

# HISTORICAL CHANGE

- A. Some societies maintain **traditional** ways.
- B. Cultures, places and environments change over time.
- C. The same region may have different physical and human characteristics at different time periods.
- D. Migration, war, trade, cultural diffusion and technological innovation can lead to change.
- E. Change can lead to new and different uses of physical features.
- F. **Human conflict** is often a major cause of change. Conflicts can lead to **genocide** and **terrorism**.
- G. **Technological innovation** is another major cause of change. Technological innovations in transportation and energy have led to human modifications of the physical environment. They have also allowed people to move to new places.
- H. Technological developments such as medical advances, improvements in agriculture and the introduction of new information technologies have had profound effects on economies, societies, and the environment.

## GEOGRAPHIC TERMINOLOGY IN THIS CHAPTER

- |                      |                            |                  |
|----------------------|----------------------------|------------------|
| ■ Traditional Ways   | ■ Terrorism                | ■ GPS            |
| ■ Cultural Diffusion | ■ Technology               | ■ GIS            |
| ■ Genocide           | ■ Technological Innovation | ■ Desalinization |

Earlier chapters in this book dealt with the geography of the world as it is today. These chapters looked at many of the world's current physical and human features. Now think about how the world came to be what it is today, and how it will be tomorrow. In fact, the geography of the world is in a process of constant change.

## CHANGES IN PHYSICAL GEOGRAPHY

As you may recall, forces like tectonic plate movement and erosion gradually change the shape of Earth's surface. These processes cause Earth's physical geography to change. Such changes can often take thousands of years.

**The Sahara Desert.** The Sahara Desert in North Africa provides an example of physical geography changing. Scientists believe it was once a fertile and flourishing land, covered in forests and flowing rivers. As Earth's climate grew warmer, the Sahara grew drier. Gradually, over a span of thousands of years, the Sahara became a desert.

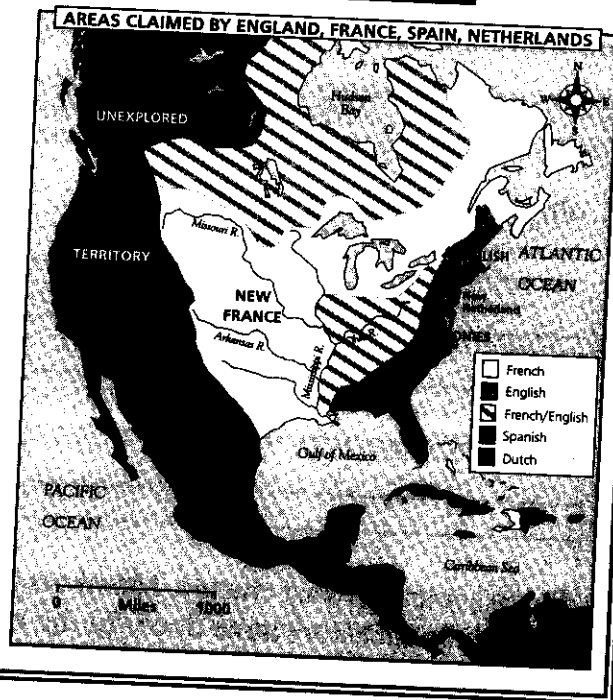
**The Siberian-Alaskan Land Bridge.** A land bridge once connected Siberia and Alaska during the last Ice Age, about 11,500 years ago. Siberia and Alaska were then parts of the same physical region. When the Earth became warmer, glaciers melted, causing sea levels to rise and burying the land bridge. Alaska and Siberia became separated by the sea and were no longer connected. This represents another example of geographic change.

## CHANGES IN HUMAN GEOGRAPHY

Human geography often changes more quickly than physical geography. A cultural region or political unit can expand, contract, or even disappear over time. The characteristics of a culture — its ways of doing things — can also change.

