

# Chapter 16

## The Growth of Industry



▲ Railroads sped industrialization in the late 1800s.

NATIONAL GEOGRAPHIC

### Who & When?

1870



**1870**  
Rockefeller organizes Standard Oil Company

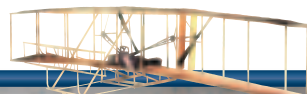
**1876**  
Bell patents the telephone

1890

**1886**  
Trade unions form AFL

1910

**1903**  
Wright brothers fly first motorized airplane



CONTENTS

# The Big Ideas

## Section 1

### Railroads Lead the Way

**Geography shapes the physical, economic, and political challenges a region faces.** The spread of railroads across the country encouraged America's expanding economy.

## Section 2

### Inventions

**Innovations in technology and business help build a nation's industrial power.** Inventions improved the transportation and communication networks that were vital to the nation's industrial growth.

## Section 3

### The Age of Big Business

**Innovations in technology and business help build a nation's industrial power.** Corporations changed the American economy of the late 1800s.

## Section 4

### Industrial Workers

**Reactions to social injustice can lead to reform movements.** Workers organized to demand better pay and working conditions.

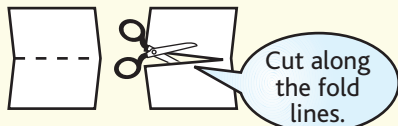


View the Chapter 16 video in the Glencoe Video Program.

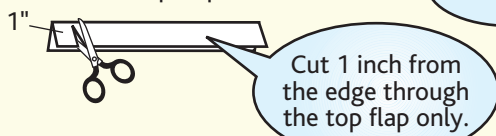
## FOLDABLES™ Study Organizer

**Identifying Main Ideas** Make this foldable to describe the growth of industry in the United States in the late 1800s.

**Step 1** Fold two sheets of paper in half from top to bottom. Cut the papers in half along the folds.



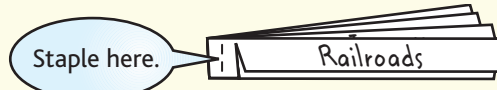
**Step 3** On each folded paper, make a cut 1 inch from the side on the top flap.



**Step 2** Fold each of the four papers in half from top to bottom.



**Step 4** Place the folded papers one on top of the other. Staple the four sections together and label each of the tabs Railroads, Inventions, Big Business, and Industrial Workers.



#### Reading and Writing

As you read, write what you learn about the developments of industry under each appropriate tab.



## Predicting Consequences



### **1** Learn It!

Did you ever wish you could see into the future? Although it is impossible to predict future events, you can develop skills to help you identify the consequences of decisions or actions. Follow these steps to help you thoughtfully predict consequences:

- Review what you already know about a situation by listing facts, events, and people's responses. The list will help you recall events and how they affected people.
- Use your knowledge and observations of similar situations. In other words, ask yourself, "What were the consequences of a similar decision or action that occurred in the past?"
- Look for patterns. Try to determine what the patterns show. Are some consequences more likely to occur than others?
- Make a prediction.

### **Reading Tip**

Read the first two pages of a chapter to get an overview of its contents. Next, reflect on what you have already studied. Last, make some educated guesses about what you might learn in the chapter.

## 2 Practice It!

You have already learned about some of the changes in transportation, trade, and settlement between 1800 and 1869. You learned that inland roads, along with the steamboat and the canal system, stimulated trade and settlement. Railroads spanning the continent took settlers and entrepreneurs into new regions of the United States. In this chapter, you will read more about how the railroad impacted life and industry, setting the stage for a new Industrial Revolution. Practice making some predictions about what you might learn. Complete the chart below, then discuss your predictions with a partner.

Event	Predicted results
Railroads made new regions accessible	New areas were settled by farmers, miners, and ranchers
Transcontinental railroad completed	Thousands of workers brought West
Several railroads connected East and West	
Railroads offered employment opportunities	
Railroad companies consolidated	

### Read to Write.....

Based on what you read about labor conditions during the building of the transcontinental railroad, write a short paragraph predicting what labor conditions might have been like in other industries at that time.



◀ European immigrants on a railroad flatcar view land open for settlement on the Great Plains.

## 3 Apply It!

Read the main ideas for this chapter. Take notes predicting what you'll discover. Monitor your progress to see if your expectations were accurate.

# Railroads Lead the Way

## Guide to Reading



### History Social Science Standards

**US8.12** Students analyze the transformation of the American economy and the changing social and political conditions in the United States in response to the Industrial Revolution.

