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WHY ARE GEOGRAPHERS CONCERNED WITH SCALE AND CONNECTEDNESS?

Geographers study places and patterns at a variety of scales, including local, regional, national, and global. Scale has two meanings in geography: the first is the distance on a map compared to the distance on the Earth, and the second is the spatial extent of something. Throughout the book, when we refer to scale we are using the second of these definitions. Geographers' interest in this type of scale derives from the fact that phenomena found at one scale are usually influenced by what is happening at other scales; to explain a geographic pattern or process, then, requires looking across scales. Moreover, the scale of our research or analysis matters because we can make different observations at different scales. We can study a single phenomenon across different scales in order to see how what is happening at the global scale affects localities and how what is happening at a local scale affects the globe. Or we can study a phenomenon at a particular scale and then ask how processes at other scales affect what we are studying.

The scale at which we study a geographic phenomenon tells us what level of detail we can expect to see. We also see different patterns at different scales. For example, when we study the distribution of material wealth at the scale of the globe (see Fig. 1.3), we see that the countries in western Europe, Canada, the United States, Japan, and Australia are the wealthiest, and the countries of Sub-Saharan Africa and Southeast Asia are the poorest. Does that mean everyone in the United States is wealthy and everyone in Indonesia is poor? Certainly not, but on a global-scale map of states, that is how the data appear.

When you shift scales to North America and examine the data for States of the United States and the provinces of Canada (Fig. 1.16), you see that the wealthiest areas are on the coasts and the poorest are in the interior and in the extreme northeast and south. The State of Alaska and the province of the Northwest Territories have high gross per capita incomes that stem largely from oil revenues that are shared among the residents.

