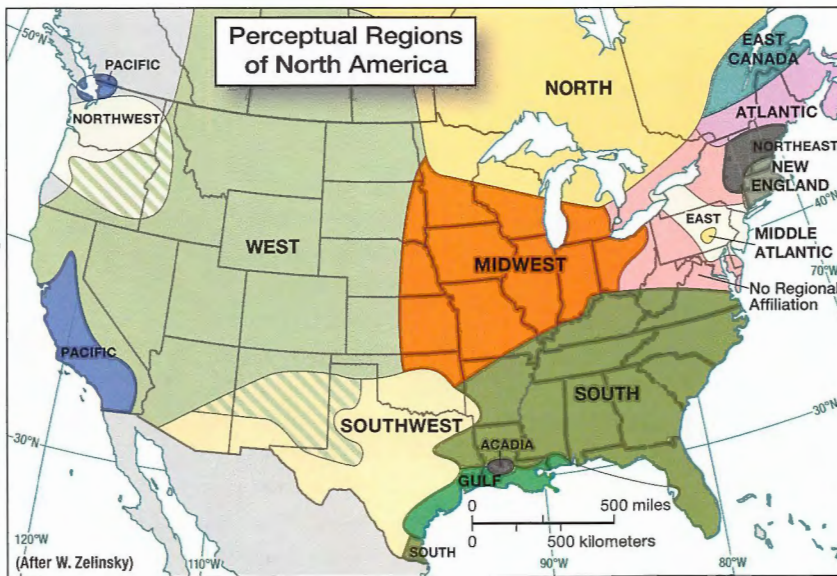
FIGURE 1.10 **Perceptual Regions of North America.** This map represents geographer Wilbur Zelinsky's research on perceptual regions in the United States and southern Canada.

If you drive southward from, say, Pittsburgh or Detroit, you will not pass a specific place where you enter the South. You will note features in the cultural landscape that you perceive to be associated with the South (such as Waffle House restaurants), and at some stage of the trip these features will begin to dominate the landscape to such a degree that you will say, "I am really in the South now." This may result from a combination

of features in the culture: the style of houses and their porches, items on a roadside restaurant menu (grits, for example), a local radio station's music, the sound of accents that you perceive to be Southern, a number of Baptist churches in a town along the way. These combined impressions become part of your overall perception of the South as a region.

Regions, whether formal, functional, or perceptual, are ways of organizing people and places geographically. Regions are a form of spatial classification, a kind of shorthand used to handle large amounts of information so we can make sense of people and places.

Place

A fourth major geographical concept is captured by the seemingly simple word **place**, the uniqueness of a location. All places have unique human and physical characteristics, and one of the purposes of geography is to study the special character and meaning of places. Geographers pay attention to the attributes that create places and consider how the complex of attributes in a place shapes what happens and why. One of geography's core ideas is that *what* happens is often influenced by *where* it happens. Place matters. Since no two places are the same, a

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Guest Field Note   Standing at the Corner of Rosa Parks and Jefferson Davis in Montgomery, Alabama

Jonathan Leib
Old Dominion University

Located in a predominantly African American neighborhood in Montgomery, Alabama, the street intersection of Jefferson (Jeff) Davis and Rosa Parks is symbolic of the debates and disputes in the American South over how the past is to be commemorated on the region's landscape. The Civil War and civil rights movement are the two most important events in the history of the region. The street names commemorate Montgomery's central role in both eras, and they do so in the same public space. Montgomery was the site of the first capital of the Confederacy in 1861 while Jefferson Davis was president. The Alabama capital was also the site of the 1955-1956 Montgomery bus boycott that launched the civil rights movement. The boycott was sparked by Rosa Parks's arrest after she refused to give up her seat on a city bus when ordered to do so by a white person. Most of my research examines the politics of how the region's white and African Americans portray these separate heroic eras within the region's public spaces, ranging from support for and against flying the Confederate flag to disputes over placing statues and murals honoring the Civil War and the civil rights movement in the South's landscape.

FIGURE 1.11 **Montgomery, Alabama.**

Source: Adapted from P.R. Gould and R. White, Mental maps. Harmondsworth: Penguin Books, 1986, pp. 55 and 58.

Where Pennsylvanian Students Prefer to Live

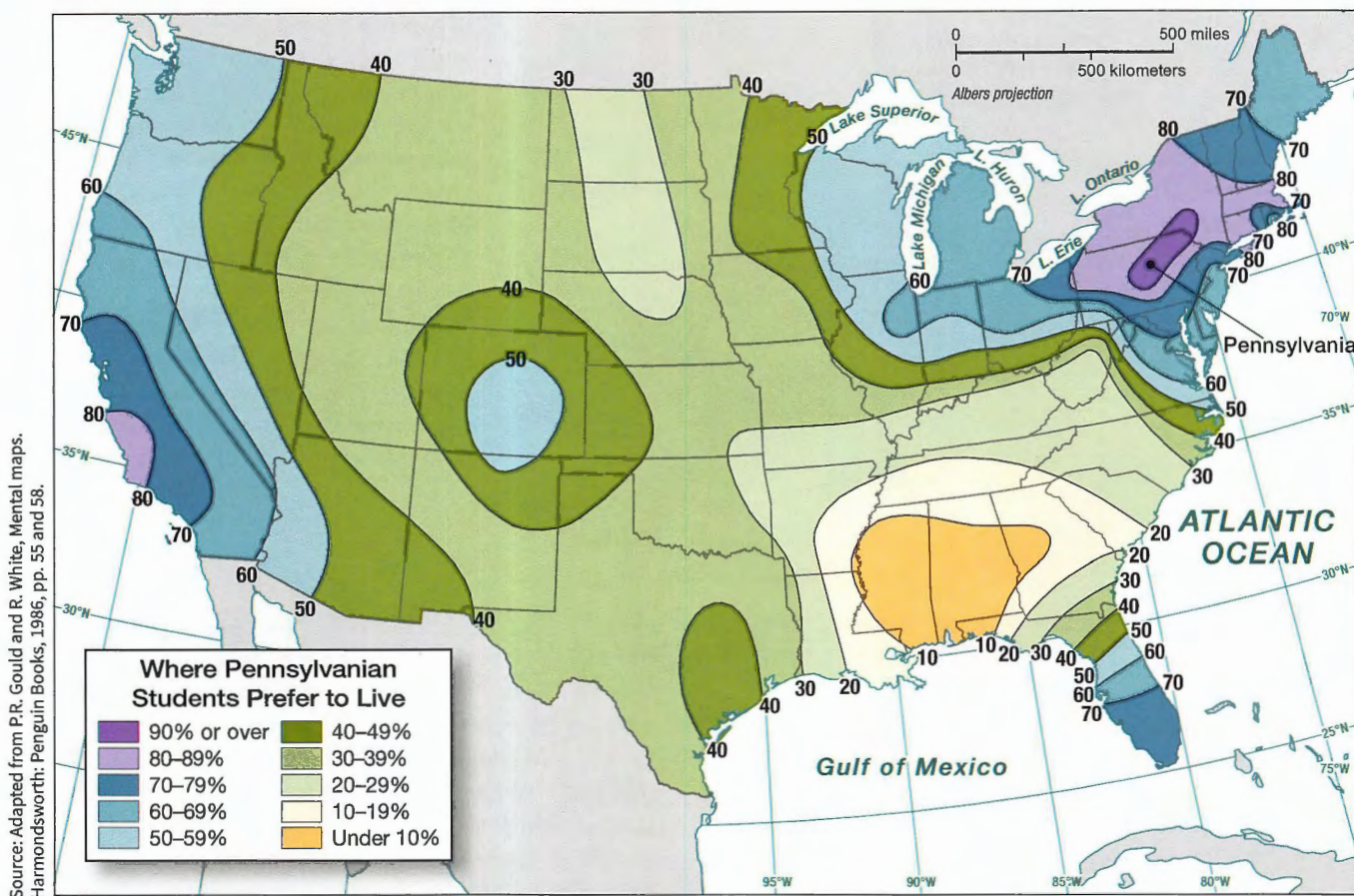|	
90% or over	40–49%
80–89%	30–39%
70–79%	20–29%
60–69%	10–19%
50–59%	Under 10%

FIGURE 1.12 **Desirable Places to Live.** Proximity affects the impressions students have of other places—but so do stereotypes about certain parts of the country. How would this map look if we took a survey of Pennsylvanian and Californian college students now? Would the South be more desirable with the growth of the Sun Belt?

similar issue, like whether to allow a Walmart to be built in a residential neighborhood, will play out in different ways.

Through experiences we have in places, we assign meaning and emotion to places. People develop a **sense of place** by infusing a place with meaning and emotion, by remembering important events that occurred in a place, or by labeling a place with a certain character. Because we experience and give meaning to places, we can have a feeling of "home" when we are in a certain place. We can also infuse negative memories or experiences in a place and develop a negative sense of place.

We also develop **perceptions of places** where we have never been through reading books, watching movies, hearing stories, and seeing pictures. Geographers Peter Gould and Rodney White asked college students in California and Pennsylvania: "If you could move to any place of your choice, without any of the usual financial and other obstacles, where would you like to live?" Student responses showed a strong bias for their home region and revealed that students from both regions had negative perceptions of the South, Appalachia, the Great Plains, and Utah (**Fig. 1.12**). Experiences we have had in places, lack of experience in other places, and images we get from books, movies, and even video games shape our perceptions of places.

Movement

Movement refers to the mobility of people, goods, and ideas. Movement is an expression of the interconnectedness of places. Movement is so important in geography that several other geographic concepts can be considered part of movement. Two of the most important concepts in geography, migration and diffusion, are part of the larger theme of movement. We dedicate Chapter 3 to migration, so, in this section of the chapter, we focus primarily on diffusion. Geographic concepts are often interconnected and can be used together to think geographically. As you read about the concepts in this section, think about how each ties into the larger idea of movement and how each concept is connected to the others.