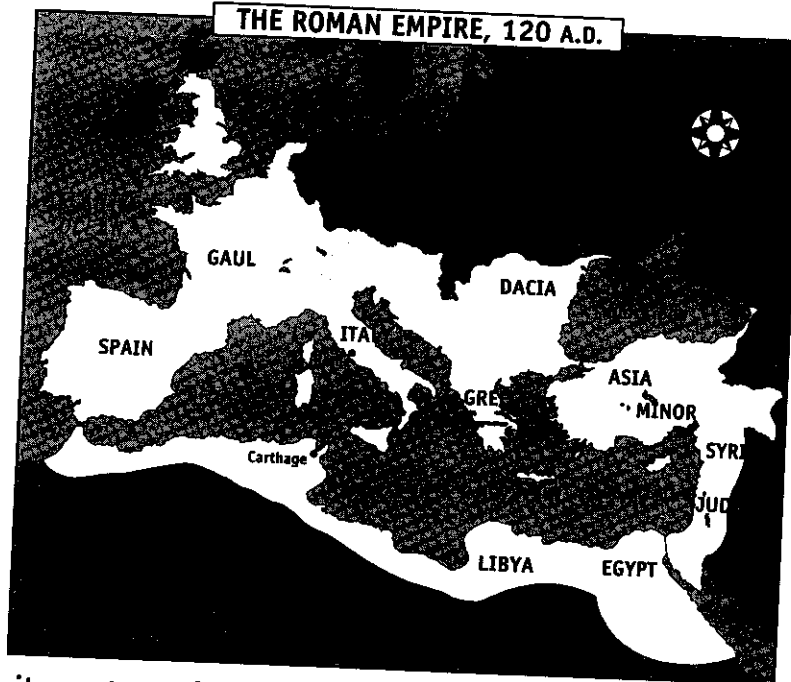
### CASE STUDY: The Americas

North and South America, for example, once consisted of many Native American Indian cultural groups. These groups divided the Americas into different regions — such as the Inca and Aztec empires, the tribal lands of the Iroquois, and the Great Plains, inhabited by such tribes as the Sioux. The arrival of Europeans greatly disrupted these Native American Indian tribes. The Americas changed into new cultural regions based on European exploration and colonization. Former Native American Indian lands came under the rule of European powers — New Spain, New France, and the thirteen English colonies.



## CASE STUDY: The Roman Empire

The ancient Roman Empire once formed a vast cultural region. It changed over time and eventually disappeared. Ancient Rome began as a city-state near the west coast of central Italy. After conquering the rest of Italy, Rome defeated Carthage, its main rival in the Mediterranean. Next Rome conquered Spain, Gaul (*present-day France*), Greece, Egypt and Britain. This allowed Rome to extend its control throughout much of Europe and the Mediterranean world. As it expanded, Rome also changed its system of government. The Roman Republic, ruled by leading noble families in the Senate, was replaced by an all-powerful emperor. Ways of earning a living changed, too. Foods from all over the empire flooded into Rome. People in the capital city relied more on slave labor. After several centuries, Rome began to shrink under the impact of attacks by hostile barbarian tribes. Eventually, this region divided into two separate empires and finally collapsed.



Some societies resist change. Members of these **traditional societies** prefer to do things much as their ancestors have done. In the modern world, however, most societies are now changing more rapidly than ever before.

What factors cause human cultures and regions to change? You have looked at examples of change but you have not yet explored the causes of change. Geographers and historians have identified several important processes that often contribute to change. You may already be familiar with some of them:

Migration

Cultural Diffusion

Trade

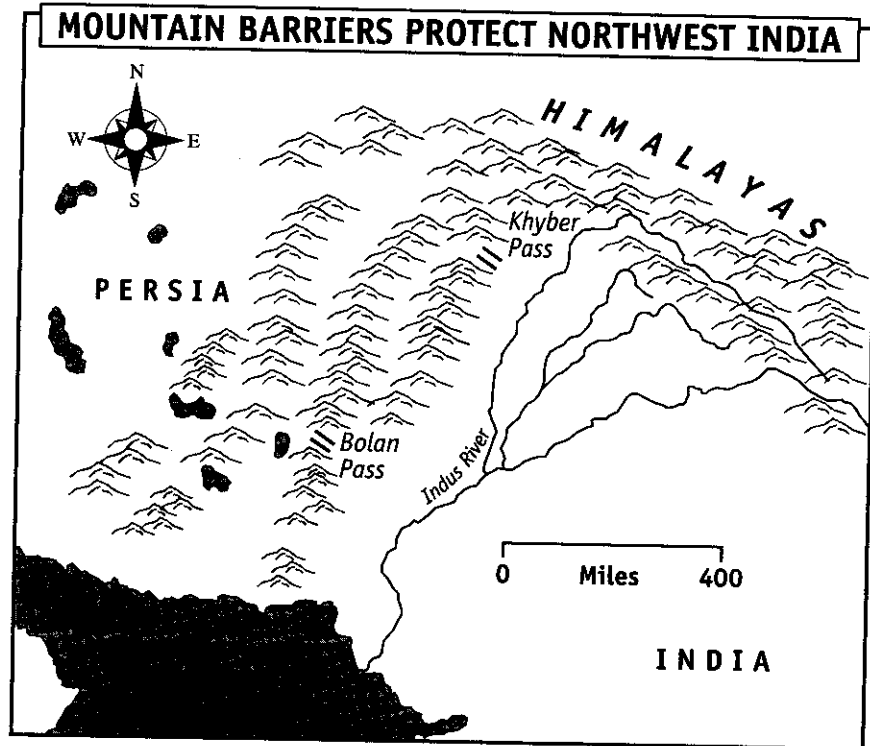
Conflict/War

Technological Innovation

# MIGRATION

**Migration** is the movement of people from one place to another. When new people arrive, they often bring new beliefs, technologies and ways of doing things with them. Their arrival may also lead to conflict or conquest.

For example, in ancient times, Arayan tribes entered India and transformed Indian society by introducing Hinduism and the caste system. In the 900s, invading Muslim peoples brought the Islamic religion through



the 33-mile Khyber Pass to India. As a result, parts of India were again totally transformed. They came under the control of Muslim rulers and adopted Islam. Many books in Sanskrit were translated into Arabic.

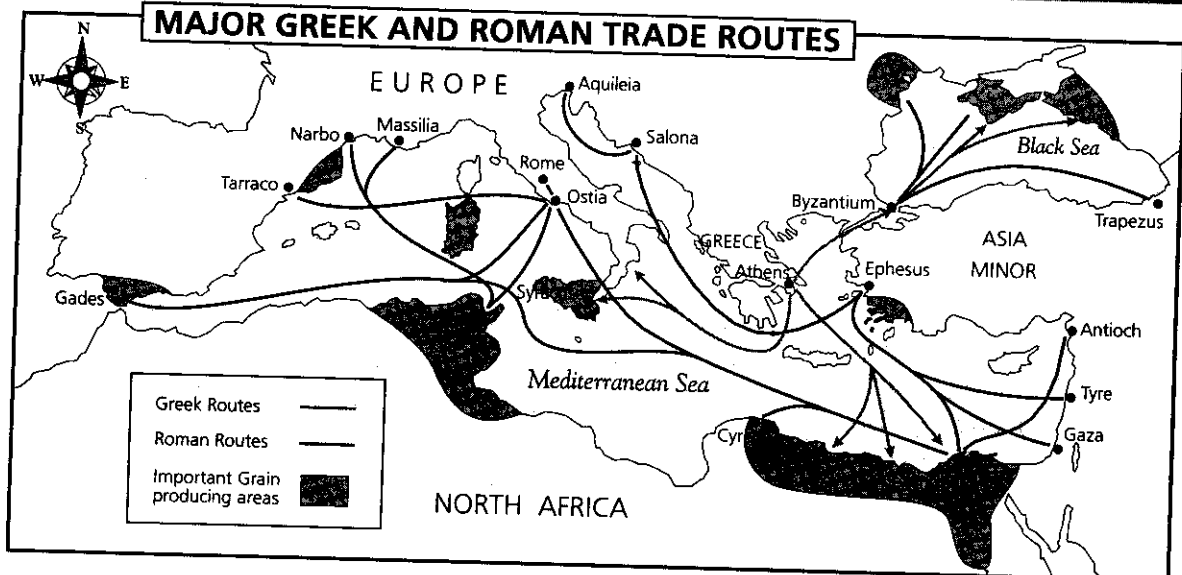
In another example, European immigrants in the 19th century brought new ideas, foods, customs and traditions to Texas and the rest of the United States.

# CULTURAL DIFFUSION

As you know, **Cultural diffusion** is the spread of ideas, goods, technologies, and cultural traits from one society to another. Cultural diffusion is often a major cause of change. The arrival of Chinese ideas and cultural traits, for example, played a large role in transforming Japanese society. Contact with Europe similarly changed the Native American Indian cultures in Mexico and Peru.

# TRADE

Trade is any exchange of goods and services. Trade can occur within a country or between people in different countries. Trade encourages the spread of people, ideas, and goods. As a result of trade, people are able to use new and different products. For example, the Greeks and Romans enjoyed extensive trade across the Mediterranean. In those times, it was generally easier to carry goods by ship than overland. Because of trade, Romans obtained cheap grain from North Africa, silk from China, olives from Greece, and many other goods. Such trade promoted change.