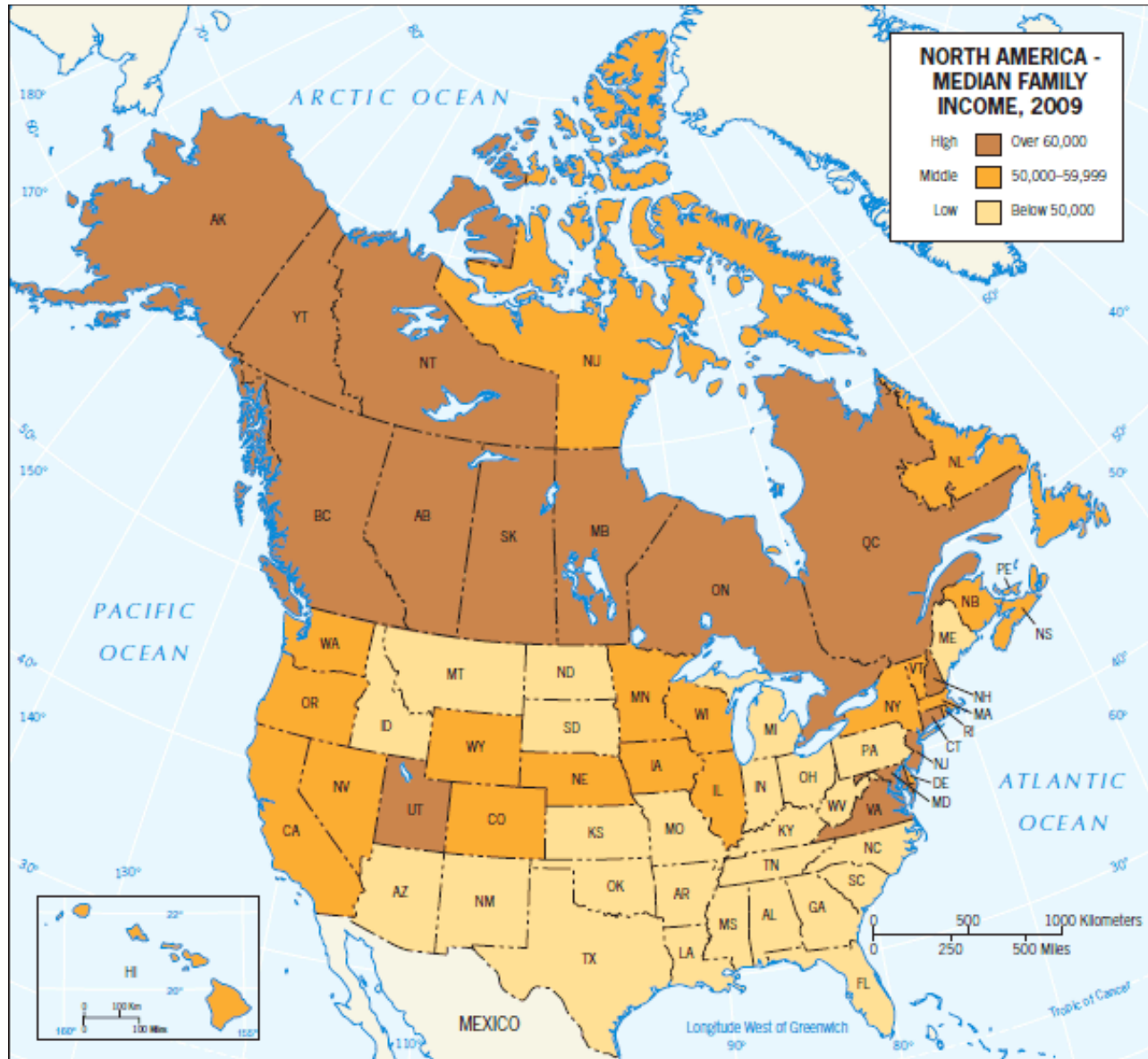


Figure 1.16 Median Family Income (in U.S. dollars), 2009.

Data from: United States Census Bureau and Census Canada, 2010.

By shifting scales again to just one city, for example, metropolitan Washington, D.C. (Fig. 1.17), you observe that suburbs west, northwest, and southwest of the city are the wealthiest 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 the individual, if we conducted fieldwork in Washington, D.C., and interviewed people who live below the poverty line, we would quickly find that each person's experience of poverty and reasons for being in poverty vary-making it difficult to generalize. We would find some trends, such as how women in poverty who have children cope differently than single men or how illegal immigrants cope differently from legal immigrants, but no two individual cases are the same.