Diffusion is the spread of an idea, innovation, or technology from its hearth (origin) to other people and places. Whether and how something diffuses depends on the amount of interaction between and among places. If people in two places interact frequently through trade, cultural traits like language, religion, and clothing styles are more likely to diffuse between the two places. **Spatial interaction** between places depends on the **distances** between places (the measured
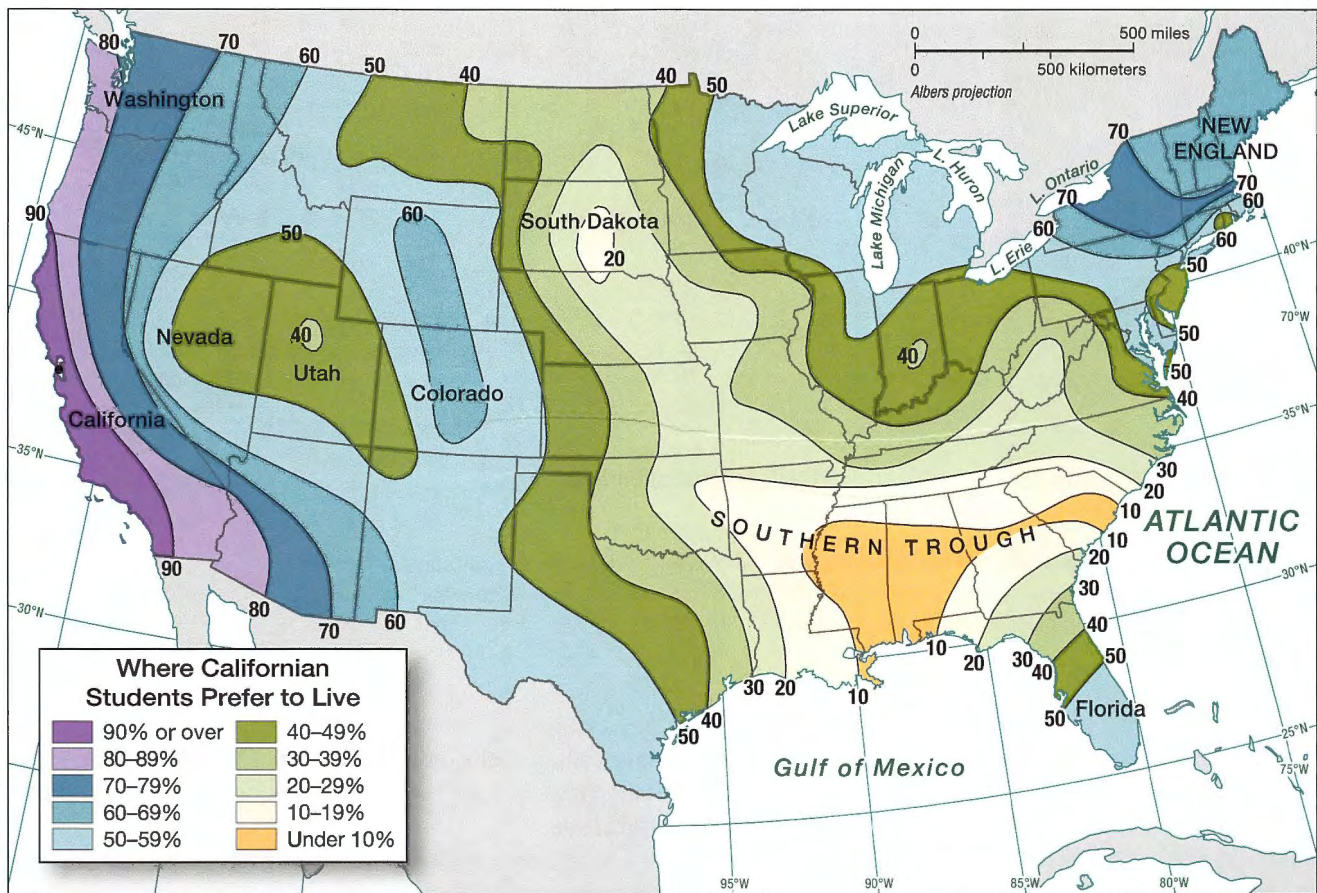
FIGURE 1.12 (continued)

physical space), the **accessibility** of places (the ease of reaching one location from another), and the transportation and communication **connectivity** among places (the degree of linkage between locations in a network).

The diffusion process depends, in part, on the time and distance from a hearth. In 1970, Swedish geographer Torsten Hägerstrand published pioneering research on the role of time in diffusion. Hägerstrand's research revealed how time, as well as distance, affects individual human behavior and the spread of people and ideas. Hägerstrand's fascinating research attracted many geographers to the study of diffusion. As a general rule, the farther a place is from a hearth, the less likely an innovation will spread there and be adopted. Similarly, the acceptance of an innovation becomes less likely the longer it takes to reach its potential adopters. In combination, time and distance cause **time–distance decay** in the diffusion process.

Not all traits or innovations diffuse. Existing cultural preferences or taboos in a place can make it less likely for certain innovations, ideas, or practices to diffuse. Religious beliefs may work against the adoption of certain practices or ideas, such as divorce, abortion, or contraceptive use, on theological or moral grounds. Some cultures or religions prohibit consumption of alcoholic beverages, and others prohibit consuming certain kinds of meat or other foods. A new food product that includes pork will not diffuse into predominantly Muslim or Jewish regions because followers of these religions are expected not to consume pork.

Geographers distinguish between two major types of diffusion: expansion and relocation. Within expansion diffusion, geographers identify three types of expansion diffusion: contagious, hierarchical, and stimulus.

Expansion Diffusion

Expansion diffusion describes an innovation or idea that develops in a hearth and remains strong there while also spreading outward (**Fig. 1.13**). An example is the expansion of Islam. Islam's hearth was on the Arabian Peninsula. From there, Islam diffused to Egypt and North Africa, through Southwest Asia, into West Africa, and later to the east, even as it remained strong on the Arabian Peninsula.

When expansion diffusion occurs primarily as result of person-to-person contact, it is called **contagious diffusion** (see Fig. 1.13). The clearest example is the diffusion of a disease through a community. For example, a student comes to class with a case of the flu and will infect those seated nearby, who then interact with and infect others close to them. Cultural traits can also diffuse through contagious diffusion. An example might be someone coming to school wearing a new style of shoes, which then classmates see and adopt, and then fashion choice spreads from there.
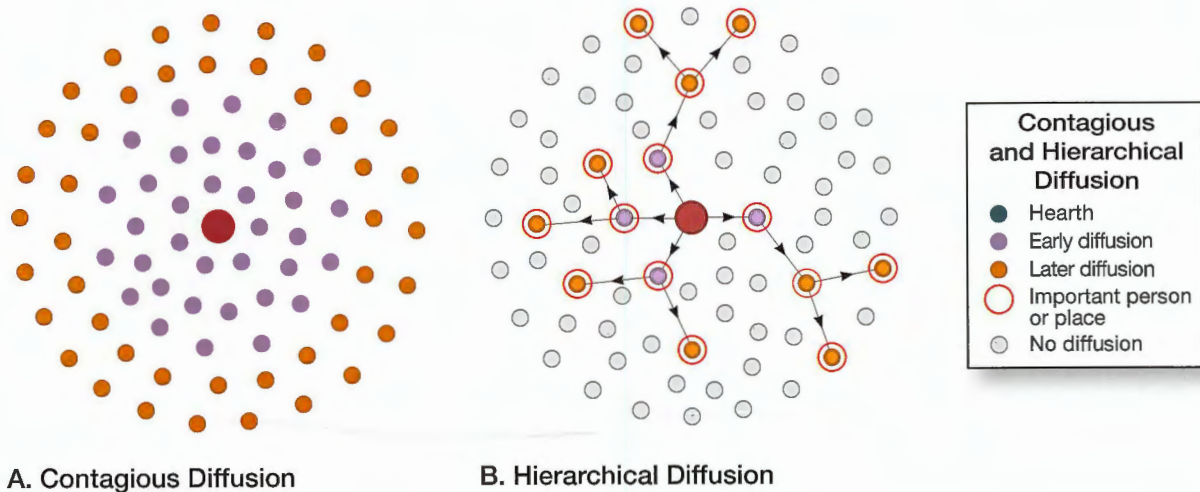
A. Contagious Diffusion

B. Hierarchical Diffusion

Contagious and Hierarchical Diffusion
- Hearth
- Early diffusion
- Later diffusion
- Important person or place
- No diffusion

FIGURE 1.13 **Contagious and Hierarchical Diffusion.** In contagious diffusion, the trait spreads from the hearth outward contiguously and evenly. In hierarchical diffusion, the trait spreads from the hearth to the most linked or most important people or places first.

When a trend or innovation diffuses quickly, it sometimes seems to come out of nowhere and then suddenly "explode" and be seen virtually everywhere. Kevin Plank, a graduate of the University of Maryland who played football as a walk-on for the Terrapins, invented a heat gear shirt that wicked away sweat and functioned as a cooling layer under football gear. Plank called his new body-hugging gear Under Armour. He gave samples of heat gear Under Armour shirts to his friends at the University of Maryland and to friends at other football teams in the East Coast Conference (**Fig. 1.14**). The first "knowers" of the new Under Armour brand were football players connected to Kevin Plank or to college teams on the east coast.

The spread of Under Armour heat gear is a case of **hierarchical diffusion** (see Fig. 1.13), a type of expansion diffusion that starts with the knowers, those who have already adopted the idea or innovation, and then diffuses through a hierarchy of most linked people or most linked places. Fashion houses in Paris, Milan, and New York create new styles, which then diffuse hierarchically first among the people most connected to the fashion industry, then to major companies that make affordable fashion sold in malls and online, and eventually to shoppers.

When an innovation, trait, or technology diffuses hierarchically, it reflects how power is distributed in the underlying political, social, or economic system. In our fashion example, those with the greatest power in the industry are the first "knowers," and then the next to become adopters are the next most powerful. The diffusion of cultural traits like religion and language also occurs hierarchically and follows the underlying distribution of power. For example, during the Roman Empire, the Latin language diffused from Rome through military and political hierarchies. When the empire conquered lands, young people were required to join the army, and to move up through the ranks, they had to learn Latin. Latin also diffused through the

political hierarchy. Roman senators spoke Latin, and Rome issued laws in Latin. In the empire's provinces, judges ruled using Latin.

Rarely do ideas, innovations, or technologies diffuse only contagiously or only hierarchically. At first, Under Armour diffused contagiously from the founder to his friends on different football teams to their friends. The first adopters were college football athletes who were trying to stay cool and keep their clothing light while practicing in the hot sun twice a day. Friends of football athletes, such as lacrosse and soccer players who also

Mitchell Layton/Getty Images

FIGURE 1.14 **College Park, Maryland.** Under Armour designs the uniforms for their flagship university partner, the University of Maryland. Since 2013, Under Armour has incorporated elements of the state of Maryland's red, black, gold, and white flag into jerseys, helmets, and gloves.

practiced their sports in the sun, saw Under Armour and also adopted it. Under Armour also diffused hierarchically. The company's heat gear diffused from college and professional football players to young athletes who, as fans, took note of the Under Armour logo on their favorite players' sportswear and wanted to wear what their idols were wearing. Eventually, Under Armour diffused to non-athletes who saw people they knew wearing Under Armour clothing and bought the gear as a fashion trend—expanding Under Armour's revenue base from $200 million in 2004 to $5 billion in 2017.

