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Chapter 15

Social Change and the Environment

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Among technology's amazing feats is the capacity to transplant human organs from one person to another. Some organs come from living donors, but the dead provide most of them. Bizarrely, this technological advance makes some people more valuable dead than alive.

This technological advance makes some people more valuable dead than alive.

Because body organs deteriorate quickly, they must be harvested immediately after someone's death. This requires highly trained medical specialists, such as Hootan Roozrokh. As a toddler, Roozrokh emigrated with his family from Iran to the United States. After graduating from medical school, he won a coveted fellowship in transplant medicine at Stanford University. As Roozrokh's skills grew, so did his reputation. Eventually, Dr. Roozrokh was hired as a transplant surgeon—to harvest organs from patients who have agreed to be organ donors.

To be ready to remove the organs, a transplant team is called before a patient dies. To be sure the team doesn't get impatient and do something rash, the team is not allowed in the patient's room. The team has to wait for another doctor—one not on the team—to declare the patient dead. Only then can the team rush in to begin surgery. That wait is a terrible waste of time.

In February 2006, Ruben Navarro, a disabled, brain-damaged 25-year-old, was admitted to Sierra Vista Regional Medical Center in San Luis Obispo, California. This time, the transplant team didn't wait. They entered Navarro's room, ready to go to work. Most people die within a few minutes after their breathing tubes are removed. Not Navarro. He kept on breathing, while the transplant team grew increasingly impatient.

What do you do in a case like this? Go sit in the hallway? These medical specialists are highly paid and hard to come by. They have better things to do than to wait for someone to die.

Dr. Roozrokh came up with a solution. He ordered that Navarro be given morphine and Ativan—10 to 20 times the normal dosages. When that didn't hasten his death, he ordered that Navarro be given Betadine, "a substance that may cause death if ingested."

Navarro still hung in there. Roozrokh then suggested that Navarro really was dead, that the electronic monitors were only showing "pulseless electronic activity."

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Dr. Laura Lubarsky, assigned by the hospital to determine exactly when Navarro was dead—so that those waiting surgical knives weren't put to use prematurely—disagreed. Using a stethoscope, she said she could hear Navarro's heart beating.

A slow, agonizing eight hours later, Navarro's heart finally gave up.

Finally! But it was too late. You can imagine the disappointment Roozrokh felt. Navarro's death had been so slow that his organs had deteriorated and were worthless as transplants.

What a wasted day for Roozrokh (for Navarro, too, of course). But the worst was yet to come for Roozrokh.

Some of the witnesses to this incident didn't like what they had seen. After thinking about it for a couple of days, a nurse broke the medical norm against squealing on doctors. The sheriff investigated, and the district attorney ordered Dr. Roozrokh arrested. Roozrokh was charged with the felonies of abusing a dependent adult, administering a harmful substance (Betadine), and prescribing a controlled substance (morphine) without a legitimate medical purpose.

Many people don't want to sign consent forms to have their organs removed after their death. Some feel a repugnance at the thought of having someone cut up their bodies after they die. Others have a nagging feeling that maybe they won't really be dead when the surgeons start to harvest their organs.

That's ridiculous. Of course, you'll be dead. The surgeons will make sure of that.

Sources: Based on Committee on Non-Heart-Beating Transplantation II; Associated Press 2008; Chawkins 2008; Elsworth 2008; McKinley 2008.

If any characteristic describes social life today, it is rapid social change. As we shall see in this chapter, technology, such as that which allows livers, kidneys, hearts, and other essential organs to be replaced, is a driving force behind this change. If we want a better understanding of society—and our own lives—we need to understand how technology underlies social change.

How Social Change Transforms Social Life

Social change, a shift in the characteristics of culture and society, is such a vital part of social life that it has been a recurring theme throughout this book. To make this theme more explicit, let's review the main points about social change that were made in the preceding chapters.

The Four Social Revolutions

The rapid social change that the world is currently experiencing did not "just happen." Rather, today's social change is the result of forces that were set in motion thousands of years ago, beginning with the domestication of plants and animals. This first social revolution allowed hunting and gathering societies to develop into horticultural and pastoral societies (see pages 91–94). The plow brought about the second social revolution, from which agricultural societies emerged. The third social revolution, prompted by the invention of the steam engine, ushered in the Industrial Revolution. Now we are in the midst of the fourth social revolution, stimulated by the invention of the microchip. The process of change has accelerated so greatly that the mapping of the human genome system could be pushing us into yet another new type of society, one based on biotechnology.

Social change comes in many forms. Shown here are students in a Fort Myer, Virginia, elementary school on the first day of desegregation in 1954. The school, operated by the military for the children of military personnel, was desegregated by order of the Defense Department.

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From *Gemeinschaft* to *Gesellschaft*

Although so many aspects of our lives have already changed, we have seen only the tip of the iceberg. By the time this fourth—and perhaps fifth—social revolution is full-blown, little of our current way of life will remain. We can assume this because that is how it was with the earlier social revolutions. For example, the change from agricultural to industrial society meant not only that people moved from villages to cities but also that many intimate, lifelong relationships were replaced by impersonal, short-term associations. Paid work, contracts, and money replaced the reciprocal obligations (such as exchanging favors) that were essential to relationships based on kinship, social status, and friendship. As reviewed on page 98, sociologists use the terms *Gemeinschaft* and *Gesellschaft* to indicate this fundamental shift in society.

Capitalism, Modernization, and Industrialization

Just why did societies change from *Gemeinschaft* to *Gesellschaft*? Karl Marx pointed to a social invention called *capitalism.* He analyzed how the breakup of feudal society threw people off the land, creating a surplus of labor. These masses moved to cities, where they were exploited by the owners of the means of production (factories, machinery, tools). This set in motion antagonistic relationships between capitalists and workers that remain today.

Max Weber, in contrast, traced capitalism to the Protestant Reformation (see page 8). He noted that the Reformation stripped Protestants of the assurance that church membership saved them. As they agonized over heaven and hell, they concluded that God did not want the elect to live in uncertainty. Surely God would give a sign to assure them that they were predestined to heaven. That sign, they decided, was prosperity. An unexpected consequence of the Reformation, then, was to make Protestants work hard and be thrifty. This created an economic surplus, which stimulated capitalism. In this way, Protestantism laid the groundwork for the Industrial Revolution that transformed the world.

The sweeping changes ushered in by the Industrial Revolution are called **modernization.** Table 15.1 on the next page summarizes these changes. The traits listed on this table are *ideal types* in Weber's sense of the term, for no society exemplifies all of them to the maximum degree. Our new technology has also brought about a remarkable unevenness in the characteristics of nations. For example, in Uganda, a traditional society, the elite have computers. Thus the characteristics shown in Table 15.1 should be interpreted as "more" or "less" rather than "either-or."

When technology changes, societies change. Consider how technology from the industrialized world is transforming traditional societies. When the West exported medicine to the Least Industrialized Nations, for example, death rates dropped while birth rates remained high. As a result, the population exploded. This second stage of the demographic transition upset traditional balances of family and property. It brought hunger and caused mass migration to cities—but these cities have little industrialization to support the throngs of people moving into them. The photo essay on pages 408–409 illustrates some of these problems.

The Protestant Reformation ushered in not only religious change but also, as Max Weber analyzed, fundamental social–economic change. This painting by Hans Holbein, the Younger, shows the new prosperity of the merchant class. Previously, only the nobility and higher clergy could afford such possessions.

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TABLE 15.1 Comparing Traditional and Industrialized (and Information) Societies

Characteristics	Traditional Societies	Industrialized (and Information) Societies
General Characteristics		
Social change	Slow	Rapid
Size of group	Small	Large
Religious orientation	More	Less
Formal education	No	Yes
Place of residence	Rural	Urban
Family size	Larger	Smaller
Infant mortality	High	Low
Life expectancy	Short	Long
Health care	Home	Hospital
Temporal orientation	Past	Future
Demographic transition	First stage	Third stage (or Fourth)
Material Relations		
Industrialized	No	Yes
Technology	Simple	Complex
Division of labor	Simple	Complex
Income	Low	High
Material possessions	Few	Many
Social Relationships		
Basic organization	*Gemeinschaft*	*Gesellschaft*
Families	Extended	Nuclear
Respect for elders	More	Less
Social stratification	Rigid	More open
Statuses	More ascribed	More achieved
Gender equality	Less	More
Norms		
View of life and morals	Absolute	Relativistic
Social control	Informal	Formal
Tolerance of differences	Less	More

Source: By the author.

Conflict, Power, and Global Politics

In our fast-paced world, we pay most attention to changes that directly affect our own lives. Mostly out of sight is one of the most significant changes of all, the shifting arrangement of power among nations. By the sixteenth century, global divisions had begun to emerge. Nations with the most advanced technology (at that time, the swiftest ships and the most powerful cannons) became wealthy by conquering other nations and taking control of their resources. Then, as capitalism emerged, some nations industrialized. The newly industrialized nations exploited the resources of those countries that had not yet industrialized. According to *world system theory,* this made the nonindustrialized nations dependent and unable to develop their own resources (see page 190).