Source: *Brief Review in Global History and Geography*, Prentice-Hall.

★ Which cities in the Mediterranean did Rome trade with? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# CONFLICT

Human conflict is another important cause of change. Armed conflicts occur either within a society or between different societies. There are many reasons for conflicts:

## CIVIL WARS AND GENOCIDE

Different groups in the same society may compete for scarce resources or for political power. Different ethnic groups or religious groups in the same society may also fight with one another. One ethnic group may want to eliminate another. Or believers of one religion may want to convert, remove, or even exterminate those holding different religious beliefs.

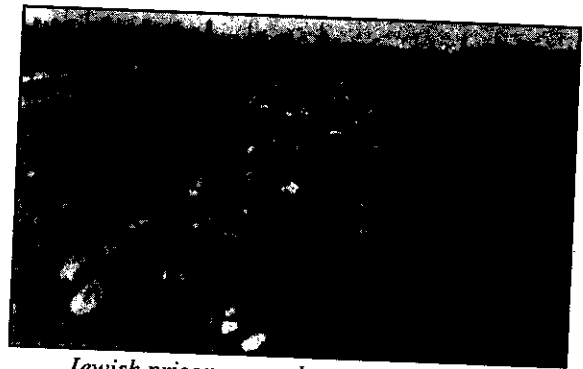
**Genocide.** If a dominant group tries to completely eliminate a religious or ethnic group, this is known as **genocide** — the mass murder of a people.



*As many as a million Tutsi were killed in the genocide carried out against them in Rwanda.*

For example, during World War II, Nazi German leaders tried to murder all the Jews of Europe in the **Holocaust**. Six million Jews were shipped in railroad cars to Nazi concentration camps, where they were brutally murdered in gas chambers.

Attempts at genocide continue in more recent times. In the 1990s, Hutus killed Tutsis in Rwanda, while Serbs attacked Bosnian Muslims.



*Jewish prisoners on the way to Birkenau for mass extermination.*

# INTERNATIONAL CONFLICTS

Countries also sometimes enter into armed conflict with one another. They may disagree over their borders or have other disputes. The leaders of one country may simply feel they can defeat and conquer another country. They might go to war to take away some of its land or resources.

**Competition for Wealth and Resources.** For example, in the 18th and 19th centuries, European powers fought against one another to establish colonies in the Americas, Asia, and Africa. They also fought against native peoples who resisted colonization. Wars between colonial powers and native inhabitants continued throughout the nineteenth century.

★ **Sepoy Mutiny.** British troops put down rebels in India during the Sepoy Mutiny of 1857.

★ **Zulu British Wars.** British soldiers also fought against the Zulus in South Africa and local tribes in the Sudan.

★ **Opium War.** In the 1850s, the British fought against the Imperial government of China in the Opium War to obtain exclusive trading rights.

★ **Mexican Cession.** The United States invaded Mexico to resolve a border dispute over Texas. It used this victory to seize the Mexican Cession — lands that included present-day California, New Mexico, and Arizona.

★ **Spanish-American War.** The United States went to war with Spain in 1898 over issues that arose in Cuba. An American victory allowed the United States to obtain its first colonies — Puerto Rico, Hawaii, and the Philippines.

★ **World War II.** In the 1930s, Nazi Germany and Imperial Japan sought to expand. They went to war against their neighbors in order to conquer them. Britain and France entered the war in order to stop German and Japanese expansion.



*The British fought the Zulus in South Africa.*

**Conflicts over Ideals.** Countries also sometimes go to war against each other over ideas. In the 16th century, Catholics and Protestant rulers fought against each other in wars of religion. In the late 18th century, countries fought over the French Revolution. After World War II, democratic and communist countries were suspicious of each other. They competed throughout the world to spread their ideologies (*belief systems*) and ways of life. This led to the Cold War. In some nations, such as Korea and Vietnam, the Cold War erupted into actual fighting.