When an innovation, trait, or technology gains popularity through diffusion, it often spurs spin-off ideas and new products. For example, college and professional athletes whose teams had contracts with Nike or Adidas wanted to wear heat gear clothing, and some wore Under Armour beneath their Nike and Adidas uniforms. This prompted Nike, Adidas, and other athletic companies to offer their own performance gear, including compression shirts, compression shorts, and sports bras bearing their logo. Under Armour acted as a stimulus to Nike's Pro Performance line and Adidas's Clima Ultimate line. Under Armour's performance line prompted stimulus diffusion or local experimentation and change in the Nike and Adidas brands. **Stimulus diffusion** is the third type of expansion diffusion and is the process of diffusion where two cultural traits blend to create a distinct trait.

Cultural traits or practices that are already held by a people in a place can encourage stimulus diffusion. Not all ideas can be readily and directly adopted by a receiving population; some are simply too vague, unattainable, different, or impractical for immediate adoption. Nonetheless, a new idea may indirectly promote local experimentation and eventual changes in ways of doing things. For example, the diffusion of fast, mass-produced food in the late twentieth century led to the introduction of hamburgers to India. Approximately 80 percent of India's 1.3 billion people are Hindu. In Hinduism, cows are considered holy and followers of the religion are expected to not consume beef. The prohibition of beef consumption is a major cultural obstacle to adoption of the hamburger (**Fig. 1.15**). In India, retailers like McDonald's began selling burgers made of vegetable products. Thus the diffusion of the hamburger stimulated a new form in the cultural context of India.

Relocation Diffusion

With expansion diffusion, whether contagious, hierarchical, or stimulus, people stay in place and the innovation, idea, trait, or disease moves. **Relocation diffusion** occurs when an idea or innovation spreads from its hearth by the action of people moving and taking the idea or innovation with them. Relocation diffusion primarily happens through migration. When migrants move from one place to another, they take their culture traits with them. Developing an ethnic neighborhood in a new country helps migrants maintain their culture in the midst of an unfamiliar one (see Chapter 4). Relocation diffusion involves the actual movement of individuals who have already adopted the idea or innovation and who carry it to a new, perhaps distant, locale, where they proceed to disseminate it (**Fig. 1.16**). Relocation diffusion can even help maintain cultural traits and customs. If the homeland of migrants loses enough of its population, cultural traits and customs may fade in the hearth while gaining strength in the ethnic neighborhoods abroad.

Agence France Presse/Douglas E. Curran/Hulton Archive/Getty Images

Photo by A.B. Murphy. © 2020 John Wiley & Sons, Inc.

FIGURE 1.15 **New Delhi, India (A) and Jodhpur, India (B).** Hindus believe cows are holy, and in India, evidence of that can be seen everywhere from cows roaming the streets to the menu at McDonald's. In 1996, the first McDonald's restaurant opened in New Delhi, India, serving Maharaja Macs and Vegetable Burgers with Cheese. In Indian towns, such as Jodhpur, cows are protected and share the streets with pedestrians, bicyclists, and motorists.

Photo by E.H. Fouberg. © 2020 John Wiley & Sons, Inc.

FIGURE 1.16   San Francisco, California.   Migrants from China started coming to North America in the mid- to late nineteenth century. They played an important role in developing the economy. Many ended up in neighborhoods called Chinatowns—not simply because they wanted to live together, but because discrimination made it difficult for them to live elsewhere. The San Francisco Chinatown was one of the largest. Those who settled there brought with them customs and practices that are still very much in evidence today.

Cultural Landscape

Geographers use the term *landscape* to refer to the material character of a place, the complex of natural features, human structures, and other tangible objects that give a place a particular form. Human geographers are particularly concerned with the **cultural landscape**, the visible imprint of human activity on the land. Reading cultural landscapes provides insights into the practices and priorities of those who shaped the landscape over time. Former University of California at Berkeley professor Carl Sauer explains cultural landscapes are composed of the "forms superimposed on the physical landscape" by human activity.

No place on Earth is untouched. People have made an imprint on every place on Earth (**Fig. 1.17**). Physical environments like mountains and glaciers have the imprint of people and are part of the cultural landscape. Built environments like buildings, roads, memorials, churches, fields, and homes are also part of the cultural landscape. Each culture makes its own imprint on the landscape, which creates layers of cultural landscapes in one place.

Cultural landscapes can reflect long periods of human activity. As each group of people arrives and occupies a place, they carry their own technological and cultural traditions and transform the landscape in their own way. In 1929 Derwent Whittlesey used the term **sequent occupance** to describe the imprint made by a series of people living on a landscape—each

creating a layer on top of the one that came before. The Tanzanian city of Dar es Salaam provides an interesting example of sequent occupance. Arabs from Zanzibar first chose the site for the African city in 1866 as a summer retreat. Next, German colonizers imprinted a new layout and architectural style for homes and government buildings (half-timbered Teutonic) when they chose the city as the center of their East African colonies in 1891.

After World War I, when the Germans were ousted, a British administration took over the city and began yet another period of transformation. The British encouraged immigration from their colony in India to Tanzania. The new migrant Asian population created a zone of three- and four-story apartment houses, which look as if they were transplanted from Bombay (now Mumbai), India (**Fig. 1.18A and B**). Then, in the early 1960s, Dar es Salaam became the capital of newly independent Tanzania. The city experienced four stages of cultural dominance in less than one century, and each stage of the sequence remains imprinted on the cultural landscape.

A cultural landscape offers clues to the cultural practices, values, and priorities of its layers of occupants. As geographer Peirce Lewis explained in *Axioms for Reading the Landscape* (1979), "Our human landscape is our unwitting autobiography, reflecting our tastes, our values, our aspirations, and even our fears, in tangible, visible form." Like Whittlesey, Lewis recommended looking for layers of history and cultural practice in cultural landscapes, adding that most major changes in the cultural landscape occur after a major event, such as a war, a technological revolution, or an economic depression.

Scale

Geographers study places and patterns across scales, including local, regional, national, and global. **Scale** has two meanings in geography: The first refers to the distance on a map compared to the distance on Earth, and the second is the spatial extent of something—the scale of an individual, a family, city, a state, a watershed, a continent, a region, or the world. When we refer to scale, we are typically using the second definition because this way of thinking about scale impacts how we interpret patterns and factors of both human and physical phenomena.

Geographers' interest in the second type of scale derives from the fact that something found at one scale is usually influenced by what is happening at other scales. The growth of a city, for example, may well be the product of economic forces unfolding at the scale of a state, a region, or the world. Explaining a geographic pattern or process requires looking across scales. The scale of research or analysis matters because we can make different observations at different scales. We can study a single phenomenon across different scales to see how what is happening at the global scale affects what is happening at the local scale and vice versa. Or we can study something at one scale and then ask how processes at other scales affect what we are studying. For example, if you want to understand

Author Field Note   Hiking through Glacier National Park, Montana

"Hiking to the famed Grinnell Glacier in Glacier National Park brings you close to nature, but even in this remote location people have made an imprint on the landscape. The parking lot at the start of the six-mile trail, the trail itself, and the small signs en route are only part of the human imprint. When I hiked around the turn in this valley and arrived at the foot of the glacier, I found myself looking at a sheet of ice and snow that was less than a third the size of what it had been in 1850. Human-induced climate change is changing glaciated areas around the world. If the melt at Glacier National Park continues at present rates, scientists predict this glacier will be gone by 2030."

– A.B. Murphy

Photo by A.B. Murphy. © 2020 John Wiley & Sons, Inc.

FIGURE 1.17   **Glacier National Park, Montana.**

the conflict between Arabs and Kurds in Syria, you cannot look solely at Syria. Developments at a variety of different scales, including histories of relations among people at the local scale, regional patterns of migration, economic and political relations between Syria and its neighbors, and global involvement by the United States and Russia in the region all affect the conflict.

The scale at which we study a geographic phenomenon influences what we see. When we study the distribution of material wealth at the global scale (see Fig. 1.3), we see that the countries in western Europe, Canada, the United States, Japan, and Australia have the highest GNI per capita, and the countries of sub-Saharan Africa and Southeast Asia have the lowest GNI per capita. Does that mean that everyone in the United States has higher incomes while everyone in Indonesia has lower incomes? Certainly not, but at the global scale, that is how it looks.

When you shift scales to North America and examine median household income for the states of the United States and the provinces of Canada (**Fig. 1.19**), you see that the highest income areas are on the coasts and the lowest incomes are in northeastern Canada and the South. The state of Alaska and

Photo by A.B. Murphy. © 2020 John Wiley & Sons, Inc.

Photo by A.B. Murphy. © 2020 John Wiley & Sons, Inc.

FIGURE 1.18A AND B   **Mumbai, India (A) and Dar-es-Salaam, Tanzania (B).**   Apartment buildings throughout Mumbai (formerly Bombay), India, are typically four stories with balconies. In Dar-es-Salaam, Tanzania, this four-story walkup with balconies (right) stands where single-family African dwellings once stood, reflecting the sequent occupance of the city, as migrants from India left their imprint on Dar-es-Salaam.

the Northwest Territories have high median household incomes, supplemented by oil revenues shared among residents.

By shifting scales again to a single city, such as metropolitan Washington, D.C. (**Fig. 1.20**), you observe that suburbs west, northwest, and southwest of the city have the highest incomes and that suburbs to the east and southeast have lower income levels. In the city itself, a clear dichotomy of wealth divides the northwest neighborhoods from the rest of the city. Shifting scales again to households or individuals, if you interviewed people who live below the poverty line in Washington, D.C., you would quickly find that each person's experience of poverty and reasons for being in poverty are unique. You might find some trends between groups—women, for example, might have different experiences than men—but no two individual cases are exactly the same.

Because the level of detail and the patterns observed change as the scale changes, geographers must think about the scale of analysis they use. We must also be wary of generalizations about people or places that fail to consider how the scale of analysis affects the generalization.