G-7 Plus Since World War II, a realignment of the world's powers (called *geopolitics*) has resulted in a triadic division of the globe: a Japan-centered East (soon to be dominated by China), a Germany-centered Europe, and a United States–centered western hemisphere. These three powers, along with four lesser ones—Canada, France, Great Britain, and Italy—dominate the globe. They called themselves G-7, meaning the "Group of 7." Fear of Russia's nuclear arsenal and an attempt to gain Russia's cooperation in global affairs prompted G-7 to let Russia join their elite club. The fragility of Russia's membership, which depends on its continued cooperation, became apparent with the armed conflict in Georgia in 2008.

No longer can this group ignore the growing wealth and power of China. Wanting to recapture the glory of centuries past, China is expanding its domain of influence. Bowing to the inevitable and attempting to reduce the likelihood of conflict as China steps on turf claimed by others, G-7 has allowed China to become an observer at its annual summits. As mentioned in Chapter 11, if China cooperates adequately, the next step will be to incorporate China into this exclusive club.

Dividing Up the World At their annual meetings, these world powers set policies to guide global economic matters. Their goal is to perpetuate their global dominance, which includes trying to maintain low prices on the raw materials they buy from the Least Industrialized Nations. Access to abundant oil, essential to this goal, requires that they dominate the Middle East, not letting it become an independent power. To the degree that these nations fail to control prices, policies, and international relations that implement their own interests, they undermine the New World Order they are trying to orchestrate.

Two Threats to This Coalition of Powers There are two major threats to the global divisions that this group is trying to work out. The first is dissension within. Currently, Russia and the United States are at the center of the intrafamilial feuding that threatens this coalition of powers. Because Russia is still stinging after losing its empire and wants a more powerful presence on the world stage, Russia is quick to see insult and threat—and to retaliate. In the dead of winter of 2006, amidst a dispute with Ukraine over the price of gas, Russia turned off the oil

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supply that runs from it through Ukraine to western Europe, endangering lives in several countries (Crossland 2006). In 2007, after fuming for months about a U.S. plan to put missiles in Poland as part of a missile-defense shield, Russia threatened to aim its missiles at cities in Europe if the United States didn't back down (Blomfield 2007). In 2008, when the United States went ahead and signed the missile agreement with Poland, Russia threatened a nuclear attack on Poland (McElroy 2008). Despite snarling back and forth, it is likely that these nations will realign their structure of power successfully, working out their New World Order.

I was in Riga, Latvia, as this feud began to unfold. While there, I took the photos below, a foreshadowing of the armed conflict in Georgia.

The second threat is the resurgence of ethnic rivalries and conflicts. In Europe, ethnic violence in the former Yugoslavia split the country into seven nations. Ossetians and Georgians recently killed one another, the Flemish say they are not Belgian, and Turks in Germany live in fear of the young Germans who threaten their lives. In Africa, violence erupts between Kenya's Kalenjin and Kikuyu, and in Nigeria the Igbo won't let the government count them because, as they say, "We are not Nigerians." Ethnic conflicts threaten the peace in many parts of the world—from the United States and Mexico in North America to China and Vietnam in Asia. We do not know how long the lid can be kept on these seemingly bottomless ethnic antagonisms or whether they will ever play themselves out.

For global control, the Most Industrialized Nations require political and economic stability, both in their own backyards and in those countries that provide the raw materials essential for their industrial machine. This explains why they care little when African nations self-destruct in ethnic slaughter but refuse to tolerate interethnic warfare in their own neighborhoods. To let interethnic warfare in Bosnia, Kosovo, or Georgia go unchecked would be to tolerate conflict that could spread and engulf Europe. In contrast, the deaths of hundreds of thousands of Tutsis in Rwanda had little or no political significance for these powerful countries.

Theories and Processes of Social Change

Social change has always fascinated theorists. Of the many attempts to explain why societies change, we shall consider just four: cultural evolution, natural cycles, conflict and power, and the pioneering views of sociologist William Ogburn.

Cultural Evolution

Evolutionary theories of how societies change are of two types, unilinear and multilinear. *Unilinear* theories assume that all societies follow the same path: Each evolves from

Armored vehicles blocked streets when NATO held a summit in Riga, Latvia, in 2006. Disregarding broadcast warnings to stay off the streets, I wandered around the city, taking photos. I expected to be stopped, perhaps arrested, but I wasn't.

Angry that NATO was meeting in Latvia, a country Russia still claims as its own, Vladimir Putin, then the president of Russia, boycotted the meetings. I took this photo from an apartment window overlooking the ship on which NATO held secret meetings on November 29.

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Despite the globe's vast social change, people all over the world continue to make race a fundamental distinction. Shown here is a Ukrainian being measured to see if he is really "full lipped" enough to be called a Tartar.

simpler to more complex forms. This journey takes each society through uniform sequences (Barnes 1935). Of the many versions of this theory, the one proposed by Lewis Morgan (1877) once dominated Western thought. Morgan said that all societies go through three stages: savagery, barbarism, and civilization. In Morgan's eyes, England, his own society, was the epitome of civilization. All other societies were destined to follow the same path.

Multilinear views of evolution replaced unilinear theories. Instead of assuming that all societies follow the same sequence, multilinear theorists proposed that different routes lead to the same stage of development. Although the paths all lead to industrialization, societies need not pass through the same sequence of stages on their journey (Sahlins and Service 1960; Lenski and Lenski 1987).

Central to all evolutionary theories, whether unilinear or multilinear, is the assumption of *cultural progress.* Tribal societies are assumed to have a primitive form of human culture. As these societies evolve, they will reach a higher state—the supposedly advanced and superior form that characterizes the Western world. Growing appreciation of the rich diversity—and complexity—of tribal cultures discredited this idea. In addition, Western culture is now in crisis (poverty, racism, war, terrorism, sexual assaults, unsafe streets) and is no longer regarded as the apex of human civilization. Consequently, the idea of cultural progress has been cast aside, and evolutionary theories have been rejected (Eder 1990; Smart 1990).

Natural Cycles

Cyclical theories attempt to account for the rise of entire civilizations. Why, for example, did Egypt, Greece, and Rome wield such power and influence, only to crest and fall into a decline? Cyclical theories assume that civilizations are like organisms: They are born, see an exuberant youth, come to maturity, then decline as they reach old age, and finally die (Hughes 1962).

Why do civilizations go through this cycle? Historian Arnold Toynbee (1946) said that each civilization faces challenges to its existence. Solutions to these challenges are worked out, but they are not satisfactory to all, and oppositional forces remain. The ruling elite manages to keep these forces under control, but at a civilization's peak, when it has become an empire, the ruling elite loses its capacity to keep the masses in line "by charm rather than by force." The fabric of society eventually rips apart. Force may hold the empire together for hundreds of years, but the civilization is doomed.

In a book that provoked widespread controversy, *The Decline of the West* (1926–1928), Oswald Spengler, a high school teacher in Germany, proposed that Western civilization had passed its peak and was in decline. Although the West succeeded in overcoming the crises provoked by Hitler and Mussolini, as Toynbee noted, civilizations don't end in sudden collapse. Because the decline can last hundreds of years, perhaps the crisis in Western civilization mentioned earlier (poverty, rape, murder, and so on) indicates that Spengler was right, and we are now in decline. If so, it appears that China is waiting on the horizon to be the next global power and to forge a new civilization.

Conflict over Power

Long before Toynbee, Karl Marx identified a recurring process of social change. He said that each *thesis* (a current arrangement of power) contains its own *antithesis* (contradiction or opposition). A struggle develops between the thesis and its antithesis, leading to a *synthesis* (a new arrangement of power). This new social order, in turn, becomes a thesis that will be challenged by its own antithesis, and so on. Figure 15.1 gives a visual summary of this process.

According to Marx's view (called a **dialectical process** of history), each ruling group sows the seeds of its own destruction. Consider capitalism. Marx said that capitalism

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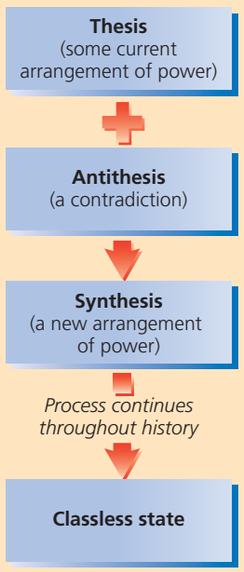
(the thesis) is built on the exploitation of workers (an antithesis, or built-in opposition). With workers and owners on a collision course, the dialectical process will not stop until workers establish a classless state (the synthesis).

The analysis of the world's most powerful nations in the previous section follows conflict theory. Their current division of the globe's resources and markets is a thesis. Resentment on the part of have-not nations is an antithesis. If one of the Least Industrialized Nations gains in military power, that nation will press for a redistribution of resources. China, India, Pakistan, and, soon, North Korea and Iran, with their nuclear weapons, fit this scenario. So do the efforts of al-Qaeda to change the balance of power between the Middle East and the industrialized West. Any new arrangement, a new synthesis, will contain its own antitheses. These may be ethnic hostilities or leaders feeling that their country has been denied its fair share of resources. These antitheses will haunt the arrangement of power and must at some point be resolved into a synthesis. The process repeats itself.

FIGURE 15.1
Marx's Model of Historical Change



Source: By the author.

Ogburn's Theory

Sociologist William Ogburn (1922/1938, 1961, 1964) proposed a theory of social change that is based largely on technology. As you can see from Table 15.2, technology, he said, changes society by three processes: invention, discovery, and diffusion. Let's consider each.