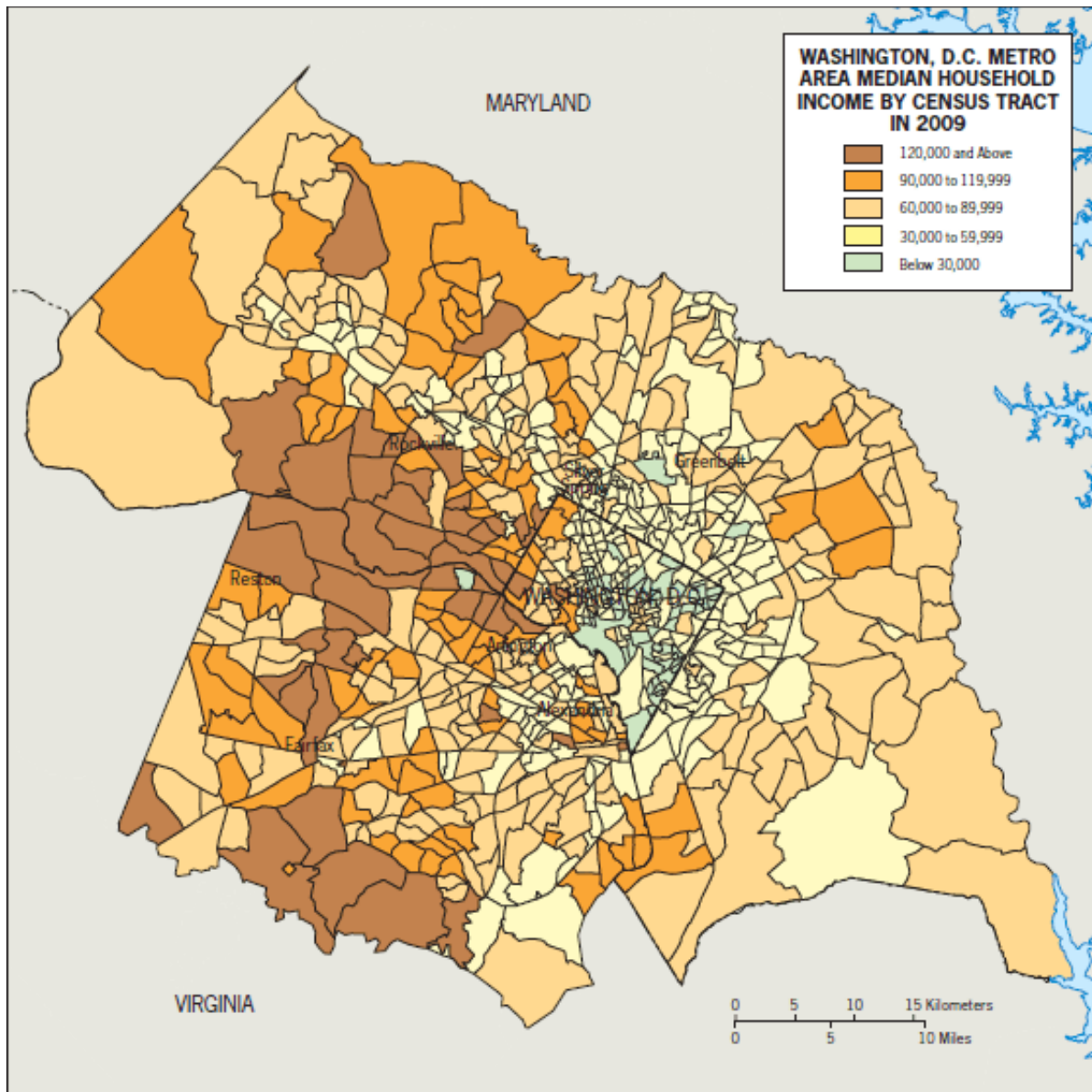


Figure 1.17 Median Family Income (in U.S. dollars), 2009.

Data from: United States Census Bureau, 2010.

Because the level of detail and the patterns observed change as the scale changes, geographers must be sensitive to their scale of analysis and also be wary of researchers who make generalizations about a people or a place at a particular scale without considering other scales of analysis.

Geographers' concern with scale goes beyond an interest in the scale of individual phenomena to a concern with how processes operating at different scales influence one another. If you want to understand the conflict between the Tutsi and the Hutu people in Rwanda, for example, you cannot look solely at this African country. The Rwandan conflict was influenced by developments at a variety of different scales, including patterns of migration and interaction in Central Africa, the economic and political relations between Rwanda and parts of Europe, and the variable impacts of globalization—economic, political, and cultural.

Geographers are also interested in how people use scale politically. Locally based political movements, such as the Zapatistas in southern Mexico, have learned to **rescale** their actions—to involve players at other scales and create a global outcry of support for their position. By taking their political campaign from the local scale to the national scale through, for example, protests against the North American Free Trade Agreement (NAFTA), and then effectively using the Internet to wage a global campaign, the Zapatistas gained attention from the world media, a feat relatively few local political

movements achieve.

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 and by Western corporations and globalize all rights to profits from them through intellectual property law. Efforts to push European and American views of intellectual property on the globe negate 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 East Asians, rice is integral to culture, and new rice strains and new ideas about growing rice can help build community, not just profit. Lawson explains that taking a single regional view and jumping scale to globalize it can serve to legitimate that view and negates other regional and local views.

Regions

Geographers often divide the world into regions for analysis. Many colleges offer a course in world regional geography that compares and contrasts major regions of the world. In this book, we use examples from all over the world, but our focus throughout is on a thematic approach to human geography. Nongeographers use some form of the regional idea all the time, even in everyday conversation. When you plan or dream of a vacation in the Rockies, or a hiking trip in New England, or a cruise in the Caribbean, you are using regional notions to convey what you have in mind. Used this way, regions serve as informal frames of reference.

In geography, a region constitutes an area that shares similar characteristics. To identify and delimit regions, we must establish criteria for them. The criteria we choose to define a region can be physical, cultural, functional, or perceptual.

When geographers choose one or more physical or cultural criteria to define a region, they are looking for formal regions. A formal region is marked by homogeneity in one or more circumstance or phenomenon. A formal physical region is based on a shared physical geographic criterion, such as the karst region of China (Fig. 1.18).