Jumping Scales   Geographers are also interested in how people use scale politically. Locally based political movements, like the Zapatistas in southern Mexico, have learned to **rescale** their actions to involve players at other scales and to create global support for their position. Zapatistas gained attention from the global media by broadening their protests against international trade agreements to the national scale and using the Internet to develop a global campaign. Relatively few political movements achieve that kind of exposure.
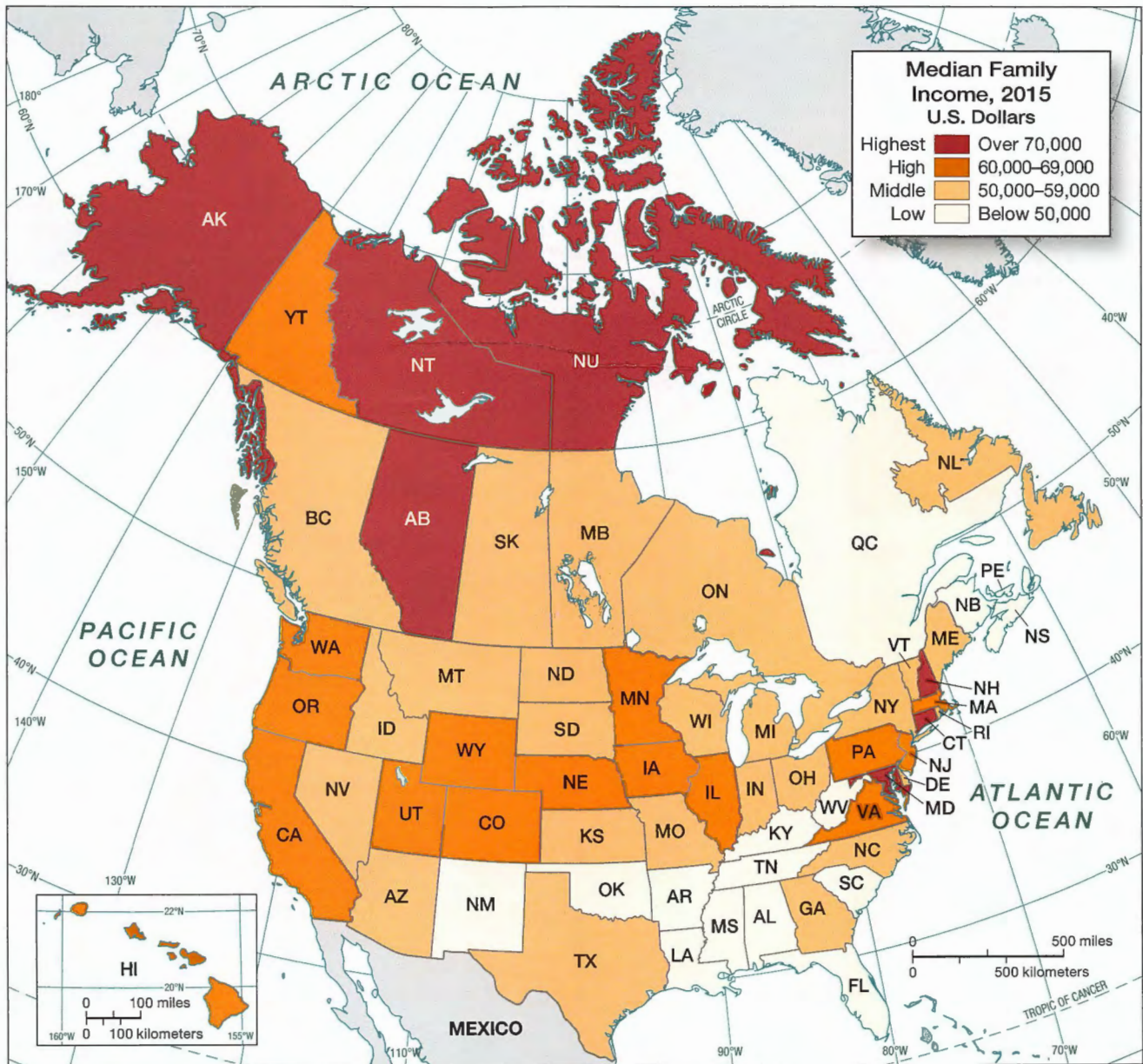
Geographer Victoria Lawson uses the term *jumping scale* to describe such rescaling activities. She compares the ways in

which Western countries, multinational corporations, and the World Trade Organization take products and ideas created in Western places by Western corporations and globalize all rights to profits from them through intellectual property law. Efforts to push Western views of intellectual property challenge other local and regional views of products and ideas. To the West, rice is a product that can be owned, privatized, and bought and sold. To many East Asians, rice is integral to culture, and new rice strains and new ideas about growing rice can help build community, not just profit. Taking the view of a single region (the West) and globalizing it (i.e., jumping scales) can serve to make that globalized view seem legitimate and appropriate for all places, while undercutting regional and local views.

Context

Context is the bigger picture in which a human or physical geography phenomenon takes place. It is the physical and human geographies that give meaning to the place, environment, and space in which events occur and people act. When you think about relative location, the historical geography of the people and place, or analyzing a geographic phenomenon across scales, you are thinking in terms of context.

Geographers do not see the world as a static stage upon which actions take place. Rather, geographers think about context. We consider how the bigger picture, including the human and physical geographies of a place, create a dynamic, ever-changing world. And we think about context in order to appreciate that cultural traits and meanings of symbols are not the same in different places or among different people. For example,

Median Family Income, 2015 U.S. Dollars

Highest	Over 70,000
High	60,000–69,000
Middle	50,000–59,000
Low	Below 50,000

Data from: United States Census Bureau and Statistics Canada, 2015. Visualization by E.H. Fouberg and A.B. Murphy. © 2020 John Wiley & Sons, Inc.

FIGURE 1.19   Median Family Income (in U.S. Dollars).   The relatively higher incomes of Canadian provinces and the East Coast of the United States stand out. The relatively lower incomes of the American South also stand out on the map.

Rosa Parks Street (see Fig. 1.11) has a different meaning in Montgomery, Alabama, where segregation was entrenched and where Parks launched the Montgomery bus boycott began, than the Rosa Parks Street on the campus of Ohio State University in Columbus, Ohio. Montgomery and Columbus provide different contexts, which create different meanings to the presence of a street sign commemorating Rosa Parks.

Why Thinking Geographically Matters

Our world consists of nearly 200 countries, a diversity of religions, thousands of languages, and a wide variety of settlement types, ranging from small villages to enormous world cities. All of these attributes come together in different ways around the globe to create a world of endlessly diverse people, places, and cultures. Understanding and explaining this diversity are the mission of human geography.

To think geographically, start by asking a geographic question, one with a spatial or landscape component (e.g., how patterns of inequality or the types of housing found in different neighborhoods in Houston have changed). Alternatively, ask a question that focuses attention on how the character or geographic situation of a place affects what happens (e.g., how the physical and cultural character of Shanghai influences the growth of the city). In doing this, you'll see
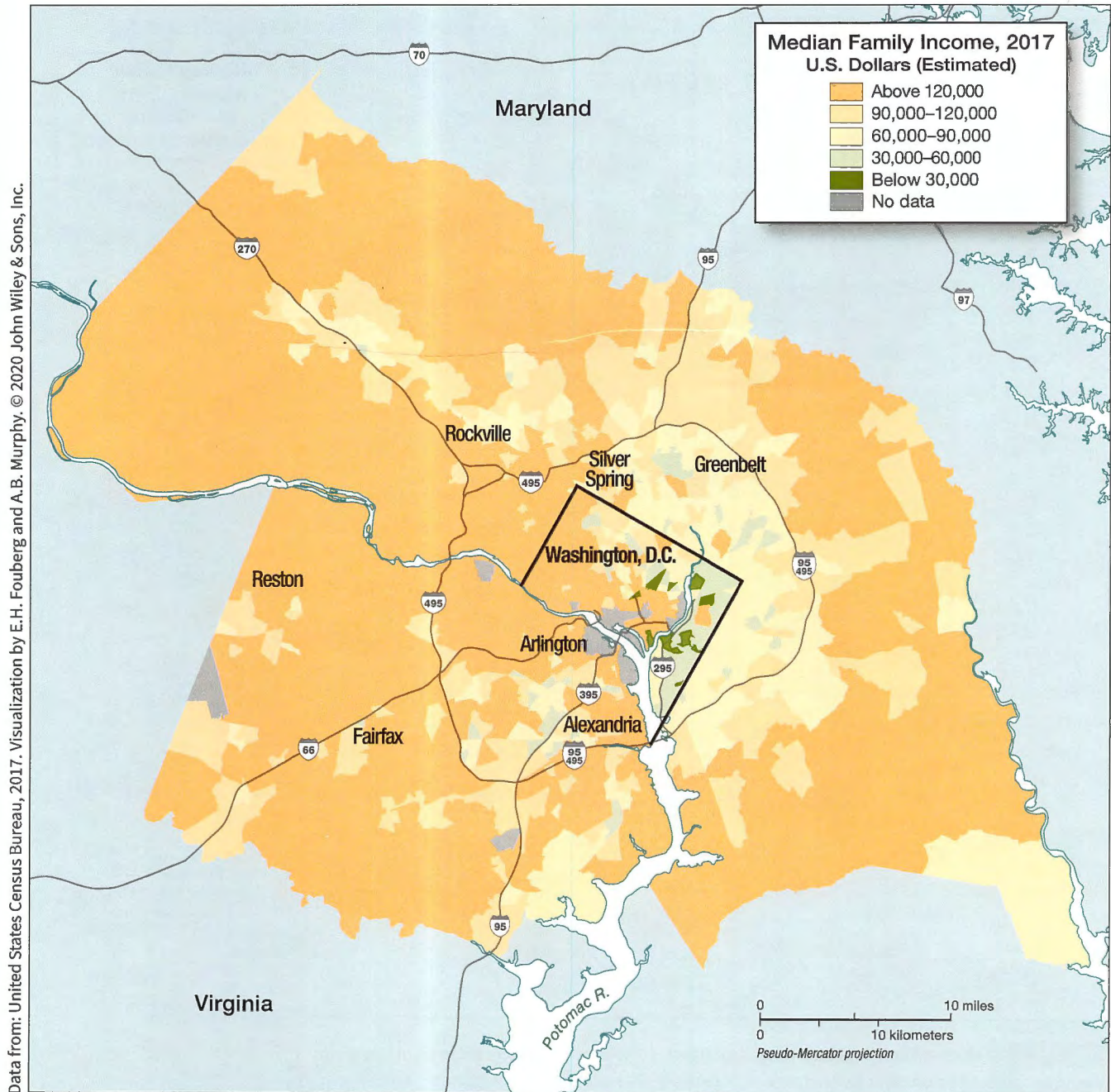
Data from: United States Census Bureau, 2017. Visualization by E.H. Fouberg and A.B. Murphy. © 2020 John Wiley & Sons, Inc.