Invention Ogburn defined **invention** as a combining of existing elements and materials to form new ones. We usually think of inventions as being only material items, such

TABLE 15.2 Ogburn's Processes of Social Change

Process of Change	What It Is	Examples	Social Changes
Invention	Combination of existing elements to form new ones	1. Cars 2. Computers 3. Plastics	1. Urban sprawl and long commutes to work 2. Telework, downloading music, watching movies at home 3. Building new types of furniture and construction
Discovery	New way of seeing some aspect of the world	1. Columbus and N. America 2. Gold in California 3. DNA	1. Realignment of global power 2. Westward expansion of United States 3. Identification of criminals
Diffusion	Spread of an invention or discovery	1. Airplanes 2. Money 3. Condom	1. Global tourism 2. Global trade 3. Smaller families

Note: For each example, there are many social changes. For social changes ushered in by the computer, see pages 433–435. Any particular change, such as global trade, depends not just on one item, but on several preceding changes.

Source: By the author.

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Culture contact is the source of *diffusion*, the spread of an *invention* or *discovery* from one area to another. Shown here are members of the Samburu tribe in Kenya. How do you think cell phones will affect their lives if their use becomes common among this group?

as computers, but there also are *social inventions.* We have considered many social inventions in this text including democracy and citizenship (301), capitalism (pages 318–319), socialism (pages 319–320), bureaucracy (pages 124–128), the corporation (pages 321–323), and in Chapter 10, gender equality. As we saw in these instances, social inventions can have far-reaching consequences on society and people's relationships to one another. So can material inventions, and in this chapter we will examine how the computer has transformed society.

Discovery Ogburn identified **discovery,** a new way of seeing reality, as a second process of change. The reality is already present, but people see it for the first time. An example is Columbus' "discovery" of North America, which had consequences so huge that they altered the course of human history. This example also illustrates another principle: A discovery brings extensive change only when it comes at the right time. Other groups, such as the Vikings, had already "discovered" North America in the sense of learning that a new land existed—obviously no discovery to the Native Americans already living in it. Viking settlements disappeared into history, however, and Norse culture was untouched by the discovery.

Diffusion Ogburn stressed how **diffusion,** the spread of an invention or discovery from one area to another, can have extensive effects on people's lives. Consider an object as simple as the axe. When missionaries introduced steel axes to the Aborigines of Australia, it upset their whole society. Before this, the men controlled axe-making. They used a special stone that was available only in a remote region, and fathers passed axe-making skills on to their sons. Women had to request permission to use the axe. When steel axes became common, women also possessed them, and the men lost both status and power (Sharp 1995).

Diffusion also includes the spread of ideas. As we saw in Chapter 11, the idea of citizenship changed political structure around the world. It removed monarchs as an unquestioned source of authority. The concept of gender equality is now circling the globe. Although taken for granted in a few parts of the world, the idea that it is wrong to withhold rights on the basis of someone's sex is revolutionary. Like citizenship, this idea is destined to transform basic human relationships and entire societies.

Cultural Lag Ogburn coined the term **cultural lag** to refer to how some elements of a culture lag behind the changes that come from invention, discovery, and diffusion. Technology, he suggested, usually changes first, with culture lagging behind. In other words, we play catch-up with changing technology, adapting our customs and ways of life to meet its needs.

As with the organ transplants featured in the chapter's opening vignette, technology underlies the rapid change that is engulfing us today. As we consider technology, let's focus on the computer, which, for good or ill, is transforming society and, with it, our way of life.

How Technology Changes Society

The Sociological Significance of Technology

As you may recall from Chapter 2, *technology* has a double meaning. It refers to both the *tools,* the items used to accomplish tasks, and the skills or procedures needed to make and use those tools. Technology refers to tools as simple as a comb and as complicated as a computer. Technology's second meaning—the skills or procedures needed to make and use tools—refers in this case not only to the procedures used to manufacture combs and computers but also to those that are required to "produce" an acceptable hairdo or to go

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In the photo on the left, Henry Ford proudly displays his 1905 car, the latest in automobile technology. As is apparent, especially from the spokes on the car's wheels, new technology builds on existing technology. At the time this photo was taken, who could have imagined that this vehicle would transform society? Mazda's Nagare, a concept car, is said to embody the word "flow."

online. Apart from its particulars, technology always refers to *artificial means of extending human abilities.*

All human groups make and use technology, but the chief characteristic of technology in postindustrial societies (also called **postmodern societies**) is that it greatly extends our abilities to communicate, to travel, and to analyze information. These *new technologies,* as they are called, allow us to do what had never been done before: to transplant organs; to communicate almost instantaneously anywhere on the globe; to probe space; to travel greater distances faster; and to store, retrieve, and analyze vast amounts of information. In our coming biotech society, we may even "wear" computers, storing data on holograms located in our own proteins (bacteriorhodopsin) (Guessous et al. 2004).

The sociological significance of technology is not the apparatus but how technology changes our way of life. It is obvious, for example, that without automobiles, telephones, and televisions, our entire way of life would be strikingly different. Although our journey to the future is going to have many twists and turns, it is intriguing to try to peer over the edge of the present to catch a glimpse of that future. Let's examine some of the computer's effect on education, business, and the waging of war. We'll then consider its impact on social control and social inequality.

Computers in Education

Computers are having a major impact on education. Students can take courses in Russian, German, and Spanish—even when their schools have no teachers who speak these languages. Even though they have no sociology instructors, they can take courses in the sociology of gender, race, social class, or even sex, and sports. (The comma is important. It isn't sex and sports. That course isn't offered—yet.)

We've barely begun to harness the power of computers, but I imagine that the day will come when you will be able to key in the terms *social interaction* and *gender,* select your preference of historical period, geographical area, age, and ethnic group—and the computer will spew out text, maps, moving images, and sounds. You will be able to compare sexual discrimination in the military in 1985 and today or compare the prices of marijuana and cocaine in Los Angeles and New Orleans. If you wish, the computer will give you a test—geared to the level of difficulty you choose—so that you can check your mastery of the material.

Distance learning, courses taught to students who are not physically present with their instructor, will become such a part of mainstream education that most students will take at least some of their high school, college, and graduate courses through this arrangement. Cameras in laptops allow everyone in the class to see everyone else simultaneously, even though the students live in different countries. Imagine this—and likely it soon will be a reality: Your fellow students in a course on diversity in human culture will be living in Thailand, Latvia, South Africa, Egypt, China, and Australia. With zero-cost conference calls and e-mail and file exchanges, you will be able to compare your countries' customs on eating, dating, marriage,

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family, or burial—whatever is of interest to you. You can then write a team paper in which you compare your experiences with one another, applying the theories taught in the text, and then e-mail your paper to your mutual instructor.

Computers in Business and Finance

Not long ago, the advanced technology of businesses consisted of cash registers and adding machines. Connection to the outside world was managed by telephone. Today, those same businesses are electronically "wired" to suppliers, salespeople, and clients around the country—and around the world. Computers track sales of items, tabulate inventory, and set in motion the process of reordering and restocking. Their detailed reports of sales alert managers to changes in their customers' tastes or preferences.

National borders have become meaningless as computers instantaneously transfer billions of dollars from one country to another. No "cash" changes hands in these transactions. The money consists of digits in computer memory banks. In the same day, this digitized money can be transferred from the United States to Switzerland, from there to the Grand Cayman Islands, and then to the Isle of Man. Its zigzag, instantaneous path around the globe leaves few traces for sleuths to follow. "Where's my share?" governments around the world are grumbling, as they consider how to control—and tax—this new technology.

Computers in Warfare

Computers are also having a major impact on the way war is fought. Let's review their impact on warfare in the following Thinking Critically section.

ThinkingCRITICALLY

The Coming Star Wars

Star Wars is on its way.

We already have the Predator, an unmanned plane that flies thousands of feet above enemy lines and beams streaming video back to the base. Sensors from the Global Positioning System report the Predator's precise location. When operators at the base identify a target, they press a button; the Predator beams a laser onto the target, and the operators launch guided bombs (Barry and Thomas 2001).

The enemy doesn't know what hit them. They see neither the Predator nor the laser. Perhaps, however, just before they are blown to bits, they do hear the sound of an incoming bomb (Barry 2001).

On its way is Warfighter I, a camera that uses hyperspectral imaging, a way of identifying objects by detecting their "light signatures." This camera is so precise that it can report from space whether a field of grain contains natural or genetically altered grain—and whether the grain has adequate nitrogen. The military use of this camera? It can also locate tanks that are camouflaged or even hiding under trees (Hitt 2001).

Robot soldiers are on their way, too. In a project called Future Combat Systems, the Pentagon is developing robots that will see and react like humans. They might not look like humans. In fact, they might look like hummingbirds—or tractors or cockroaches. They will gather intelligence, search buildings, and fire weapons (Weiner 2005).

The first robots are already being used in Iraq. These are primitive versions, however, simply remote-controlled devices that dispose of bombs. The next ones are likely to have the capacity to drive vehicles.

The Pentagon is also building its own Internet called the Global Information Grid (GIG). The goal of GIG, encircling the globe, is grandiose: to give the Pentagon a "God's eye view" of every enemy everywhere (Weiner 2004).