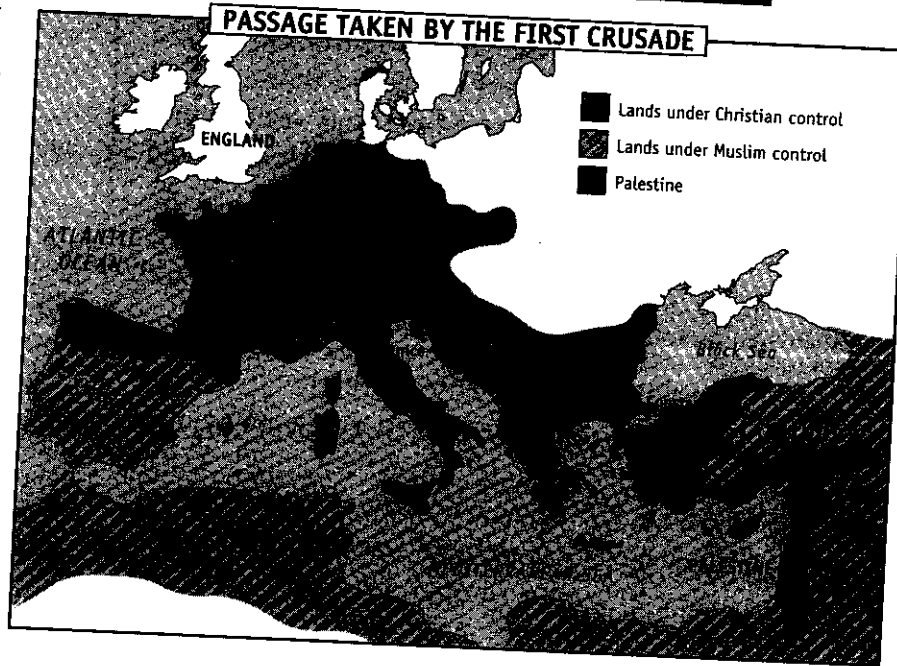
**Terrorism.** Sometimes a group does not feel strong enough to challenge a government openly. Instead, its members commit acts of violence like a suicide bombing in order to attract attention and create a sense of terror among the citizens of its enemy. Terrorist groups then demand certain concessions in order to halt their acts of terror.

# THE IMPACT OF CONFLICT

All of these different conflicts can lead to cultural change. War can disrupt a society, breaking it apart. It can lead to the conquest of one society by another or cause a government to collapse. The need for better ways of fighting can promote new weapons and other technological innovations, which can have peacetime uses.

## CASE STUDY: The Crusades

Wars can even promote cultural diffusion and the spread of new ideas. For example, for hundreds of years Christians traveled to Jerusalem to visit where Jesus was born. When Muslims gained control of Jerusalem, the Pope called on all Christians to retake the Holy Land. In the ensuing Crusades, thousands of European warriors were exposed



to Muslim technological achievements, such as the use of zero in mathematics. The interaction of European and Muslim cultures stimulated a new demand for Muslim and Asian goods in Europe, such as silks, rice, spices, coffee and glass mirrors. This demand led to increased trade with other parts of the world.

UNLAWFUL TO PHOTOCOPY

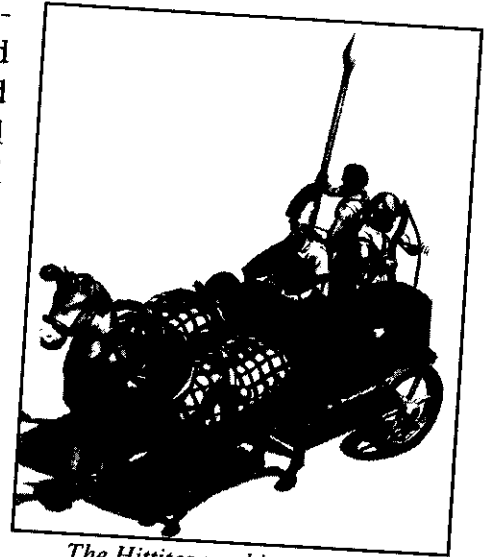


**Technology** is the use of materials, tools, and skills to meet human needs. **Technological innovation** is the development of new technologies.

Technological innovation often leads to important cultural changes. For example, the ancient Hittites appeared about 2200 B.C. They developed a process that allowed them to produce iron tools, weapons, and ornamental objects. Their iron tools and weapons were harder and had sharper edges than those made from bronze or copper. The Hittites were able to conquer Egypt, but Egypt and neighboring societies soon copied the Hittites and made their own iron goods.

Some technological innovations directly encourage change. The use of the compass and other new navigation tools, borrowed from China and elsewhere, made European exploration of the oceans possible. The astrolabe, which the Greeks had invented and used for astronomical purposes, came to Europe through the Arabs. It greatly aided exploration by calculating latitudes based on the sun's height above the horizon.