Figure 1.18 Guilin, China.

The South China Karst region, bisected here by the Li River outside Guilin, is an UNESCO World Heritage Site. © Alexander B. Murphy.

A **formal region** has a shared trait, it can be a shared cultural trait or a physical trait. In a formal cultural region, people

share one or more cultural traits. For example, the region of Europe where French is spoken by a majority of the people can be thought of as a French-speaking region. When the scale of analysis shifts, the formal region changes. If we shift scales to the world, the French-speaking formal region expands beyond France into former French colonies of Africa and into the overseas departments that are still associated politically with France.

A **functional region** is defined by a particular set of activities or interactions that occur within it. Places that are part of the same functional region interact to create connections. Functional regions have a shared political, social, or economic purpose. For example, a city has a surrounding region within which workers commute, either to the downtown area or to subsidiary centers such as office parks and shopping malls. That entire urban area, defined by people moving toward and within it, is a functional region. Thus a functional region is a spatial system; its boundaries are defined by the limits of that system. Functional regions are not necessarily culturally homogeneous; instead, the people within the region function together politically, socially, or economically. The city of Chicago is a functional region, and the city itself is part of hundreds of functional regions—from the State of Illinois to the seventh federal reserve district.

Finally, regions may be primarily in the minds of people. **Perceptual regions** are intellectual constructs designed to help us understand the nature and distribution of phenomena in human geography. Geographers do not agree entirely on their properties, but we do concur that we all have impressions and images of various regions and cultures. These perceptions are based on our accumulated knowledge about such regions and cultures. Perceptual regions are not just curiosities. How people think about regions has influenced everything from daily activity patterns to large-scale international conflict. A perceptual region can include people, their cultural traits, such as dress, food, and religion; places and their physical traits, such as mountains, plains, or coasts; and built environments, such as windmills, barns, skyscrapers, or beach houses.

But where is this Mid-Atlantic region? If Maryland and Delaware are part of it, then eastern Pennsylvania is, too. But where across Pennsylvania lies the boundary of this partly cultural, partly physical region, and on what basis can it be drawn? There is no single best answer (Fig. 1.19).



Figure 1.19 Mid-Atlantic Cultural Region.

One delimitation of the Mid-Atlantic culture region. *Adapted with permission from: H. Glassie, Pattern in the Material Folk Culture of the Eastern United States. Philadelphia: University of Pennsylvania Press, 1968, p. 39.*

Major news events help us create our perceptual regions by defining certain countries or areas of countries as part of a region. Before September 11, 2001, we all had perceptions of the Middle East region. For most of us, that 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, our regional perceptions of the Middle East changed; for many, the region stretched to encompass Afghanistan and Pakistan. Scholars who specialize in this part of the globe had long studied the relationship between parts of Southwest Asia and the traditional “Middle East,” but the connections between Afghanistan

and Pakistan and the rest of the Middle East were almost invisible to the general population.

Perceptual Regions in the United States

Cultural geographer Wilbur Zelinsky tackled the complex task of defining and delimiting the perceptual regions of the United States and southern Canada. In an article titled “North America's Vernacular Regions,” he identified 12 major perceptual regions on a series of maps (summarized in Fig. 1.20). When you examine the map, you will notice some of the regions overlap in certain places. For example, the more general term *the West* actually incorporates more specific regions, such as the Pacific Region and part of the Northwest.