All this is but a prelude. The U.S. Defense Department is planning to "weaponize" space. Concerned that other nations will also launch intelligence-gathering devices and space weapons, the United States is set to launch microsatellites the size of a suitcase. These satellites will be able to pull alongside an enemy satellite and, using a microwave gun, fry its electronic system.

Coming also is a laser whose beam will bounce off a mirror in space, making the night battlefield visible to ground soldiers who are wearing special goggles. Also on its way is a series of Star Wars weapons: space-based lasers, pyrotechnic electromagnetic pulsers, holographic decoys, suppression clouds, oxygen suckers, robo-bugs—and whatever else the feverish imaginations of military planners can devise.

The Air Force has nicknamed one of its space programs "Rods from God." Tungsten cylinders would be hurled from space at targets on the ground. Striking at speeds of 7,000 miles an hour, the rods would have the force of a small nuclear weapon. In

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another program, radio waves would be directed to targets on the earth. As the Air Force explains it, the power of the radio waves could be "just a tap on the shoulder—or they could turn you into toast" (Weiner 2005).

We are on the edge of a surrealistic world. Politicians and the military assume that it is normal both to dominate the world and to weaponize space. The chilling reality is reflected in a report by a congressional commission: "Every medium—air, land and sea—has seen conflict. Reality indicates that space will be no different" (Hitt 2001).

For Your Consideration

Do you think we should militarize space? What if other countries do the same? In 2006, China launched a missile to shoot down one of its own orbiting satellites, which could indicate that it is ready to play this deadly space game. What do you think of this comment, made to Congress by the head of the U.S. Air Force Space Command? "We must establish and maintain space superiority. It's the American way of fighting" (Weiner 2005).

Reservations About the Computer

Big Brother Some people have deep reservations about our computerized society. They worry that errors will creep into computerized records, that their identity will be stolen and their privacy invaded. Then there is the matter of political control. The Federal Drug Administration has approved an identity chip the size of a grain of rice that can be injected under the skin (Stein 2004). The chip is designed to store a patient's medical records, including blood type. Besides name, address, age, weight, height, hair and skin color, and race–ethnicity, the chip can also store our school grades, our work history, the names and addresses of our friends and associates—even any suspected acts of disloyalty. The chip can be activated by a scanner, so none of us would even know that we are under surveillance. It isn't difficult to jump from the capacities of this chip to Orwell's Big Brother society.

Social Inequality This new technology carries severe implications for national and global stratification. On the national level, computer technology could perpetuate present inequalities: We could end up with information have-nots, primarily inner-city residents cut off from the flow of information on which prosperity depends. Or this technology could provide an opportunity to break out of the inner city and the rural centers of poverty. On the global level, the question is similar, but on a grander scale, taking us to one of the more profound issues of this century: Will unequal access to advanced technology destine the Least Industrialized Nations to a perpetual pauper status? Or will access to this new technology be their passport to affluence?

In Sum: Technology wraps itself around us, changing our society, our culture, and our everyday lives. Apart from the disruptions that technology brings, there are two primary issues: What type of future will technology lead us into? Will the new technology perpetuate or alleviate social inequalities on both national and global levels?

Most of us take computers for granted, but they are new to the world scene—as are their effects on our lives. This photo captures a significant change in the evolution of computers. The laptop held by the superimposed model has more power than the room-size ENIAC of 1946.

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Social Movements as a Source of Social Change

The contradictions of social inequality that are built into arrangements of power, summarized in Figure 15.1, create discontent. One result is **social movements,** large numbers of people who organize either to promote or to resist social change. Members of social movements hold strong ideas about what is wrong with the world—or some part of it—and how to make things right. Examples include the civil rights movement, the white supremacist movement, the women's movement, the animal rights movement, and the environmental movement.

At the heart of social movements lies a sense of injustice (Klandermans 1997). Some find a particular condition of society intolerable, and their goal is to promote social change. Theirs is called a **proactive social movement.** Others, in contrast, feel threatened because some condition of society is changing, and they *react* to resist that change. Theirs is a **reactive social movement.**

To further their goals, people develop **social movement organizations.** Those who want to promote social change establish organizations such as the National Association for the Advancement of Colored People (NAACP). In contrast, those who are trying to resist these particular changes form organizations such as the Ku Klux Klan or Aryan Nations. To recruit followers and publicize their grievances, leaders of social movements use attention-getting devices, from marches and protest rallies to sit-ins and boycotts. Some stage "media events," sometimes quite effectively.

Social movements are like a rolling sea, observed sociologist Mayer Zald (1992). During one period, few social movements may appear, but shortly afterward, a wave of them rolls in, each competing for the public's attention. Zald suggests that a *cultural crisis* can give birth to a wave of social movements. By this, he means that there are times when a society's institutions fail to keep up with social change. During these times many people's needs go unfulfilled, massive unrest follows, and social movements spring into action to bridge this gap.

Let's see what types of social movements there are, how they use propaganda, and the stages they go through.

Social movements involve large numbers of people who, upset about some condition in society, organize to do something about it. Shown here is Carrie Nation, a temperance leader who in 1900 began to break up saloons with a hatchet. Her social movement eventually became so popular and powerful that it resulted in Prohibition.

Types of Social Movements

Since social change is their goal, we can classify social movements according to their *target* and the *amount of change* they seek. Look at Figure 15.2. If you read across, you will see that the target of the first two types of social movements is *individuals.* **Alterative social movements** seek only to *alter* some specific behavior. An example is the Woman's Christian Temperance Union, a powerful social movement of the early 1900s. Its goal was to get people to stop drinking alcohol. Its members were convinced that if they could shut down the saloons, such problems as poverty and wife abuse would go away. **Redemptive social movements** also target individuals, but their goal is *total* change. An example is a religious social movement that stresses conversion. In fundamentalist Christianity, for example, when someone converts to Christ, the entire person is supposed to change, not just some specific behavior. Self-centered acts are to be replaced by loving behaviors toward others as the convert becomes, in fundamentalist terms, a "new creation."

The target of the next two types of social movements is *society.* **Reformative social movements** seek to *reform* some specific aspect of society. The animal rights movement, for example, seeks to reform the ways in which society views and treats animals. **Transformative social movements,** in contrast, seek to *transform* the social order itself. Its members want to replace the current social order with their vision of the good society. Revolutions, such as those in the American colonies, France, Russia, and Cuba, are examples.

As Figure 15.2 indicates, some social movements have a global orientation. As with many aspects of life in our new global economy, numerous issues that concern people transcend national boundaries. Participants in **transnational social movements** (also called *new social movements*) want to change some specific condition that cuts across societies. (See Cell 5 of Figure 15.2.) These social movements often center on improving the quality of life (Melucci 1989). Examples are the women's movement, labor movements, and the environmental movement (McAdam et al. 1988; Smith et al. 1997; Walter 2001; Tilly 2004).

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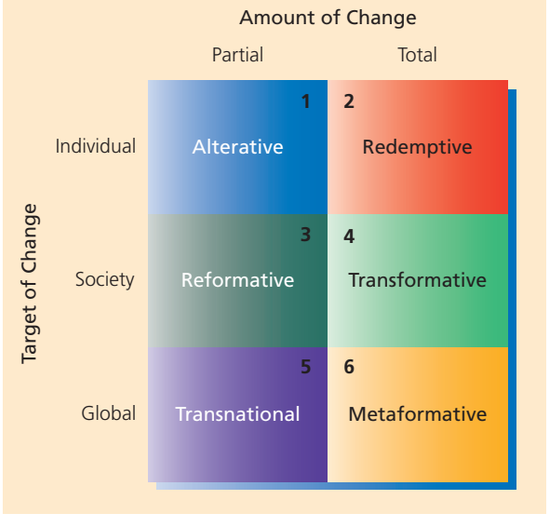
FIGURE 15.2 Types of Social Movements



Sources: The first four types are from Aberle 1966; the last two are by the author.

Cell 6 in Figure 15.2 represents a rare type of social movement. The goal of **metaformative social movements** is to change the social order itself—not just of a specific country, but of an entire civilization or even the whole world. Their objective is to change concepts and practices of race–ethnicity, class, gender, family, religion, government, and the global stratification of nations. These were the aims of the communist social movement of the early to middle twentieth century and the fascist social movement of the 1920s to 1940s. (The fascists consisted of the Nazis in Germany, the Black Shirts of Italy, and other groups throughout Europe and the United States.)

Today, we are witnessing another metaformative social movement, that of Islamic fundamentalism. Like other social movements before it, this movement is not united, but consists of many separate groups with differing goals and tactics. Al-Qaeda, for example, would not only cleanse Islamic societies of Western influences—which they contend are demonic and degrading to men, women, and morality—but also replace Western civilization with an extremist form of Islam. This frightens both Muslims and non-Muslims, who hold sharply differing views of what constitutes quality of life. If the Islamic fundamentalists—like the communists or fascists before them—have their way, they will usher in a New World Order fashioned after their particular views of the good life.

Propaganda and the Mass Media

The leaders of social movements try to manipulate the mass media to influence **public opinion,** how people think about some issue. The right kind of publicity enables the leaders to arouse sympathy and to lay the groundwork for recruiting more members. Pictures of bloodied, dead baby seals, for example, go a long way toward getting a group's message across.