In 1450, **Johann Gutenberg** invented moveable type. This allowed books and pamphlets to be printed cheaply. News and ideas could then spread much more quickly. Gutenberg's printing press helped launch the Protestant Reformation by spreading criticism of the Catholic Church.



*The Hittites used iron to build a three-man chariot, a technological innovation in warfare.*

## CHANGES IN TRANSPORTATION AND ENERGY

Technological innovations in transportation and energy have even led to significant modifications of the physical environment. For most of human history, people relied on their own legs, sailboats, or animal power to travel from one place to another. In order to speed communications and the movement of armies, some rulers built paved roads and set up posts with fresh horses. Others dug canals to connect natural waterways.

**Steam Engine.** Things changed dramatically in the 1700s with the invention of the **steam engine**. The steam engine provided a new source of power that could be used in factories. It also provided power for transportation. The steam engine was quickly applied to power steamboats to travel long distances on the water, even against the current, and to power railroad trains on land.

**Automobiles and Airplanes.** At the end of the 19th century, transportation was further improved with the invention of the internal combustion engine. This was used to power the automobile, and shortly afterwards, the airplane. Each of these improvements in transportation increased the range of places people that could travel to, or from which people could ship goods easily.

## EFFECTS OF CHANGES IN TRANSPORTATION

Advances in transportation brought about dramatic changes. The steamboat made it possible for European explorers to move upstream deep into the interior sections of Africa, where they now established far-flung colonial empires. The railroad likewise made it possible for Americans to settle the Far West.



*Construction of the transcontinental railroad allowed Americans to cross the Great Plains.*

Wherever steamboats and trains went, people transformed their physical environment by establishing ranches, farms, plantations and mines, and by building towns and cities.

Later, countries around the world began laying down roads and highways for automobiles and trucks. Earth's surface has been gradually transformed by a network of roads, railroads, bridges and tunnels that connect farms, factories, towns and cities.

Meanwhile, the demand for energy has led people to dig mines for coal and to drill holes for oil and natural gas. The burning of these fossil fuels by factories, homes, cars, and trucks has released large amounts of pollution into the atmosphere.

## OTHER RECENT TECHNOLOGICAL DEVELOPMENTS

It is not only in transportation that important technological innovations have occurred. In the last fifty years, the pace of technological change has become more rapid than at any other time in human history.

**New Information Technologies.** New information technologies, based on computers and the Internet, are bringing more information to greater numbers of people than ever before. The Internet connects millions of computers together and makes vast amounts of information easily available. People from the United States and other countries with access to the Internet can now tap into this vast storehouse of information.

**Global Positioning Systems (GPS).** Satellites, powered by solar energy, circle the Earth in outer space. These satellites send signals to Earth that are used by GPS devices. Users can now locate their exact position on Earth at any time. Navigation devices in cars, which can find addresses and map routes, make use of GPS to assist drivers. Originally developed for military use, GPS devices can also be used to search for and rescue airplanes, to guide hi-tech weapons, and to eavesdrop on potential enemies.

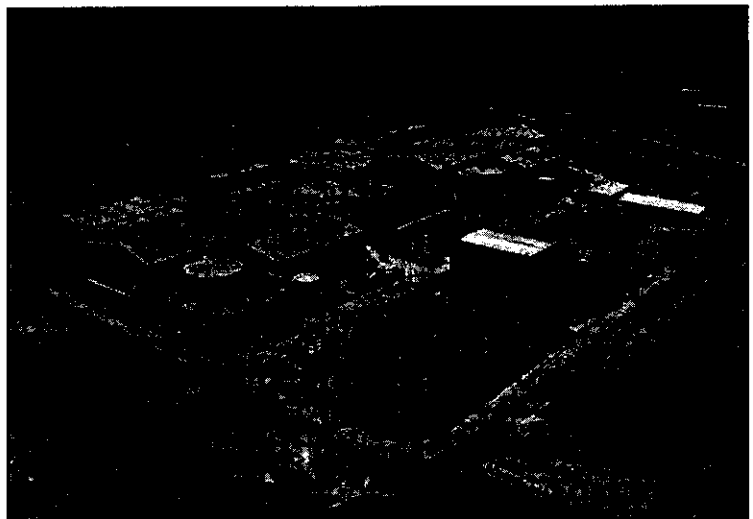


*A space satellite makes possible the use of GPS devices.*

**Graphic Information Systems (GIS).** Computers also make **Graphic Information Systems** possible. In GIS, mapmaking and database technology are merged. Computers capture, store, manage, and analyze information and store this digital information at each location on a map. With GIS, we can better understand, interpret, and visualize data in a variety of ways to show relationships, patterns, and trends in the form of maps, reports, and charts.