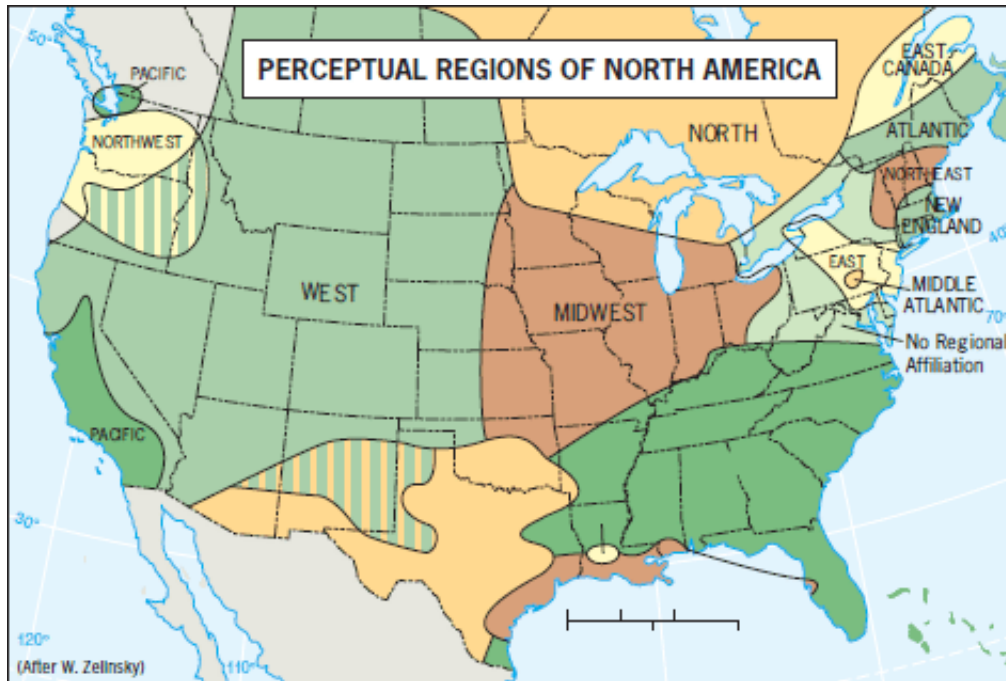


Figure 1.20 Perceptual Regions of North America.

Adapted with permission from: W. Zelinsky, "North America's Vernacular Regions," Annals of the Association of American Geographers, 1980, p. 14.

The problem of defining and delimiting perceptual regions can be approached in several ways. One is to conduct interviews in which people residing within as well as outside a region are asked to respond to questions about their home and cultural environment. Zelinsky used a different technique; he analyzed the 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 maps show a close similarity between these perceptual regions and culture regions identified by geographers.

Among the perceptual regions shown in Figure 1.20, one, the South, is unlike any of the others. Even today, five generations after the Civil War, the Confederate flag still evokes strong sentiments from both those who revere the flag and those who revile it.

A “New South” has emerged over the past several decades, forged by Hispanic immigration, urbanization, movement of people from other parts of the United States to the South, and other processes. But the South, especially the rural South, continues to carry imprints of a culture with deep historical roots. Its legacy is preserved in language, religion, music, food preferences, and other traditions and customs.

If you drive southward from, say, Pittsburgh or Detroit, you will not pass a specific place where you enter this perceptual region. 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 area 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 succession of Baptist churches in a town along the way. These combined impressions become part of your overall perception of the South as a region.

Such cultural attributes give a certain social atmosphere to the region, an atmosphere that is appreciated by many of its residents and is sometimes advertised as an attraction for potential visitors. “Experience the South's warmth, courtesy, and pace of life,” said one such commercial, which portrayed a sun-drenched seaside landscape, a bowing host, and a couple strolling along a palm-lined path.

The South has its vigorous supporters and defenders, and occasionally a politician uses its embattled history to arouse racial antagonism. But today the South is so multifaceted, diverse, vigorous, and interconnected with the rest of the United States that its regional identity is much more complicated than traditional images suggest (Fig. 1.21). This serves as an important reminder that perceptual regions are not static. Images of the South are rapidly changing, and perceptions of the South as a region will change over time.

Regions, whether formal, functional, or perceptual, are ways of organizing humans geographically. They are a form of spatial classification, a means of handling large amounts of information so we can make sense of it.

Guest Field Note Montgomery, Alabama

Located in a predominately African American neighborhood in Montgomery, Alabama, the street intersection of 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 on the South's landscape.



Figure 1.21

Credit: Jonathan Leib, Old Dominion University

Culture

Location decisions, patterns, and landscapes are fundamentally influenced by cultural attitudes and practices. Culture refers not only to the music, literature, and arts of a society but to all the other features of its way of life: prevailing modes of dress; routine living habits; food preferences; the architecture of houses and public buildings; the layout of fields and farms; and systems of education, government, and law. **Culture** is an all-encompassing term that identifies not only the whole tangible lifestyle of peoples, but also their prevailing values and beliefs. Culture lies at the heart of human geography.