A key to understanding social movements, then, is **propaganda.** Although this word often evokes negative images, it actually is a neutral term. Propaganda is simply the presentation of information in an attempt to influence people. Its original meaning was positive. *Propaganda* referred to a committee of cardinals of the Roman Catholic Church whose assignment was the care of foreign missions. (They were to *propagate*—multiply or spread—the faith.) The term has traveled a long way since then, however, and today it usually refers to a presentation of information so one-sided that it distorts reality.

Propaganda, in the sense of organized attempts to influence public opinion, is a part of everyday life. Our news is filled with propaganda, as various interest groups—from retailers to the government—try to manipulate our perceptions of the world. Our movies, too, although seemingly intended as simply entertainment devices, are actually propaganda vehicles. The basic techniques that underlie propaganda are discussed in the Down-to-Earth Sociology box on the next page.

The use of *propaganda* is popular among those committed to the goals of a social movement. They can see only one side to the social issue about which they are so upset. What attention-getting devices is this demonstrator using? Are they effective? Why is this an example of propaganda?

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Down-to-Earth Sociology

"Tricks of the Trade"—Deception and Persuasion in Propaganda

Sociologists Alfred and Elizabeth Lee (1939) found that propaganda relies on seven basic techniques, which they termed "tricks of the trade." To be effective, the techniques should be subtle, with the audience unaware that their minds and emotions are being manipulated. If propaganda is effective, people will not know why they support something, but they'll fervently defend it. Becoming familiar with these techniques can help you keep your mind and emotions from being manipulated.

- *Name calling.* This technique aims to arouse opposition to the competing product, candidate, or policy by associating it with a negative image. By comparison, one's own product, candidate, or policy is attractive. Republicans who call Democrats "soft on crime" and Democrats who call Republicans "insensitive to the poor" are using this technique.

- *Glittering generality.* Essentially the opposite of the first technique, this one surrounds the product, candidate, or policy with images that arouse positive feelings. "She's a real Democrat" has little meaning, but it makes the audience feel that something substantive has been said. "This Republican stands for individual rights" is so general that it is meaningless; yet the audience thinks that it has heard a specific message about the candidate.

- *Transfer.* In its positive form, this technique associates the product, candidate, or policy with something the public approves of or respects. You might not be able to get by with saying "Coors is patriotic," but surround a beer with images of the country's flag, and beer drinkers will get the idea that it is more patriotic to drink this brand of beer than some other kind. In its negative form, this technique associates the product, candidate, or policy with something generally disapproved of by the public.

- *Testimonials.* Famous individuals endorse a product, candidate, or policy. Michelle Wie lends her name to Nike products, and Tiger Woods tells you that Buicks make fine SUVs. In the negative form of this technique, a despised person is associated with the competing product. If propagandists (called "spin doctors" in politics) could get away with it, they would show Osama bin Laden announcing support for an opposing candidate.

- *Plain folks.* Sometimes it pays to associate the product, candidate, or policy with "just plain folks." "If Mary or John Q. Public likes it, you will, too." A political candidate who kisses babies, puts on a hard hat, and has lunch at McDonald's while photographers "catch him (or her) in the act" is using the "plain folks" strategy. "I'm just a regular person" is the message of the presidential candidate who poses for photographers in jeans and work shirt—while making certain that the chauffeur-driven Mercedes does not show up in the background.

- *Card stacking.* The aim of this technique is to present only positive information about what you support, and only negative information about what you oppose. The intent is to make it sound as though there is only one conclusion a rational person can draw. Falsehoods, distortions, and illogical statements are often used.

- *Bandwagon.* "Everyone is doing it" is the idea behind this technique. Emphasizing how many other people buy the product or support the candidate or policy conveys the message that anyone who doesn't join in is on the wrong track.

The Lees (1939) added, "Once we know that a speaker or writer is using one of these propaganda devices in an attempt to convince us of an idea, we can separate the device from the idea and see what the idea amounts to on its own merits."

For Your Consideration

What propaganda techniques have you seen or heard recently? Recall TV ads, political ads, movies, and newspaper articles. Explain why they were propaganda, not simply a source of information or entertainment.

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The mass media play such a crucial role that we can say they are the gatekeepers to social movements. If those who control and work in the mass media—from owners to reporters—are sympathetic to some particular "cause," you can be sure that it will receive sympathetic treatment. If the social movement goes against their views, however, it likely will be ignored or receive unfavorable treatment. If you ever get the impression that the media are trying to manipulate your opinions and attitudes—even your feelings—on some particular issue or social movement, you probably are right. Far from providing unbiased reporting, the media are under the control and influence of people who have an agenda to get across. To the materials in the Down-to-Earth Sociology box on propaganda, then, we need to add the biases of the media establishment—the topics it chooses to publicize, those it chooses to ignore, and its favorable and unfavorable treatment of issues and movements.

Sociology can be a liberating discipline (Berger 1963/2007). Sociology sensitizes us to *multiple realities;* that is, for any single point of view on some topic, there are competing points of view. Each represents reality as people see it, their distinct experiences having led them to different perceptions. Consequently, different people find each point of view equally compelling. Although the committed members of a social movement are sincere—and perhaps even make sacrifices for "the cause"—theirs is but one view of the world. If other sides were presented, the issue would look quite different.

The Stages of Social Movements

Sociologists have identified five stages in the growth and maturity of social movements (Lang and Lang 1961; Mauss 1975; Spector and Kitsuse 1977; Jasper 1991; Tilly 2004):

1. *Initial unrest and agitation.* During this first stage, people are upset about some condition in society and want to change it. Leaders emerge who verbalize people's feelings and crystallize issues. Most social movements fail at this stage. Unable to gain enough support, after a brief flurry of activity, they fade away.
2. *Resource mobilization.* A crucial factor that enables social movements to make it past the first stage is **resource mobilization.** By this term, sociologists mean the gathering and organizing of resources such as time, money, information, people's skills, and the ability to get the attention of the mass media. Those resources may also include access to churches to organize protests (Mirola 2003). A key resource is communications technology such as cell phones, Internet sites, and blogs. Also important is access to mailing lists for direct mailing, faxing, and e-mailing.

   In some cases, an indigenous leadership arises to mobilize resources. Other groups, lacking capable leadership, turn to "guns for hire," outside specialists who sell their services. As sociologists John McCarthy and Mayer Zald (1977; Zald and McCarthy 1987) point out, even though large numbers of people may be upset over some condition of society, without resource mobilization they are only upset people, perhaps even agitators, but they do not constitute a social movement.
3. *Organization.* A division of labor is set up. The leadership makes policy decisions, and the rank and file carry out the daily tasks necessary to keep the movement going. There is still much collective excitement about the issue, the movement's focal point of concern.
4. *Institutionalization.* At this stage, the movement has developed a bureaucracy, the type of formal hierarchy that was described in Chapter 5. Control lies in the hands of career officers, who may care more about their own position in the organization than the movement for which the organization's initial leaders made sacrifices. The collective excitement diminishes.
5. *Organizational decline and possible resurgence.* During this phase, managing the day-to-day affairs of the organization dominates the leadership. A change in public sentiment may even have occurred, and there may no longer be a group of committed people who share a common cause. The movement is likely to wither away.

Decline is not inevitable, however. More idealistic and committed leaders can emerge who reinvigorate the movement. Or, as in the case of abortion, the topic of the following Thinking Critically section, conflict between groups on opposing sides of the issue can invigorate both sides and prevent the movement's decline.

ThinkingCRITICALLY

Which Side of the Barricades? Prochoice and Prolife as a Social Movement

No issue so divides Americans as abortion. Although most Americans take a more moderate view, on one side are some who believe that abortion should be permitted under any circumstance, even during the last

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month of pregnancy. They are matched by individuals on the other side who are convinced that abortion should never be allowed under any circumstances, not even in the case of rape or incest or during the first month of pregnancy. This polarization constantly breathes new life into the movement.

When the U.S. Supreme Court made its 1973 decision, *Roe v. Wade,* that states could not prohibit abortion, the prochoice side relaxed. Victory was theirs, and they thought their opponents would quietly disappear. Instead, large numbers of Americans were disturbed by what they saw as the legal right to murder unborn children.

The views of the two sides could not be more incompatible. Those who favor choice view the 1.3 million abortions that are performed annually in the United States as examples of women exercising their basic reproductive rights. Those who gather under the prolife banner see these abortions as legalized murder. To the prochoice side, those who oppose abortion are blocking women's rights—they would force women to continue pregnancies they want to terminate. To the prolife side, those who advocate choice are perceived as condoning murder—they would sacrifice their unborn children for the sake of school, career, or convenience.

There is no way to reconcile these contrary views. Each sees the other as unreasonable and extremist. And each uses propaganda by focusing on worst-case scenarios: prochoice images of young women raped at gunpoint, forced to bear the children of rapists; prolife images of women who are eight months pregnant killing their babies instead of nurturing them.

With no middle ground, these views remain in perpetual conflict. As each side fights for what it considers to be basic rights, it reinvigorates the other. When in 1989 the U.S. Supreme Court decided in *Webster v. Reproductive Services* that states could restrict abortion, one side mourned it as a defeat and the other hailed it as a victory. Seeing the political battle going against them, the prochoice side regrouped for a determined struggle. The prolife side, sensing judicial victory within its grasp, gathered forces for a push to complete the overthrow of *Roe* v. *Wade*.

With sincere people on both sides of the issue—equally committed and equally convinced that their side is right—abortion is destined to remain a controversial force in U.S. life.