**Air Conditioning.** Other technological innovations allow people to move to places where they could not previously live as comfortably. In the United States, the population was once concentrated in the Northeast. Many Americans found the South and West to be too hot in the summer. The invention of air conditioning made it possible to cool the insides of buildings even in extremely hot and humid weather. As a result, there has been a major shift in the population of the United States to the warmer South and West. Since the 1960s, when air conditioning began to come into wider use, the Northeast and the Midwest have increased in population just 27%, while the South and West have grown more than four times as much.

**Desalinization.** In many places of the world, there is a lack of fresh drinking water. Scientists are experimenting with ways of heating and cooling salt water in order to separate the salt and make fresh water. This process is known as **desalinization**. Israel is a dry desert country on the edge of the Mediterranean Sea. Israeli scientists have built several desalination plants to provide fresh water. One of the world's largest desalination plants is also in El Paso, Texas. Like air conditioning, this technological advance allows people to adapt to new environments. More efficient desalination will make it possible for people to live and farm in new areas.



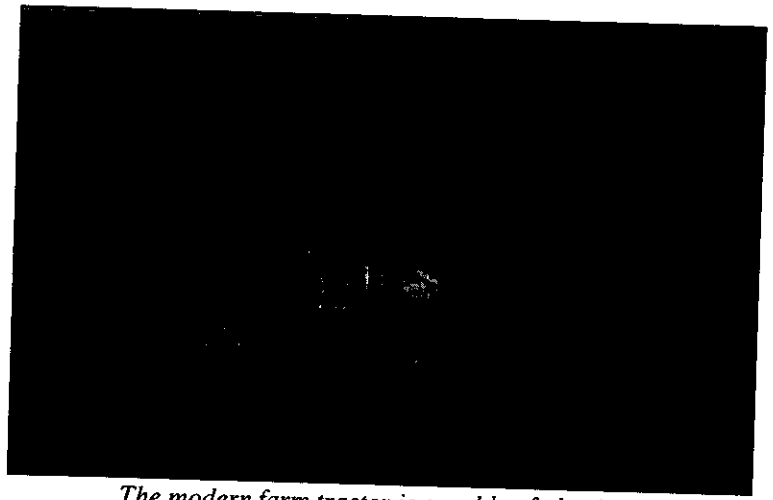
*The Ashkelon desalination plant in Israel sits next to the Mediterranean Sea.*

**Agriculture.** Technology also assists farmers in agriculture. The introduction of the **tractor** in the early 20th century transformed agriculture. Today, scientists have developed better seeds, improved fertilizers, and stronger pesticides to kill harmful insects. Farmers grow more plants with less water, land, and labor. Computers help plan, harvest and sell crops more efficiently. Satellites help farmers obtain more accurate reports of weather conditions. Due to these technological

changes, American agricultural production has doubled in the past fifty years. This makes more food available for our growing population or for export to other countries.

**Trade.** Technological innovations have also led to changes in trading patterns. In ancient times, people mainly traded with nearby communities. They obtained a few highly prized goods by trading with distant communities across the sea. Later, ships grew larger and societies carried on more active trade across the world. The development of modern large ships with containerized cargo, combined with the use of trucks and freight trains, has made possible global trade to an extent unimaginable in earlier times. If you look around your house, you will probably find goods made in China, Mexico, Japan, Chile, Italy and many other countries.

**Medicine.** Technological innovations, many based on new information technologies, are also leading to improvements in medicine. Scientists now understand DNA, the genetic basis for human life. They are able to design and test new medicines to fight specific diseases. Scientists also have new tools like CAT-scans (*Computerized Axial Tomography*) and MRI (*Magnetic Resonance Imaging*). These use computers to put together three-dimensional images based on thousands of pictures of the patient. Scientists are better able to understand why we sometimes become ill and can now develop new cures.



*The modern farm tractor is capable of plowing, tilling, planting, and many other tasks.*



*A patient about to undergo a CAT-scan.*