The concept of culture is closely identified with the discipline of anthropology, and over the course of more than a century anthropologists have defined it in many different ways. Some have stressed the contributions of humans to the environment, whereas 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 has influenced much recent work in human geography. Hence, human geographers are interested not just in the different patterns and landscapes associated with different culture groups, but in the ways in which cultural understandings affect both the creation and significance of those patterns and landscapes.

Cultural geographers identify a single attribute of a culture as a **culture trait**. 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. The turbans protected the wearers from sunlight and also helped distinguish tribes.

Not all Muslim men wear turbans, but in some Muslim countries, including Afghanistan, wearing turbans is popular because either religious or political leaders (in the case of Afghanistan, the Taliban) prescribe it for men. Today, turbans often distinguish a man's status in society or are worn as a sign of faithfulness to God. In many Muslim countries, including Egypt and Turkey, men rarely wear turbans. The appearance of turbans in other Muslim countries 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 a turban are Sikhs, which is a separate religion from Islam. In the Sikh religion, men are required to keep their hair uncut. The common practice is to twist the hair and knot it on top of one's head and then cover it with a turban. The Sikh religion began in the 1500s, and 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 exhibits, culture traits are not necessarily confined to a single culture. More than one culture may exhibit a particular culture trait, but each will consist of a discrete combination of traits. Such a combination is referred to as a **culture complex**. In many cultures, the herding of cattle is a trait. However, cattle are regarded and used in different ways by different cultures. 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 that of the Maasai.

A **cultural hearth** is an area where cultural traits develop and from which cultural traits diffuse. Often a cultural trait, for example the religion of Islam, can be traced to a single place and time. Muhammad founded Islam in the 500s C.E. (current era) in and around the cities of Mecca and Medina on the Arabian Peninsula. Other culture traits, such as agriculture, can be traced to 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**.

Connectedness through Diffusion

Geographer Carl Sauer focused attention on how ideas, specifically the innovation of agriculture, spread in *Agricultural Origins and Dispersals*. Based on geography and archaeological evidence, Sauer established that MesoAmerica independently invented agriculture, adding it to the hearths of agriculture in Europe, Africa, and Asia. When ideas, people, or goods move across space, this process of dissemination is called **cultural diffusion**.

In 1970, Swedish geographer Torsten Hägerstrand published pioneering research on the role of time in the diffusion process. Hägerstrand's research revealed how time, as well as distance, affects individual human behavior and the diffusion of people and ideas. Sauer and Hägerstrand's fascinating research attracted many geographers to the study of diffusion processes. Geographers are still using principles of diffusion to model movement and diffusion through GIS and other geographic techniques.

Whether diffusion of a cultural trait occurs depends, in part, on time and distance from the hearth. The farther a place is from the hearth, the less likely an innovation will 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 cultural traits or innovations diffuse. Prevailing attitudes or cultural taboos can mean that certain innovations, ideas, or practices are not acceptable or adoptable in particular cultures. Religious teachings may prohibit certain practices or ideas, such as divorce, abortions, or contraceptive use, on the grounds of theology or morality. Some cultures or religions prohibit consumption of alcoholic beverages, and others prohibit consuming certain kinds of meat or other foods. Prescriptions cultures make about behavior act as **cultural barriers** and can pose powerful obstacles to the spread of ideas or innovations.

Expansion Diffusion

When a cultural trait, such as a religion, spreads, it typically does so from a hearth. Islam's hearth was on the Arabian Peninsula, and from there, Islam diffused to Egypt and North Africa, through Southwest Asia, and into West Africa. This is a case of **expansion diffusion**, when an innovation or idea develops in a hearth and remains strong there while also spreading outward. Geographers classify diffusion processes into two broad categories: expansion diffusion and relocation diffusion. In the case of expansion diffusion, an innovation or idea develops in a hearth and remains strong there while also spreading outward (Fig. 1.22).