FIGURE 1.20   **Median Family Income (in U.S. Dollars) in Washington, DC.**   Washington, D.C. is a diamond shape with the Potomac River as its southwest border in the middle of the map. Notice the sharp contrast in income between western and eastern D.C. The surrounding suburbs in Maryland and Virginia are also mapped with the same general trend: The western suburbs have higher incomes than the eastern suburbs.

that raising a geographic question opens up new and important ways of thinking about what is going on in the world around you.

Learning and applying geographic concepts and making links among concepts in your mind is the next step to thinking geographically. Once you have a geographic question, as simple as why are there so many one-way streets in a certain neighborhood or as complex as why do people in the oil-producing region of Nigeria have relatively low incomes, you can use geographic concepts to start to discover answers.

TC **Thinking Geographically**

Study the **cultural landscape** of San Francisco's Chinatown in Figure 1.14. Using the geographic concept **scale**, consider what role San Francisco's Chinatown plays at three different scales: locally (in San Francisco), nationally (along the west coast of the U.S.), and regionally (as part of the larger Pacific Ocean region). Bonus: If you were to walk around San Francisco's Chinatown, what might you see in the cultural landscape that reflected this Chinatown's **identity** locally, nationally, and regionally?

1.3 Identify types of maps and examine the role maps play in understanding the world.

Maps are incredibly powerful tools in geography. **Cartography**—the art and science of making maps—is as old as geography itself. (For details on maps and map projections, see Appendix A.) People use maps for countless purposes, including bringing relief to refugees, waging war, promoting political positions, solving medical problems, locating stores, and warning of natural hazards. **Reference maps** show locations of places and geographic features. **Thematic maps** tell stories, typically showing the spatial distribution (clustering or dispersal) or movement of people and things.

Reference maps accurately show the **absolute locations** of places, using a coordinate system that precisely plots where on Earth something is found. Imagine taking an orange, drawing a dot on it with a marker, and then describing the exact location of that dot to someone who wants to mark the same spot on her orange. If you each draw and number the same coordinate system, the task of drawing the absolute location on each orange is not only doable but simple. The coordinate system most frequently used on maps is based on latitude and longitude. For example, the absolute location of Chicago is 41°, 53' north latitude and 87°, 37' west longitude. Using these coordinates, you can plot Chicago on any globe or map that is marked with latitude and longitude lines.

A satellite-based **global positioning system** (GPS) enables us to locate features on Earth with extraordinary accuracy. We not only know the absolute locations of places; we also know the *absolute distance* and *absolute direction* between them, which means we can use maps for wayfinding. Researchers collect data quickly and easily in the field, and low-priced units make it possible for drivers, fishers, hunters, runners, and hikers to use GPS to find absolute direction and absolute distance between places, and track paths. Cars are equipped with GPS units, and dashboard map displays help commuters navigate traffic and travelers find their way. Smartphones are equipped with GPS, helping spread the use of GPS even further. Geocaching is a popular hobby based on GPS. Geocachers use their GPS units to play a treasure hunt game all over the world. People leave the treasures ("caches") somewhere, mark the coordinates on their GPS, and post clues on the Internet. If you find the cache, you take the treasure and leave a new one.

Relative location describes the location of a place in relation to other

human and physical features. Descriptors such as "Chicago is on Lake Michigan, south of Milwaukee" or "Chicago is located where the cross-country railroads met in the 1800s" or "Chicago is the hub of the corn and soybean markets in the Midwest" are all descriptors of Chicago relative to other features. In the southern Wisconsin, northern Illinois, and western Indiana region, all major roads lead to Chicago (**Fig. 1.21**). Within this region, people define much of their lives relative to Chicago because of the tight interconnectedness between Chicago and the region. Northwest Indiana is so connected to Chicago that it has a time zone separate from the rest of Indiana, allowing people in northwestern Indiana to stay in the same time zone as Chicago.

Absolute locations do not change, but relative locations change over time. Fredericksburg, Virginia, is located halfway between Washington, D.C., and Richmond, Virginia. Today, it is a suburb of Washington, D.C., with commuter trains, van pools, buses, and cars moving commuters between their homes in Fredericksburg and their workplaces in metropolitan
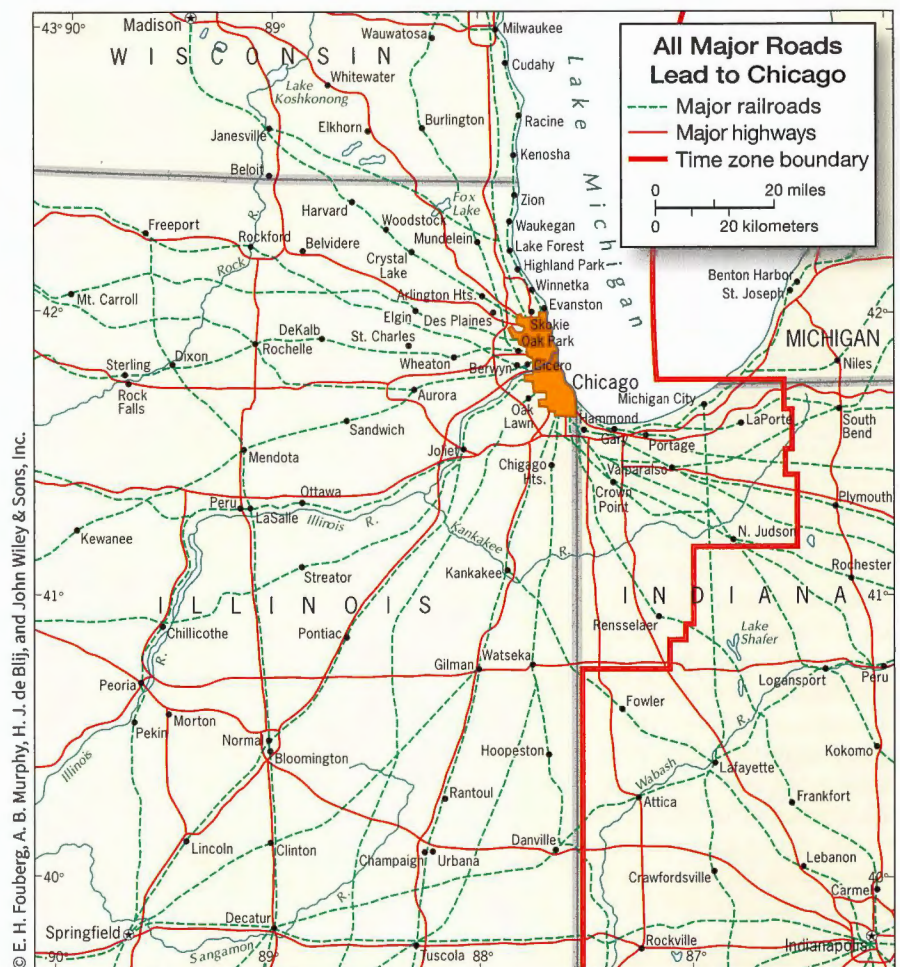

FIGURE 1.21 All Major Roads Lead to Chicago. The network of Midwestern roads that lead to Chicago reflects the dominance of the city in the region.

Washington. During the Civil War, several bloody battles took place in Fredericksburg as the North and South fought halfway between their wartime capitals. The absolute location of Fredericksburg has not changed, but its place in relation to surrounding places certainly has.

Mental Maps

We all carry maps in our minds of places we have been and places we have merely heard of; these are called **mental maps**. If you have never been to the Great Plains of the United States, you likely imagine a region encompassing some or all of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and northern Texas. Even if your mental map is not accurate, you still use it to process information about the Great Plains. If you hear on the news that a tornado damaged a town in Oklahoma, you use your mental map of the Great Plains region and Oklahoma to make sense of where the tornado occurred and who was affected by it.

Our mental maps of local places often reflect our **activity spaces,** the spaces we move through routinely. Our mental maps of places we travel through routinely are much more accurate and detailed than our mental maps of places we have never been. If your friend calls and asks you to meet her at the movie theater you go to frequently, your mental map will engage automatically and your brain will start planning routes to get to the theater. You will envision the hallway, the front door, the walk to your car, the lane to choose in order to be prepared for the left turn you must make, where you will park your car, and your path into the theater and up to the popcorn stand.

Geographers who study human–environment behavior have made extensive studies of how people develop mental maps. Early nomadic humans had incredibly accurate mental maps of where to find food and seek shelter. Today, city
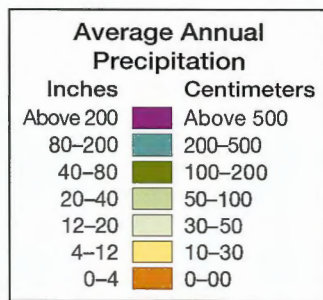

Average Annual Precipitation

Inches		Centimeters
Above 200		Above 500
80–200		200–500
40–80		100–200
20–40		50–100
12–20		30–50
4–12		10–30
0–4		0–00

FIGURE 1.22   **Average Annual Precipitation.**   This map shows the mean annual precipitation received around the world. The pattern on the map shows high precipitation along the equator, where consistent heating from the sun over the year means more incoming solar radiation is absorbed and released as warm air. When warm, moist air rises and reaches its dew point, condensation and precipitation follow. The rainforest climates are found along the equator. Locations that receive little precipitation are deserts, which are found in areas of Earth dominated by high-pressure cells. In a high-pressure cell, air descends from aloft to the ground and then goes outward, making it impossible for warm air to rise. Deserts receive rain when storms pass through them, not from the solar radiation they receive each day.

dwellers use mental maps to find their way through the concrete jungles of cities and suburbs.

Geographers have also studied the mental map formation of children, the blind, new residents to cities, men, and women. Researchers observed differences in how each group forms mental maps. For example, to learn new places, women tend to use landmarks, whereas men tend to use paths. Mental maps of children show smaller areas because their activity spaces are smaller.

Mental maps include **terra incognita**, unknown lands that are sometimes off-limits. If your path to the movie theater includes driving past a school that you do not attend, your map on paper may label the school, but no details will be shown regarding the place. However, if you have access to the school and you are instead drawing a mental map of how to get to the school's cafeteria, your mental map of the school will be quite detailed. Thus mental maps reflect a person's activity space, including what is accessible to the person in his or her rounds of daily activity, and what is not.