In 1992, this goal of the prolife side almost became reality in *Casey* v. *Planned Parenthood.* In a 6–3 decision, the Supreme Court upheld the right of states to require women to wait 24 hours between the confirmation of pregnancy and getting an abortion; to require girls under 18 to obtain the consent of one parent; and to require that women be informed about alternatives to abortion and that they be given materials which describe the fetus. In the same case, however, in a 5–4 decision, the Court ruled that a wife does not have to inform her husband if she intends to have an abortion. In 2007, in another 5–4 decision, the Court ruled a certain type of abortion procedure illegal. The names given this late-term procedure represent the ongoing struggle: One side calls it an "intact dilation and evacuation," while the other side terms it a "partial-birth abortion."

The battle is brought to our attention each time the Senate is asked to confirm the president's nominee to the U.S. Supreme Court. To watch these hearings is to view a skirmish between the opposing sides of this issue.

Because the two sides do not share the same reality, this social movement cannot end unless an overwhelming majority of Americans commit to one side or the other. Every legislative and judicial outcome—including the extremes of a constitutional amendment that declares abortion to be either murder or a woman's right—is a victory to one and a defeat to the other. To committed activists, then, no battle is ever complete. Rather, each action is only one small part of a long, hard-fought moral struggle.

For Your Consideration

Typically, the last stage of a social movement is decline. Why hasn't this social movement declined? Under what conditions will it decline?

The longer the duration of the pregnancy, the fewer the number of Americans who approve of abortion. How do you feel about abortion during the second month versus the eighth month? What do you think about abortion in cases of rape and incest? Can you identify some of the social reasons that underlie your opinions?

Sources: Neikirk and Elsasser 1992; McKenna 1995; Williams 1995; *Statistical Abstract* 2007: Table 96; Henslin 2008.

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The Growth Machine Versus the Earth

Of all the changes swirling around us, those that affect the natural environment seem to hold the most serious implications for human life.

Underlying today's environmental decay is the *globalization* of capitalism, which I have stressed throughout this text. To maintain their dominance and increase their wealth, the Most Industrialized Nations, spurred by multinational corporations, continue to push for economic growth. At the same time, the Industrializing Nations, playing catch-up, are striving to develop their economies. Meanwhile, the Least Industrialized Nations are anxious to enter the race: Because they start from even farther behind, they have to strive for even faster growth.

Many people are convinced that the earth cannot withstand such an onslaught. Global economic production creates extensive pollution, and faster-paced production means faster-paced destruction of our environment. In this relentless pursuit of economic development, many animal species are endangered or on the verge of extinction. If the goal is a **sustainable environment,** a world system in which we use our physical environment to meet our needs without destroying humanity's future, we cannot continue to trash the earth. In short, the ecological message is incompatible with an economic message that implies it is OK to rape the earth for the sake of profits.

Before looking at the social movement that has emerged about this issue, let's examine major environmental problems. We'll begin with pollution in the Most Industrialized Nations.

Environmental Problems in the Most Industrialized Nations

Although even tribal groups produced pollution, the frontal assault on the natural environment did not begin in earnest until nations industrialized. Industrialization was equated with progress and prosperity. For the Most Industrialized Nations, the slogan has been "Growth at any cost."

Industrial growth did come, but at a high cost to the natural environment. Today, for example, formerly pristine streams are polluted sewers, and the water supply of some cities is unfit to drink. Nuclear wastes, which will remain lethal for thousands of years, have been stored in rusting containers (Madslien 2006). We simply don't know what to do with this deadly garbage. Despite the danger to people and the environment, much toxic waste has simply been dumped. The Social Map on the next page shows the locations of the worst hazardous waste sites in the United States. These sites represent corporate garbage, some of it subsidized by corporate welfare, the topic of the Down-to-Earth Sociology box on page 443.

The major polluters are the Most Industrialized Nations. Our follies include harming the ozone layer in order to have the convenience of aerosol spray bottles, refrigerators, and air conditioners. With limited space to address this issue, I would like to focus on an overarching aspect of the pollution of our environment, the burning of fossil fuels.

Fossil Fuels and the Environment Burning fossil fuels to run factories, motorized vehicles, and power plants has been especially harmful. Fish can no longer survive in some lakes in Canada and the northeastern United States because of **acid rain.** As Figure 15.4 on the next page illustrates, the burning of fossil fuels releases sulfur dioxide and nitrogen oxide, which react with moisture in the air to become sulfuric and nitric acids.

An invisible but infinitely more serious consequence is the **greenhouse effect.** Burning fossil fuels releases gases that, like the glass of a greenhouse, allow sunlight to enter the earth's atmosphere freely but inhibit the release of heat. It is as though the gases have smudged the windows of our earth's greenhouse, and our planet can no longer breathe the way it should. The buildup of heat is causing **global warming:** Glaciers are melting and the seas are rising, threatening to flood the world's shorelines. Some island nations will disappear, washed away into the ocean (Kanter and Revkin 2007). As the climate boundaries move north several hundred miles, many animal and plant species will become extinct.

For decades, scientists argued about global warming. Many said that it was part of a natural cycle that the earth goes through. Some even said that it did not exist. As evidence accumulated, more and more scientists concluded that global warming did exist and that human activity—primarily the burning of coal and oil—was its cause. Today, the world's leading climate scientists, forming the United Nations' Intergovernmental Panel on Climate Change, have concluded that global warming is "unequivocal" and that human activity is its main driver (Rosenthal and Revkin 2007). The consequences, they predict, are likely to be catastrophic, and we should immediately reduce the burning of fossil fuels.

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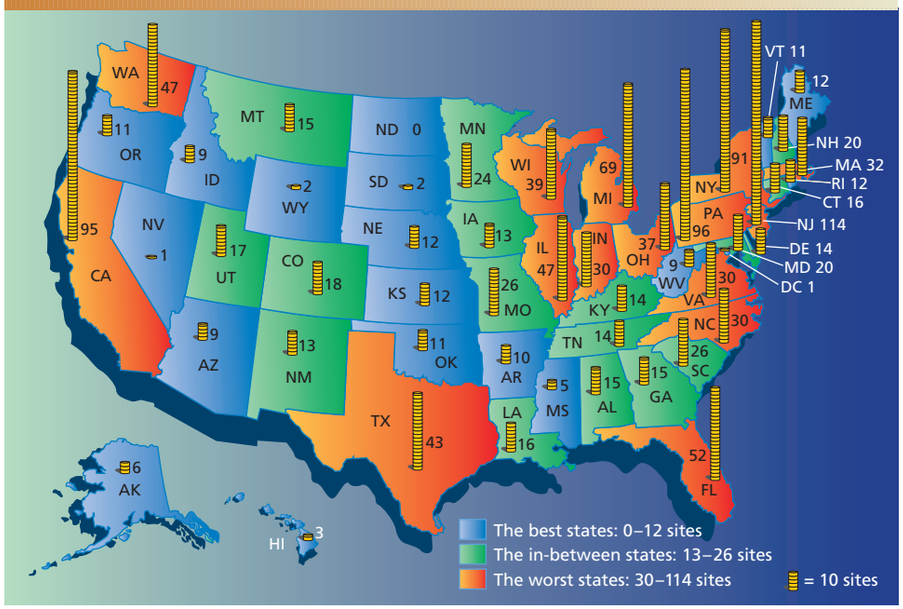
FIGURE 15.3 The Worst Hazardous Waste Sites



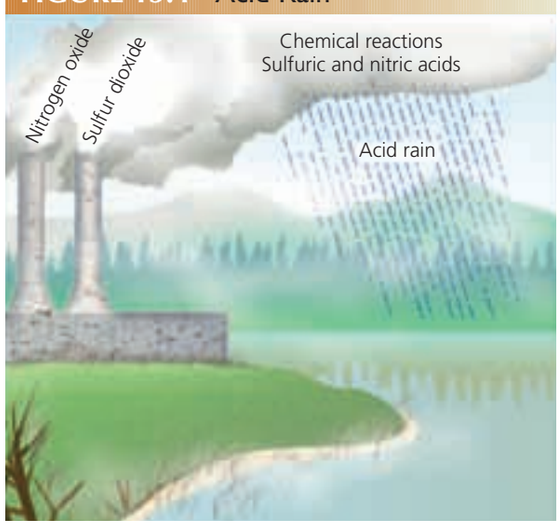
Note: These are the waste sites so outstandingly threatening to public health that they made the national priority list. New Jersey is in a class by itself. This small state has 18 more hazardous waste sites than its nearest competition Pennsylvania, with 96.
Source: By the author. Based on *Statistical Abstract of the United States* 2007: Table 368.

The Energy Shortage and Multinational Corporations If you ever read about an energy shortage, you can be sure that what you read is false. There is no energy shortage, nor can there ever be. We can produce unlimited low-cost power, which can help to raise the living standards of humans across the globe. The sun, for example, produces more energy than humanity could ever use. Boundless energy is also available from the tides and the winds. In some cases, we need better technology to harness these sources of energy; in others, we need only to apply the technology we already have.

Burning fossil fuels in internal combustion engines is the main source of pollution in the Most Industrialized Nations. Of the technologies being developed to use alternative sources of energy in vehicles, the most prominent is the gas-electric hybrid. Some of these cars are expected to eventually get several hundred miles per gallon of gasoline. The hybrid, however, is simply a bridge until vehicles powered by fuel cells become practical. Fuel cells convert hydrogen into electricity; water, instead of carbon monoxide, will come out of a car's exhaust pipe.