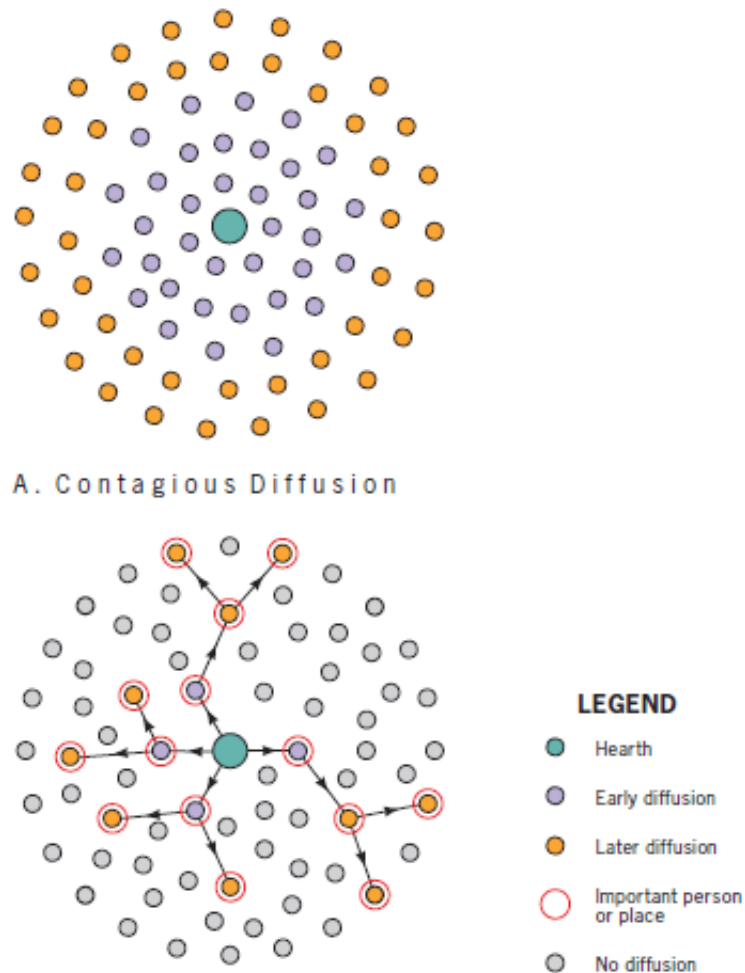


Figure 1.22 Contagious and Hierarchical Diffusion.

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Expansion diffusion takes several forms. The silicon bands that are different shapes and colors, like an animal, a football, or a continent, and that stretch into bracelets are called Silly Bandz. Robert Croak, a businessman from Toledo, Ohio, invented the bands in 2008 after seeing similar rubber bands produced by a Japanese company when he was at a trade show in China. The vast majority of Croak's marketing came from **contagious diffusion**, a form of expansion diffusion in which nearly all adjacent individuals and places are affected. One child had Silly Bandz, and the next day, many more children in his classroom would have the bracelets.

Croak already had a company, Brainchild Products, that sold silicon awareness bracelets, and he worked with his Chinese supplier to create Silly Bandz. Croak trademarked the name and launched a website in the summer of 2008. Without spending any money on marketing, Croak started a Facebook page. Between the website and the Facebook page, the demand for Silly Bandz diffused contagiously and quickly. *Business Week* reports the company that once shipped 24 boxes a day out of its Toledo headquarters now ships 1500 boxes a day. Croak reports Silly Bandz are “carried in approximately 18,000 stores in 25 states.”

Although several other competitors quickly entered the market, the demand for Croak's Silly Bandz increased in stores. Croak now offers Silly Bandz in partnership with celebrities and companies, including Justin Bieber.

In addition to the contagious diffusion on the playground and in the classrooms, the diffusion of Silly Bandz, as opposed to a competing brand, is going to be greatest around the 18,000 stores in 25 states that sell this particular product. The stores create a hierarchy, a structure to the diffusion of the innovation, in this case a particular brand of bracelets.