Generalization in Maps

All maps simplify the world (see discussion of projections in Appendix A). A reference map of the world cannot show every place in the world, and a thematic map of hurricane tracks in the Atlantic Ocean cannot pinpoint the precise path of every hurricane for the last 50 years. When mapping human or physical data, cartographers (the geographers who make maps) generalize the information they present on maps. Many of the maps in this book are thematic maps of the world. Shadings show how much or how little of a phenomenon is present, and symbols show where specific phenomena are located.

Generalized maps help us see trends because we cannot see all cases of a given phenomenon. The map of world precipitation (**Fig. 1.22**) is a generalized map of mean annual precipitation received around the world. The areas shaded in blue and dark green are places that receive the most rain, and those shaded in orange receive the least rain on average. Take a pen and trace along the equator on the map. Notice how
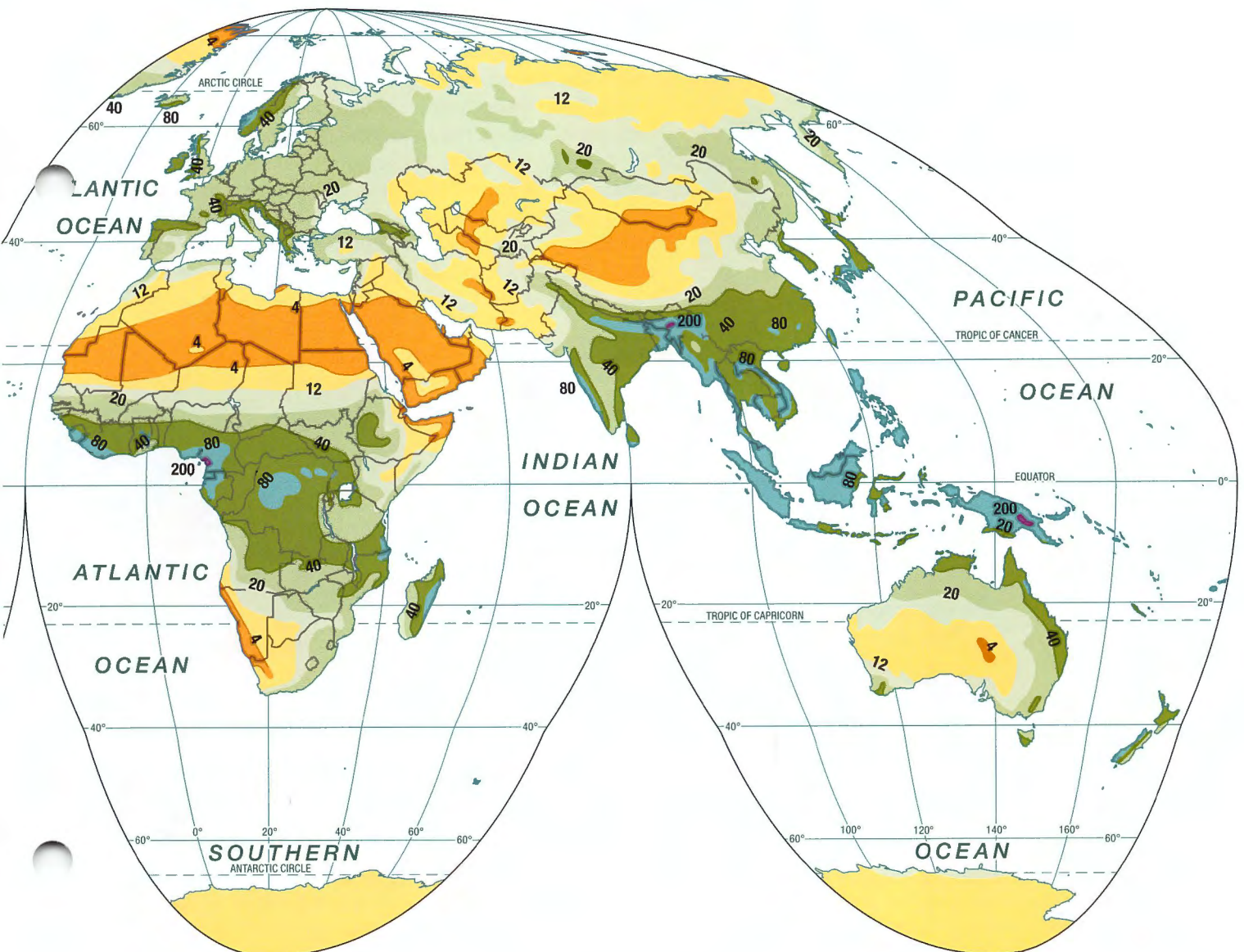
many of the high-precipitation areas on the map are along the equator and in the tropics, between 23.5° north and 23.5° south. The direct rays of the sun consistently heat the equator and tropics over the course of the year, which means more warm air is rising along and around the equator relative to the rest of Earth. Warm air rising is a condition for precipitation, so the tropics receive more annual precipitation than other latitude zones like the mid-latitudes or polar regions.

Using Figure 1.22, we can describe the spatial distribution of precipitation as clustered or dispersed. Bands of high precipitation are clustered in the tropics, and low precipitation areas are dispersed between polar regions and bands at around 30 degrees north and south. Studying Figure 1.22 is a good reminder that the **patterns** we see on a map are limited to the data presented on the map. This map only shows data at the global scale. We can see general trends in precipitation and compare large regions like the tropics to other regions like the polar region. At this scale and using the data in Figure 1.22, we cannot see, nor do we know anything about, summer rainstorms that bring areas of intense precipitation and flooding. To see individual storms, we would need a weather map for a smaller area.
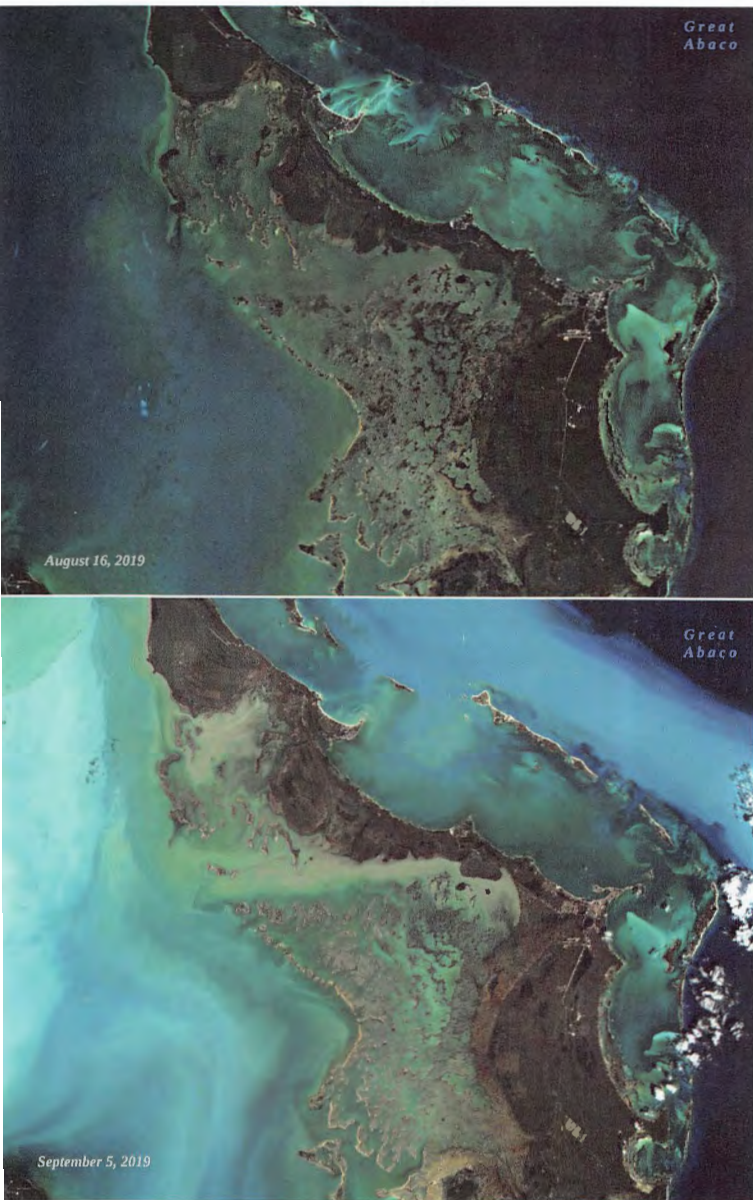
Remote Sensing and GIS

Geographers study long- and short-term environmental change. To monitor short-term environmental change, geographers use remote sensing technology. **Remote sensing** is a method of collecting data or information through instruments that are physically distant from the area of study. Satellites, aircrafts, and drones collect remotely sensed data, which are often instantaneously available. After a major weather or hazard event, remotely sensed data show us the areas most impacted (**Fig. 1.23**). For example, satellites, aircraft, and drones help monitor wildfires in California or hurricanes in the Bahamas to help first responders and assess damage (**Fig. 1.24**).

Geographers integrate remotely sensed images into geographic information systems, which enable us to study change to a specific place or region over time. **Geographic information systems** (GIS) combine computer hardware and software to show, analyze, and represent geographic data. Anytime you use Apple Maps, Google Maps, or your

FIGURE 1.23A **Great Abaco, Bahamas.** The top image shows Great Abaco before Hurricane Dorian passed by, and the bottom photo shows after. The before photo has vegetation covering the islands, and the land in the bottom photo is brown where the hurricane wiped vegetation and houses. The bottom photo also shows much more sediment in streaks in the water, from the tons of material Hurricane Dorian moved off the islands and into the harbors and sea.

FIGURE 1.23B **Great Abaco, Bahamas.** Aerial view of the damage Hurricane Dorian caused. The hurricane hit Grand Abaco as a Category 5 storm. Its 20 foot storm surges leveled much of the northern Bahamas.

FIGURE 1.24 **Great Abaco, Bahamas** Hurricane Dorian destroyed a neighborhood at Marsh Harbour. The hurricane sat over the Bahamas for two days before moving north.

elections. In this case, a geographer can draw a line around a group of people and ask the computer program to tally how many voters are inside the region, determine the racial composition of the district, and show how many of the current political representatives live within the new district's boundaries.