Environmental Injustice Unequal power has led to **environmental injustice**—minorities and the poor being the ones who suffer the most from the effects of pollution (Mohal and Saha 2007). Industries locate where land is cheaper, which is *not* where the wealthy live.

FIGURE 15.4 Acid Rain



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Nor will the rich allow factories to spew pollution near their homes. As a result, low-income communities, which are often inhabited by minorities, are more likely to be exposed to pollution. Sociologists have studied, formed, and joined *environmental justice* groups that fight to close polluting plants and block construction of polluting industries.

Environmental Problems in the Industrializing and Least Industrialized Nations

Pollution and the destruction of the environment cannot be laid solely at the feet of the Most Industrialized Nations. With their rush to industrialize, along with

Down-to-Earth Sociology

Corporations and Big Welfare Bucks: How to Get Paid to Pollute

Welfare is one of the most controversial topics in the United States. It arouses the ire of many wealthy and middle-class Americans, who view the poor who collect welfare as parasites. But have you heard about *corporate welfare*?

Corporate welfare refers to handouts that are given to corporations. Some states will reduce a company's taxes if it locates within the state or if it remains after threatening to leave. Some states provide land and buildings at bargain prices. The reason: jobs.

Corporate welfare even goes to companies that foul the land, water, and air. Borden Chemicals in Louisiana has buried hazardous wastes without a permit and released clouds of hazardous chemicals so thick that to protect drivers, the police have sometimes had to shut down the highway that runs near the plant. Borden even contaminated the groundwater beneath its plant, threatening the aquifer that provides drinking water for residents of Louisiana and Texas.

Borden's pollution has cost the company dearly: $3.6 million in fines, $3 million to clean up the groundwater, and $400,000 for local emergency response units. That's a hefty $7 million. But if we add corporate welfare, the company didn't make out so badly. With $15 million in reduced and canceled property taxes, Borden has enjoyed a net gain of $8 million (Bartlett and Steele 1998). And that's not counting the savings the company racked up by not having to properly dispose of its toxic wastes in the first place.

Louisiana has added a novel twist to corporate welfare. It offers an incentive to help start-up companies.

Some companies that pollute are rewarded with reduced taxes.

This itself isn't novel; the owners of that little "mom and pop" grocery store on your corner may have received some benefits when they first opened. Louisiana's twist is what it counts as a start-up company. One of these little start-ups is called Exxon Mobil Corp. Although Exxon Mobil opened for business in 1870 and is one of the world's richest corporations, it had $213 million in property taxes canceled under this start-up program. Another little company that the state figured could use a nudge to help it get started was Shell Oil Co., which had $140 million slashed from its taxes (Bartlett and Steele 1998). Then there were International Paper, Dow Chemical, Union Carbide, Boise Cascade, Georgia Pacific, and another tiny one called Procter & Gamble.

For Your Consideration

Apply the functionalist, symbolic interactionist, and conflict perspectives to corporate welfare. Which do you think provides the best explanation of corporate welfare? Why?

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nonexistent or unenforced environmental laws, the Industrializing Nations have become major polluters (Bradsher 2007a). Pollution in China is taking a huge environmental toll, as rivers and lakes become depositories for industrial waste and smoke consumes China's cities. The attempts to reduce pollution have been feeble. As China secures its place in the industrialized world, its leaders will take the need to control pollution seriously.

The lack of environmental protection laws in some of the Least Industrialized Nations has not gone unnoticed by opportunists in the industrialized ones. Some dump poisonous wastes in these countries (Polgreen and Simons 2006). Others produce chemicals there that have been outlawed in their own countries (Smith 1995; Mol 2001). Alarmed at the growing environmental destruction, the World Bank, the monetary arm of the world's most powerful nations, has pressured the Least Industrialized Nations to reduce pollution. When New Delhi officials tried to comply, workers blocked traffic and set fires, closing down the city for several days (Freund 2001). Understandably, the basic concern of workers is to provide food for their families first and to worry about the environment later.

A special concern is the rain forests. Although they cover just 7 percent of the earth's land area, the rain forests are home to *one-third to one-half* of all the earth's plant and animal species. Despite our knowledge that the rain forests are essential for humanity's welfare, we seem bent on destroying them for the sake of timber and farms. In the process, we extinguish plant and animal species, perhaps thousands a year (Wolfensohn and Fuller 1998). As biologists remind us, once a species is lost, it is gone forever.

As the rain forests disappear, so do the Indian tribes who live in them. With their extinction goes their knowledge of the environment, the topic of the Cultural Diversity box on page 446. Like Esau who traded his birthright for a bowl of porridge, we are exchanging our future for some lumber, farms, and pastures.

The Environmental Movement

Concern about environmental problems has produced a worldwide social movement. One result is *green parties,* political parties whose central issue is the environment. In some European countries, these parties have made a political impact. In Germany, for example, the Green Party has won seats in the national legislature. Green parties have had little success in the United States, but in the 2000 election, a green party headed by Ralph Nader arguably tipped the balance and gave the presidential election to George W. Bush.

Activists in the environmental movement generally seek solutions in politics, education, and legislation. Despairing that pollution continues, that the rain forests are still being cleared, and that species continue to become extinct, some activists are convinced that the planet is doomed unless we act immediately. Choosing a more radical course, they use extreme tactics to try to arouse indignation among the public and to force the government to act. Convinced that they stand for true morality, many are willing to break the law and go to jail for their actions. Such activists are featured in the following Thinking Critically section.

ThinkingCRITICALLY

Ecosabotage

Chaining oneself to a giant Douglas fir that is slated for cutting, tearing down power lines and ripping up survey stakes, driving spikes into redwood trees, sinking whaling vessels, and torching SUVs and Hummers—are these the acts of dangerous punks who have little understanding of the needs of modern society? Or are they the acts of brave men and women who are willing to put their freedom, and even their lives, on the line on behalf of the earth itself?

To understand why **ecosabotage**—actions taken to sabotage the efforts of people who are thought to be legally harming the environment—is taking place, consider the Medicine Tree, a 3,000-year-old redwood in the Sally Bell Grove near the northern California coast. Georgia Pacific, a lumber company, was determined to cut down the Medicine Tree, the oldest and largest of the region's redwoods, which rests on a sacred site of the Sinkyone Indians. Members of Earth First! chained themselves to the tree. After they were arrested, the sawing began. Other protesters jumped over the police-lined barricade and stood defiantly in the path of men wielding axes and chain saws. A logger swung an axe and barely missed a demonstrator. At that moment, the sheriff radioed a restraining order, and the cutting stopped.

Twenty-four-year-old David Chain's dedication cost him his life. The federal government and the state of California were trying to purchase 10,000 acres of pristine redwoods for half a billion dollars. As last-minute negotiations dragged on, loggers from the Pacific Lumber Company kept

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felling trees, and Earth First! activists kept trying to stop them. David Chain died of a crushed skull when a felled tree struck him.

How many 3,000-year-old trees remain on this planet? Does our desire for fences and picnic tables for backyard barbecues justify cutting them down? Issues like these—as well as the slaughter of seals, the destruction of the rain forests, and the drowning of dolphins in mile-long drift nets—spawned Earth First! and other organizations devoted to preserving the environment, such as Greenpeace, Rainforest Action Network, the Ruckus Society, and the Sea Shepherds.

"We feel like there are insane people who are consciously destroying our environment, and we are compelled to fight back," explains a member of one of the militant groups. "No compromise in defense of Mother Earth!" says another. "With famine and death approaching, we're in the early stages of World War III," adds another.

Julia "Butterfly" Hill lived for two years in this 1,000-year-old redwood tree, which she named Luna. The Pacific Lumber Company finally agreed to save the tree and a 200-foot buffer zone.

Radical environmentalists represent a broad range of activities and purposes. They are united neither on tactics nor on goals. Most propose a simpler lifestyle that will consume less energy and reduce pressure on the earth's resources. Some want to stop a specific action, such as the killing of whales. Others want to destroy all nuclear weapons and dismantle nuclear power plants. Some want everyone to become a vegetarian. Still others want the earth's population to drop to one billion, roughly what it was in 1800. Some even want humans to return to hunting and gathering societies. These groups are so splintered that Dave Foreman, the founder of Earth First!, quit his own organization when it became too confrontational for his taste.

Radical groups have had some successes. They have brought a halt to the killing of dolphins off Japan's Iki Island, achieved a ban on whaling, established trash recycling programs, and saved hundreds of thousands of acres of trees, including, of course, the Medicine Tree.

For Your Consideration

Should we applaud ecosaboteurs or jail them? As symbolic interactionists stress, it all depends on how you view their actions. And as conflict theorists emphasize, your view likely depends on your location in the economy. That is, if you own a lumber company, you will see ecosaboteurs differently from the way a camping enthusiast will. How does your own view of ecosaboteurs depend on your life situation? What effective alternatives to ecosabotage are there for people who are convinced that we are destroying the very life support system of our planet?

Sources: Carpenter 1990; Eder 1990; Foote 1990; Parfit 1990; Reed and Benet 1990; Knickerbocker 2003; Gunther 2004; Fattig 2007.