### Looking Back, Looking Ahead

In the last chapter, you read about the expansion of the nation into the West. In this chapter, you will read about America's economic expansion and the shift from an agricultural economy to an industrial nation.

### Focusing on the **Main Ideas**

- Railroad barons used consolidation to expand their companies and create a growing system of railroads throughout the United States. (page 707)
- Railroad growth stimulated the economy, and innovations made railroad travel more efficient and profitable. (page 709)

### Meeting People

Cornelius Vanderbilt

James J. Hill

Collis P. Huntington

Leland Stanford

George Westinghouse

Eli H. Janney

Gustavus Swift (guh • STAHV • uhs)

George M. Pullman

### Content Vocabulary

**consolidation**

(kuhn • SAH • luh • DAY • shuhn)

**standard gauge** (GAYJ)

**rebate**

**pool**

### Academic Vocabulary

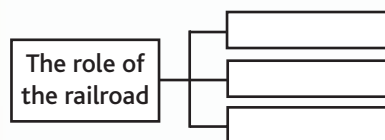
**technology** (teh • NAH • luh • jee)

**convert** (kuhn • VUHRT)

**network**

### Reading Strategy

**Analyze** As you read the section, complete a diagram like the one shown by describing the contributions of the railroad to the growth of industry.



## Where & When?



1860

1875

1890

1869

First transcontinental railroad is completed

1880s

Standard width for railroad tracks is adopted

1883

Northern Pacific Railroad opens





**US8.12.1** Trace patterns of agricultural and industrial development as they relate to climate, use of natural resources, markets, and trade and locate such development on a map. **US8.12.4** Discuss entrepreneurs, industrialists, and bankers in politics, commerce, and industry (e.g., Andrew Carnegie, John D. Rockefeller, Leland Stanford).

## Railroad Expansion

**Main Idea** Railroad barons used consolidation to expand their companies and create a growing system of railroads throughout the United States.

**Reading Connection** What methods do companies today use to expand their businesses? Read on to find out how railroads grew after the Civil War.

### An American Story

Rugged construction gangs labored on the Union Pacific and other railways during the transportation boom of the late 1800s. The chorus of a favorite song told of the hard work of the tarriers, or drillers:

“And drill, ye tarriers, drill!  
Drill, ye tarriers, drill!  
For its work all day for sugar in  
your tay,  
Down behind of the railway and,  
Drill, ye tarriers, drill!  
And blast!  
And fire!”

—Thomas Casey, 1888

**Growth of the Rail System** In the decades after the Civil War, railroads became a driving force behind America’s economic growth. The first transcontinental railroad, completed in 1869, was soon followed by others. By the 1890s, five railway lines crossed the country, and hundreds of smaller lines branched off from them.

The expansion of the railroad system was accompanied by **consolidation** (kuhn • SAH • luh • DAY • shuhn)—the practice of combining separate companies—in the industry. Large railroad companies expanded by buying smaller companies or by driving them out of business. Consolidation made the large companies more efficient. After consolidation, a few powerful individuals known as railroad barons controlled the nation’s rail traffic.

**Railroad Barons** New Yorker **Cornelius Vanderbilt**, one of the first railroad barons, gained control of the New York Central line and then other lines. His railroad empire stretched from New York City to the Great Lakes.

**James J. Hill** built the Great Northern line between Minnesota and Washington State. Until his death in 1916, Hill continued building and directing his ever-growing business empire. **Collis P. Huntington**, **Leland Stanford**, and two other partners founded the Central Pacific, which connected California and Utah.


The railroad barons were aggressive and competitive. They lived in an age when few laws had been passed to regulate business, and some of their methods were highly questionable. Nevertheless, the railroad barons played an important part in building the nation’s transportation system.

**Reading Check Analyze** What did consolidation mean for many small companies?

## HISTORY MAKERS

### The Impact of the Railroad

By 1860 there were about 30,000 miles (48,270 km) of railroad track in the nation—almost as much as in the rest of the world combined. By 1900 the nation had nearly 250,000 miles (402,250 km) of track. An average of 15 new miles (24 km) of track were laid each day. By the late 1800s, the railroad industry passed all other industries as a buyer of iron, steel, and coal and became the nation’s largest employer.