Students who earn undergraduate degrees in geography with a minor or certificate in GIS are employed by software companies, government agencies, and businesses to use GIS to survey wildlife, map soils, analyze natural disasters, track diseases, assist first responders, plan cities, plot transportation improvements, and follow weather systems. Intelligence agencies including the Central Intelligence Agency (CIA) and the Office of Naval Intelligence integrate the data they gather into GIS and use spatial analysis tools to discover patterns and

Garmin running watch to find or track your way, you are using GIS. Geographers use GIS, including Esri's ArcGIS and ArcGIS Online, to analyze spatial relationships among different mappable phenomena. Professional geographers use GIS to compare spatial data by creating digitized representations of the environment (**Fig. 1.25**), combining layers of spatial data, and creating maps that superimpose patterns and processes. Once spatial data are entered, geographers use GIS to analyze data, and these analyses offer new insights into geographic patterns and relationships.

Geographers use GIS in both human and physical geographic research. For example, political geographers use GIS to map layers showing voters, party registration, race and ethnicity, likelihood of voting, and income to determine how to draw voting districts in congressional and state legislative

make predictions. Geographers who work in the intelligence field can use GIS to see local patterns, and they can also think geographically, using scale, to see how processes happening at other scales impact and shape local patterns.

Geographers can answer complicated questions using spatial analysis tools in ArcGIS to analyze enormous amounts of data. For example, geographer Korine Kolivras analyzed the probability of dengue fever outbreaks in Hawai'i using GIS (**Fig. 1.26**). The maps Kolivras produced may look as simple and straightforward as the cholera maps produced by Dr. John Snow in the 1800s, but the amount of data that went into Kolivras's analysis is staggering in comparison. Dengue fever is carried by a particular kind of mosquito called the *Aedes* mosquito. Kolivras analyzed the breeding conditions needed for this mosquito, including precipitation, topography, and
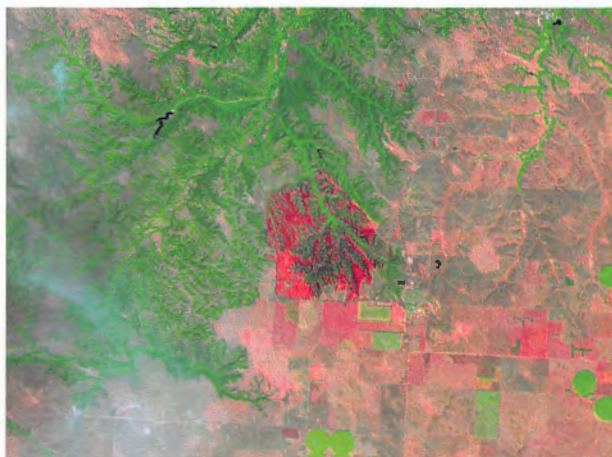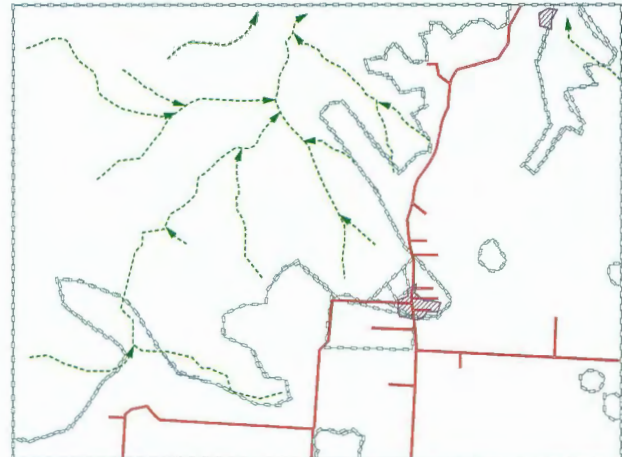
FIGURE 1.25 **Two Representations of St. Francis, South Dakota.** Left is a panchromatic raster satellite image collected in 2002 at 10 m resolution during a grassland wildfire, and the right displays vector data—rivers, roads, cities, and land use/land cover—digitalized from the image on the left.

Guest Field Note   Predicting Dengue Outbreak in Maui, Hawai'i

Korine N. Kolivras
Virginia Tech

The diffusion of diseases carried by vectors, such as the *Aedes* mosquito that transmits dengue, is not solely a result of the environmental factors in a place. I use disease ecology to understand the ways environmental, social, and cultural factors interact to produce disease. Through a combination of fieldwork and GIS modeling, I studied the environmental habitat of the *Aedes* mosquito in Hawai'i and the social and cultural factors that stimulated the outbreak of dengue in Hawai'i.

When I went into the field, I observed the diversity of the physical geography, from deserts to rainforests. I saw the specific local environments of the dengue outbreak area, and I examined the puddles in streams (**Fig. 1.26A**) where mosquitoes likely bred during the dengue outbreak. I talked to public health officials who worked hard to control the dengue outbreak so that I better understood the local environmental factors contributing to the disease. I visited a family that had been heavily affected by dengue, and I saw their home, which, by their choice, lacked walls or screens on all sides. In talking with the family, I came to understand the social and cultural factors that affected the outbreak of dengue in Hawai'i.

I created a GIS model of mosquito habitat that considered total precipitation in Hawai'i (**Fig. 1.26B**), seasonal variations in precipitation (**Fig. 1.26C**) and temperature (**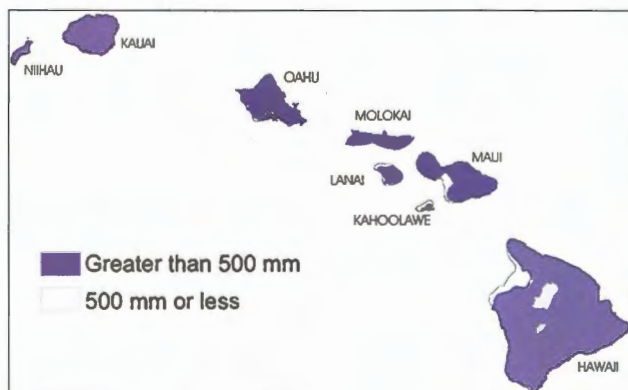Fig. 1.26D**), to help explain where the *Aedes* mosquito is able to breed and survive. I also studied seasonal fluctuations in streams and population distributions to create my model of dengue potential areas (**Fig. 1.26E**).

My GIS model can now be altered by public officials to reflect precipitation and temperature variations each year or to incorporate new layers of data. Officials will be able to better predict locations of dengue outbreaks so they can focus their efforts to combat the spread of disease.
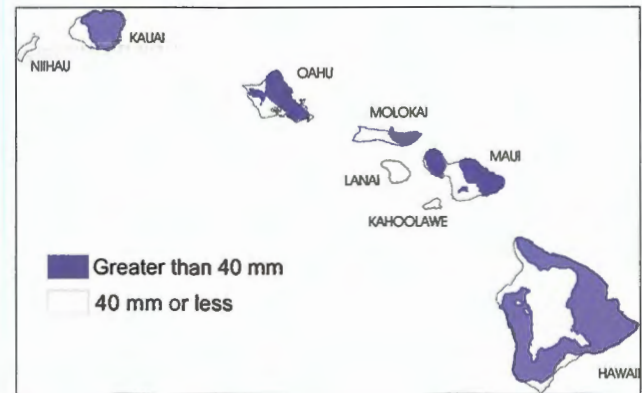
FIGURE 1.26C   Average June Precipitation.
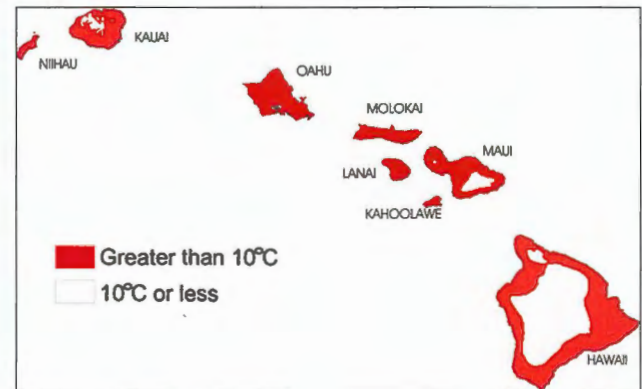
FIGURE 1.26D   Average February minimum temperature.

FIGURE 1.26A   **Maui, Hawai'i.**   *Aedes* mosquitoes breed in artificial and natural water containers, including puddles.

FIGURE 1.26B   Total annual precipitation.
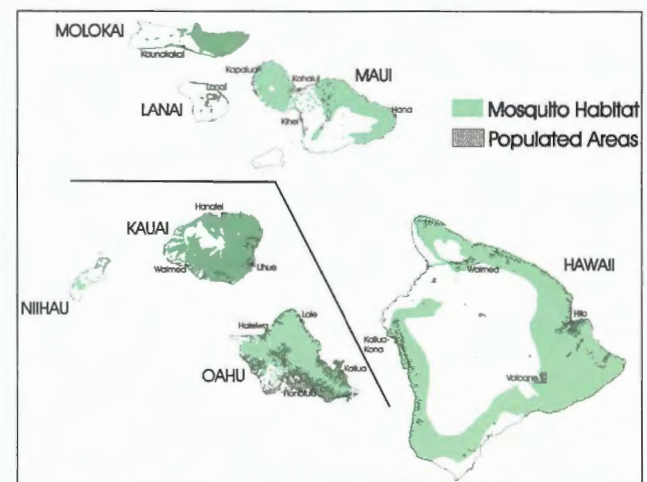

FIGURE 1.26E   Dengue potential areas.

several other variables, to predict what places in Hawai'i are most likely to experience an outbreak of dengue fever.

The power of GIS continues to evolve with advances in data storage and retrieval technologies. Real-time data collection and analysis in GIS has enabled companies like Uber to match you with a driver and show you where the driver is and when the driver will reach you. Waze, an app designed to help drivers find safe and fast routes, integrates crowd-sourced data from all app users in real-time to warn drivers of accidents and re-route them around construction or traffic jams. Real-time GIS also enables crowd-sourcing data, which is valuable to organizers protesting in Hong Kong or Moscow and to governments of China and Russia who are monitoring protesters. Crowd-sourcing data helps first responders to wildfires in California or floods in Houston. Emergency management systems use real-time data in GIS to respond to every 911 call.

In addition to helping in crises, geographic data are more accessible to consumers, which may help them make better decisions. Real estate apps show buyers and sellers recent sales prices and assessed values of houses in neighborhoods, enabling consumers to assess the value of one house relative to the neighborhood and the city as a whole. Large companies like Target and Costco use GIS to build more efficient supply chains. GIS makes just-in-time delivery (see Chapter 12) possible. GIS is also part of the growing field of Artificial Intelligence (AI). The Chinese government uses real-time facial recognition-AI integrated with GIS to track movements of Chinese citizens, especially minority Uighurs and people living in cities (see Chapter 9), and visitors.