Instead of Silly Bandz on their wrists, many Major League Baseball players now wear necklaces. The colorful necklaces are not made of silicon. They are made of a nylon fabric that matches their uniform and is imbued with titanium. The baseball

players, including Justin Morneau of the Minnesota Twins, Joba Chamberlain of the New York Yankees, and Josh Beckett of the Boston Red Sox, wear titanium necklaces sold by Phiten. Phiten is a Japanese company with corporate stores in Honolulu, Hawaii, Torrance, California, and Seattle, Washington.

Formed in 1983, the Phiten Company uses what it calls aqua technology to disperse titanium throughout the nylon fabric it uses to make necklaces and bracelets. Phiten supporters believe the titanium helps restore balance and allows the flow of energy through fatigued muscles. The company's website states that wearing a Phiten will “restore normal relaxation” for customers. Phiten not only sells necklaces and bracelets, but also compression sleeves and shorts, athletic tape, patches, and even bedding infused with aqua metals, typically titanium.

The diffusion of Phitens from its hearth in Japan to the United States began with a sport the two countries share: baseball. In 2001, New York Yankee Randy Johnson traveled to Japan and saw baseball players wearing titanium necklaces. He started wearing a Phiten, and other Major League players in the United States soon followed. The custom caught on hierarchically, from team to team and contagiously from player to player. In an article published by CBS News, a regional sales manager for Phiten in Seattle is quoted as saying “I'd say about three-fourths of the Detroit Tigers and Minnesota Twins players use them.” Baseball players adopted the custom because they believe the titanium helped alleviate muscle pain.

An idea such as a new fashion or new genre of music may not always spread throughout a contiguous population. For example, the spread of Crocs footwear is a case of **hierarchical diffusion**, a pattern in which the main channel of diffusion is some segment of those who are susceptible to (or adopting) what is being diffused. In the case of Crocs, founder Scott Seamans found a clog manufactured by a Canadian company that was created out of the unique croc resin material. Seamans, an avid sailor, put a strap on the back and holes for drainage. He and two co-founders of the crocs company based the company in Boulder, Colorado, had the shoes manufactured, and sold them at boat shows in 2002 and 2003. Crocs footwear diffused from boating enthusiasts to gardeners to the American public-becoming especially popular among children, who adorned their crocs with Jibbitz, or charms designed for crocs. The hierarchy of boaters, gardeners, and then the contagious diffusion that followed helps explain the rapid growth of the crocs brand, which had revenues of over \$800 million in 2007.

A third form of expansion diffusion is **stimulus diffusion**. Not all ideas can be readily and directly adopted by a receiving population; some are simply too vague, too unattainable, too different, or too impractical for immediate adoption. Yet, these ideas can still have an impact. They 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 the hamburger to India. Yet the Hindu religion in India prohibits consumption of beef, which is a major cultural obstacle to the adoption of the hamburger (Fig. 1.23). Instead, retailers began selling burgers made of vegetable products. The diffusion of the hamburger took on a new form in the cultural context of India. With expansion diffusion, whether contagious or hierarchical, the people stay in place and the innovation, idea, trait, or disease does the moving.





Figure 1.23 New Delhi, India (top) and Jodhpur, India (bottom).

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 (top), serving Maharaja Macs and Vegetable Burgers with Cheese. In Indian towns, such as Jodhpur (bottom), cows are protected and share the streets with pedestrians, bicyclists, and motorists. © Douglas E. Gurrans/AFP/Getty Images (left) and (c) Alexander B. Murphy (right).

Relocation Diffusion

Relocation diffusion occurs most frequently through migration. When migrants move from their homeland, they take their cultural traits with them. Developing an ethnic neighborhood in a new country helps immigrants maintain their culture in the midst of an unfamiliar one. **Relocation diffusion**, in contrast, 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. 1.22). If the homeland of the immigrants loses enough of its population, the cultural customs may fade in the hearth while gaining strength in the ethnic neighborhoods abroad.



Once you think about different types of diffusion, you will be tempted to figure out what kinds of diffusion are taking place for all sorts of goods, ideas, or diseases. Please remember that any good, idea, or disease can diffuse in more than one way. Choose a good, idea, or disease as an example and describe how it diffused from its hearth across the globe, referring to at least three different types of diffusion.