Environmental Sociology

About 1970, **environmental sociology** emerged. The focus of this subdiscipline of sociology is the relationship between human societies and the environment (Dunlap and Catton 1979, 1983; Casper 2003). Its main assumptions are

1. The physical environment should be a significant variable in sociological investigation.
2. Human beings are but one species among many that depend on the natural environment.

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Cultural Diversity around the World

The Rain Forests: Lost Tribes, Lost Knowledge

Since 1900, 90 of Brazil's 270 Indian tribes have disappeared. Other tribes have moved to villages as settlers have taken over their lands. Tribal knowledge is lost as group members adapt to village life.

Tribal groups are not just "wild" people who barely survive despite their ignorance. On the contrary, they have intricate forms of social organization and possess knowledge that has accumulated over thousands of years. The 2,500 Kayapo Indians, for example, belong to one of the Amazon's endangered tribes. The Kayapo use 250 types of wild fruit and hundreds of nut and tuber species. They cultivate thirteen types of bananas, eleven kinds of manioc (cassava), sixteen strains of sweet potato, and seventeen kinds of yams. Many of these varieties are unknown to non-Indians. The Kayapo also use thousands of medicinal plants, one of which contains a drug that is effective against intestinal parasites.

A Tari Huli dancer in the New Guinea highlands. The way of life of the world's few remaining rain forest tribes is threatened.

Until recently, Western scientists dismissed tribal knowledge as superstitious and worthless. Now, however, some have come to realize that to lose tribes is to lose valuable knowledge. In the Central African Republic, a man whose chest was being eaten away by an amoeboid infection lay dying because his infection did not respond to drugs. Out of desperation, the Roman Catholic nuns who were treating him sought the advice of a native doctor. He applied crushed termites to the open wounds. To the amazement of the nuns, the man made a remarkable recovery.

The disappearance of the rain forests means the destruction of plant species that may have healing properties. Some of the discoveries from the rain forests have been astounding. The needles from a Himalayan tree in India contain taxol, a drug that is effective against ovarian and breast cancer. A flower from Madagascar is used in the treatment of leukemia; a frog in Peru produces a painkiller that is more powerful, but less addictive, than morphine (Wolfensohn and Fuller 1998).

On average, one tribe of Amazonian Indians has been lost each year for the past century—because of violence, greed for their lands, and exposure to infectious diseases against which they have little resistance. Ethnocentrism underlies much of this assault. Perhaps the extreme is represented by the cattle ranchers in Colombia who killed eighteen Cueva Indians. The cattle ranchers were perplexed when they were put on trial for murder. They asked why they should be charged with a crime, since everyone knew that the Cuevas were animals, not people. They pointed out that there was even a verb in Colombian Spanish, *cuevar,* which means "to hunt Cueva Indians." So what was their crime, they asked? The jury found them not guilty because of "cultural ignorance."

For Your Consideration

What do you think we can do to stop the destruction of the rain forests?

Sources: Durning 1990; Gorman 1991; Linden 1991; Stipp 1992; Nabhan 1998; Simons 2006.

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The social movement that centers on the environment has become global. In all nations, people are concerned about the destruction of the earth's resources. This photo is a sign of changing times. Instead of jumping on this beached whale and carving it into pieces, these Brazilians are doing their best to save its life.

3. Because of feedback to nature, human actions have many unintended consequences.
4. The world is finite, so there are physical limits to economic growth.
5. Economic expansion requires increased extraction of resources from the environment.
6. Increased extraction of resources leads to ecological problems.
7. These ecological problems place limits on economic expansion.
8. Governments create environmental problems by encouraging the accumulation of capital.

The goal of environmental sociology is not to stop pollution or nuclear power but, rather, to study how humans (their cultures, values, and behavior) affect the physical environment and how the physical environment affects human activities. Environmental sociologists, however, generally are also environmental activists, and the Section on Environment and Technology of the American Sociological Association tries to influence governmental policies (American Sociological Association n.d.).

Technology and the Environment: The Goal of Harmony

It is inevitable that humans will continue to develop new technologies. But the abuse of our environment by those technologies is not inevitable. To understate the matter, the destruction of our planet is an unwise choice.

If we are to live in a world that is worth passing on to coming generations, we must seek harmony between technology and the natural environment. This will not be easy. At one extreme are people who claim that to protect the environment we must eliminate industrialization and go back to a tribal way of life. At the other extreme are people who are blind to the harm being done to the natural environment, who want the entire world to industrialize at full speed. Somewhere, there must be a middle ground, one that recognizes not only that industrialization is here to stay but also that we *can* control it, for it is our creation. Controlled, industrialization can enhance our quality of life; uncontrolled, it will destroy us.

It is essential, then, that we develop ways to reduce or eliminate the harm that technology does to the environment. This includes mechanisms to monitor the production, use, and disposal of technology. The question, of course, is whether we have the resolve to take the steps necessary to preserve the environment for future generations. What is at stake is nothing less than the welfare of planet Earth. Surely that is enough to motivate us to make wise choices.

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SUMMARY and REVIEW

How Social Change Transforms Social Life

What major trends have transformed the course of human history?

The primary changes in human history are the four social revolutions (domestication, agriculture, industrialization, and information); the change from *Gemeinschaft* to *Gesellschaft* societies; capitalism and industrialization; modernization; and global stratification. Social movements indicate cutting edges of social change. Ethnic conflicts and power rivalries threaten the global divisions that the most powerful nations are working out. We may also be on the cutting edge of a new biotech society. Pp. 426–430.

Theories and Processes of Social Change

Besides technology, capitalism, modernization, and so on, what other theories of social change are there?

Evolutionary theories presuppose that societies move from the same starting point to some similar ending point. *Unilinear* theories, which assume the same evolutionary path for every society, were replaced by *multilinear* theories, which assume that different paths lead to the same stage of development. *Cyclical* theories view civilizations as going through a process of birth, youth, maturity, decline, and death. Conflict theorists view social change as inevitable, for each *thesis* (basically an arrangement of power) contains *antithesis* (contradictions). A new *synthesis* develops to resolve these contradictions, but it, too, contains contradictions that must be resolved, and so on. This is called a **dialectical** process. Pp. 430–431.

What is Ogburn's theory of social change?

William Ogburn identified technology as the basic cause of social change, which comes through three processes: **invention, discovery,** and **diffusion.** The term **cultural lag** refers to symbolic culture lagging behind changes in technology. Pp. 431–432.

How Technology Changes Society

How does new technology affect society?

Because **technology** is an organizing force of social life, changes in technology can have profound effects. The computer is changing the way we learn, do business, and fight wars. The implications for social control are serious, and we don't yet know whether information technologies will help to perpetuate or to reduce social inequalities on both a national and a global level. Pp. 432–435.

Social Movements as a Source of Social Change

What types of social movements are there?

Social movements consist of large numbers of people who organize to promote or resist social change. Depending on their target (individuals or society) and the amount of social change that is desired (partial or complete), social movements can be classified as **alterative, redemptive, reformative, transformative, transnational,** and **metaformative.** Pp. 436–437.

How are the mass media related to social movements?

The mass media are gatekeepers for social movements. Leaders use **propaganda** to influence **public opinion.** Pp. 437–439.

What stages do social movements go through?

Sociologists have identified five stages of social movements: initial unrest and agitation, mobilization, organization, institutionalization, and, finally, decline. Resurgence is also possible, if, as in the case of abortion, opposing sides revitalize one another. Pp. 439–440.

The Growth Machine Versus the Earth

What are the environmental problems of the Most Industrialized Nations?

The environmental problems of the Most Industrialized Nations range from smog and acid rain to the **greenhouse effect. Global warming** is likely to have severe consequences for the world. Burning fossil fuels in internal combustion engines lies at the root of many environmental problems. The location of factories and hazardous waste sites creates **environmental injustice,** environmental problems having a greater impact on minorities and the poor. Pp. 441–444.

Do the Industrializing and Least Industrialized Nations have environmental problems?

The worst environmental problems are found in the nations that are rushing into industrialization, especially China. The world is facing a basic conflict between the lust for profits through the exploitation of the earth's resources and the need to establish a **sustainable environment.** P. 444.

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What is the environmental movement?

The environmental movement is an attempt to restore a healthy environment for the world's people. This global social movement takes many forms, from peaceful attempts to influence the political process to **ecosabotage.** Pp. 444–446.

What is environmental sociology?

Environmental sociology is not an attempt to change the environment, but, rather, is a study of the relationship between humans and the environment. Environmental sociologists are generally also environmental activists. P. 447.

THINKING CRITICALLY *about* Chapter 15

1. Pick a social movement and analyze it according to the sociological principles and findings reviewed in this chapter.
2. In what ways does technology change society? How has social change affected your life? Be specific—what changes, how? Does Ogburn's theory help to explain your experiences? Why or why not?
3. Do you think that a sustainable environment should be a goal of the world's societies? Why or why not? If so, what practical steps do you think we can take to produce a sustainable environment?

ADDITIONAL RESOURCES

What can you find in MySocLab? mysoclab www.mysoclab.com

- **Complete Ebook**
- **Practice Tests and Video and Audio activities**
- **Mapping and Data Analysis exercises**
- **Sociology in the News**
- **Classic Readings in Sociology**
- **Research and Writing advice**

Where Can I Read More on This Topic?

Suggested readings for this chapter are listed at the back of this book.