The field of advancing GIS is called Geographic Information Science (GISci). Your school may have a program in GISci that incorporates multiple disciplines, bringing together computer scientists who write programs, engineers who create sensors that gather data about Earth, and geographers who combine layers of data and interpret them to make sense of the world.

TC Thinking Geographically

Look at the map pattern in Figure 1.26E. Note that this map is more "zoomed in" than 1.26 B, C, and D, and the three Hawai'ian islands to the farthest north, Nihau, Kauai, and Oahu, are placed to the west of the other four islands so that you can see more detail on the map of each island. Describe the **pattern** of likely mosquito habitats on the map. Then, describe the relationship between mosquito habitats and populated areas. Finally, imagine you are advising the government of Hawai'i who wants to conduct a pilot study on the island where dengue will have the biggest impact on people. Which island should Hawai'i use for its pilot study and why?

1.4 Describe How Culture Influences Patterns and Processes in Human Geography.

Culture influences music, literature, and arts as well as prevailing modes of dress; routine living habits; food preferences; attitudes toward gender and racial differences; the architecture of houses and public buildings; the layout of fields and farms; and systems of education, government, and law. **Culture** is a group of belief systems, norms, and values practiced by a people. Culture is an all-encompassing term that identifies not only people's tangible lifestyles, but also their prevailing values and beliefs. Culture lies at the heart of human geography.

While we offer one definition of culture, academics from human geographers to anthropologists have defined culture in many different ways over time. Some have stressed the contributions of humans to the environment; others have emphasized learned behaviors and ways of thinking. Several decades ago the noted anthropologist E. Adamson Hoebel defined culture as "[the] integrated system of learned behavior patterns which are characteristic of the members of a society and which are not the result of biological inheritance . . . culture is not genetically predetermined; it is noninstinctive . . . [Culture] is wholly the result of social invention and is transmitted and maintained solely through communication and learning."

Hoebel's emphasis on communication and learning anticipated the current view of culture as a system of meaning, not just a set of acts, customs, or material products. Clifford Geertz advanced this view in his classic work, *The Interpretation of Cultures* (1973), which influenced much work in human geography. Human geographers are interested not just in the different patterns and landscapes associated with different culture groups, but also in how cultural understandings affect both the creation and significance of those patterns and landscapes.

A **culture trait** is a single attribute of a culture that can be identified and described. For example, wearing a turban is a culture trait in certain societies. Many men in the semiarid and desert areas of North Africa, Southwest Asia, and South Asia wore turbans before the birth of Islam. Turbans protected the wearers from sunlight and also helped distinguish tribes (**Fig. 1.27**). Not all Muslim men wear turbans, but in some Muslim countries, including Oman, wearing turbans is popular because either religious or political leaders prescribe it for

Author Field Note   Dressing for the Climate in Nizwa, Oman

"Witnessing the scene at the morning animal market in Nizwa, the old interior capital of Oman, reminded me of the adaptations people have made to the natural environment. The clothing and turbans were practical for the hot, dry climate there, and the early morning timing of the market ensured that the market would be over by the time the hottest hours of the day arrived."

– A.B. Murphy

Photo by A.B. Murphy. © 2020 John Wiley & Sons, Inc.

FIGURE 1.27   Nizwa, Oman.

men. Today, turbans often distinguish a man's status in society or represent faithfulness to God.

In some Muslim countries, including Egypt and Turkey, men rarely wear turbans. When men in other Muslim countries do wear turbans, the appearance of the turban varies a great deal. For instance, in Yemen, men who cover their heads typically wear kalansuwa, which are caps wrapped in fabric. In Palestine, Jordan, and Saudi Arabia, men who cover their heads typically wear kaffiyeh, which are rectangular pieces of cloth draped and secured on the head.

Wearing turbans is not a cultural trait limited to Muslims. In the United States, most men who cover their heads with turbans are Sikhs, followers of Sikhism, which is a different religion from Islam. In Sikhism, men are required to keep their hair uncut. The common practice is to twist the hair, knot it on top of one's head, and then cover it with a turban. Sikhism began in the 1500s; in the late 1600s, the tenth guru of the religion taught that wearing a turban was a way to demonstrate one's faithfulness to God.

As the turban example shows, a culture trait is not always confined to a single culture, nor does it carry the same meaning across cultures. More than one culture may exhibit a particular culture trait, such as turbans. A distinct combination of culture traits is a **culture complex**. Herding of cattle is a culture trait shared by many cultures, but different cultures regard and use cattle in different ways. The Maasai of East Africa, for example, follow their herds along seasonal migration paths, consuming blood and milk as important ingredients of a unique diet.

Cattle occupy a central place in Maasai existence; they are the essence of survival, security, and prestige. Although the Maasai culture complex is only one of many cattle-keeping complexes, no other culture complex exhibits exactly the same combination of traits. In Europe, cattle are milked, and dairy products, such as butter, yogurt, and cheese, are consumed as part of a diet very different from the Maasai diet.

A **cultural hearth** is an area where culture traits develop and from which they diffuse. For example, the religion of Islam emerged in a single place and time. Muhammad founded Islam in the 600s CE (common era) in and around the cities of Mecca and Medina on the Arabian Peninsula. Other culture traits, such as agriculture, spread from several hearths thousands of years apart. When such a trait develops in more than one hearth without being influenced by its development elsewhere, each hearth operates as a case of **independent invention**.

TC   Thinking Geographically

Geographers who undertake fieldwork keep their eyes open to the world around them and, through practice, become adept at reading the **cultural landscape**. Take a walk around your campus or town and try reading the cultural landscape. Choose something that you see and ask yourself, "What is that and why it is there?" Take the time to find out the answers!

Summary

1.1 Define Human Geography and Describe the Value of Thinking Geographically.

1. Human geography is concerned with how we organize ourselves and our activities in space; how we are connected to one another and the environment; how we make places and how those places in turn shape our lives; and how we think about and organize ourselves on the planet.

2. A geographic perspective focuses on the spatial arrangement of places and phenomena: how they are laid out, organized, and arranged on Earth; how they appear on the landscape; and how the various characteristics of individual places—physical and human—influence one another. Geographical thinking also involves thinking about place-based interactions between humans and the environment.

1.2 Identify and Explain Geography's Core Concepts.

1. Looking at the world geographically means focusing particular attention on location, human–environment interactions, regions, places, movement, landscape, and scale.

2. There are different types of regions: formal regions (areas with a shared trait), functional regions (an area defined by a pattern of interaction), and perceptual regions (an area that exists in people's minds).

3. Traits and innovations diffuse through expansion diffusion (developing in a place and spreading out from there), contagious diffusion (spreading through interpersonal contact), hierarchical diffusion (spreading through a hierarchy), stimulus diffusion (spreading to a new location, followed by a change that occurs in that location), and relocation diffusion (spreading as the result of people moving from one place to another).

1.3 Identify Types of Maps and Examine the Role Maps Play in Understanding the World.

1. Maps are fundamental tools that geographers use to make sense of the world. They show patterns and the relationships that exist among things in geographic space. Satellite-based global positioning systems make it possible to produce highly accurate maps.

2. Geographers draw a distinction between absolute location (the precise specification of a location based on a coordinate system) and relative location (the location of something in relation to a human or physical feature or process).

3. People construct mental maps to make sense of the world. Mental maps at the local scale are influenced by people's activity spaces (the spaces people move through routinely).

4. Remote sensing and geographic information systems have revolutionized mapmaking. They have made it possible to address complex problems using powerful computer-generated location analysis tools.

1.4 Describe How Culture Influences Patterns and Processes in Human Geography.

1. *Culture* is an all-encompassing term that identifies not only people's tangible lifestyles, but also their prevailing values and beliefs.

2. Geographers identify, map, and examine the impacts of culture traits (individual attributes of a culture that can be identified and described). They also seek to understand where those traits first developed (culture hearths), as well as how and why they diffused from those places.

Self-Test

1.1 Define human geography and describe the value of thinking geographically.

1. Human geographers study:
   a. language patterns
   b. land use.
   c. human–environment relations.
   d. the political organization of space.
   e. all of the above.

2. In the study of geography, memorizing place names is equivalent to:
   a. developing theorems when studying mathematics.
   b. discovering new stars when studying astronomy.
   c. learning dates when studying history.
   d. explaining meanings when studying philosophy.

3. Understanding human geography requires focusing attention on globalization because what happens at the local scale no longer plays much of a role in shaping the human geography of the planet.
   a. true
   b. false

1.2 Identify and explain geography's core concepts.

4. The now discredited idea that human behavior is dictated by the natural environment is known as:
   a. environmental determinism.
   b. environmental possibilism.
   c. cultural ecology.
   d. political ecology.

5. A region that is defined by interactions across space is a:

    a. formal region.

    c. perceptual region.

    b. functional region.

    d. vernacular region.

6. When a senior church leader adopts a particular ritual, and that ritual is then adopted and followed by widely scattered congregations, which of the following types of diffusion has occurred?

    a. expansion diffusion

    b. contagious diffusion

    c. hierarchical diffusion

    d. relocation diffusion

1.3 Identify types of maps and examine the role maps play in understanding the world.

7. The term *cartography* refers to:

    a. the collection of locational data through surveying.

    b. the art and science of mapmaking.

    c. the creation of written accounts of a geographic practice.

    d. the making of photographs that capture a geographic phenomenon.

8. The concept of relative location refers to:

    a. the location of a place in relation to other human and physical features.

    b. the position of a place on a latitude-longitude grid system.

    c. the north-south-east-west orientation of a place.

    d. the elevation of a place above sea level.

9. A geographer who uses map layers showing the distribution of voters, party registration, race and ethnicity, likelihood of voting, and income to figure out how to draw voting districts is taking advantage of:

    a. a geographic positioning system.

    b. a geographic information system.

    c. information from mental maps.

    d. remote sensing analysis.

1.4 Describe how culture influences patterns and processes in human geography.

10. Each of the following is a cultural trait except:

    a. a person's skin color.

    b. a person's food preferences.

    c. a person's language.

    d. a person's mode of dress.

11. A cultural hearth is an area to which cultural traits diffuse after they have emerged elsewhere.

    a. true

    b. false

12. Geographers use the term *culture complex* to refer to:

    a. independent invention that results from people interacting in a place.

    b. the tendency for cultural baggage to inhibit innovation.

    c. the relationships that develop among peoples living in different cultural realms.

    d. the distinct combination of cultural traits found in a place.