# Biography



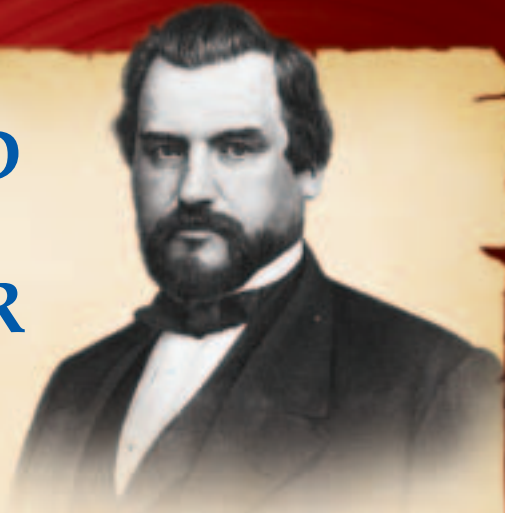
**US8.12.4** Discuss entrepreneurs, industrialists, and bankers in politics, commerce, and industry (e.g., Andrew Carnegie, John D. Rockefeller, Leland Stanford).

## LELAND STANFORD

1824–1893

## CHARLES CROCKER

1822–1888



▲ Leland Stanford

The Central Pacific Railroad began as the dream of engineer Theodore Judah. He sold stock in the new company to four Sacramento merchants: grocer Leland Stanford, shop owner Charles Crocker, and hardware store owners Mark Hopkins and Collis P. Huntington. The four men became known as "The Big Four" for their role in California's economic development.

In the early 1860s, these men managed the construction of the Central Pacific railroad. Eventually, they controlled a large railroad network that gave them great wealth and political power. Although some of their methods were questioned, the four business partners and their families donated land and money for the building of parks, churches, and libraries. Their donations either founded or helped fund art museums, including the Crocker Art Museum in Sacramento, the San Francisco Art Institute, and the Huntington Library and Art Gallery in San Marino.

Leland Stanford and his wife, Jane, donated land and money to create Stanford University. Leland Stanford became governor of California and later served as a United States senator.

Crocker fought against racial prejudice. He criticized unfair treatment of Native Americans and of Chinese and Japanese immigrants. Crocker believed that if "we deny to the individual, no matter

what his creed, his color, or his nationality, the right to justice, which every man possesses . . . there will be no enduring prosperity and [the nation's] decline will surely follow."

Crocker gave money to support African American churches in California. He also supported African American schools and colleges in the southern United States.



▲ Charles Crocker

### Then and Now

Is it important for people to donate to the arts and education? Why or why not?





**US8.12.1** Trace patterns of agricultural and industrial development as they relate to climate, use of natural resources, markets, and trade and locate such development on a map. **US8.12.9** Name the significant inventors and their inventions and identify how they improved the quality of life (e.g., Thomas Edison, Alexander Graham Bell, Orville and Wilbur Wright).

## Railroads Spur the Economy

**Main Idea** Railroad growth stimulated the economy, and innovations made railroad travel more efficient and profitable.

**Reading Connection** Can you think of a recent invention that has significantly changed the way in which you live? Read on to find out how railroads changed America in economic and social ways.

The fast-growing national rail system created new economic links in the country. The railroads carried raw materials such as iron ore, coal, and timber to factories. They also carried manufactured goods from factories to markets and transported produce from farming areas to the cities.

The national railroad system encouraged the expanding economy in many other ways. At first the demand for iron tracks and locomotives helped the iron mining and processing industries grow. Around 1880 railroad companies began using steel tracks. Steel is a metal made stronger by adding carbon and other elements to refined iron. The use of steel in railroad tracks stimulated America's steel industry.

The railroads also helped other industries thrive. The lumber industry, which supplied wood for railway ties, and the coal industry, which provided fuel for locomotives, saw extraordinary growth. In addition, railroad companies provided work for thousands of people who laid tracks and built stations and for those who manufactured railway cars and equipment.

**Improving the Railroads** Increased use made it necessary for railroads to expand and unify their systems. Railroads were being built across the country, but different lines used rails of different gauges, or widths. As a result, trains of one line could not use another line's tracks. Many early local lines carried goods for short distances and did not even connect with other lines. The gaps in service between the various lines made long-distance railroad travel slow and inefficient.

# HISTORY MAKERS

## Standard Time Zones

Throughout much of the 1800s, few Americans could agree on the time of day because every community determined its own time by the position of the sun. When it was noon in New York City, for example, it was 11:55 A.M. in Philadelphia and 11:47 in Washington, D.C. Local time interfered with train scheduling and at times even threatened passenger safety. When two trains traveled on the same track, collisions could result from scheduling errors caused by time differences.

To make rail service safer and more reliable, in 1883 the American Railway Association agreed to use four time zones for the continental United States: Eastern, Central, Mountain, and Pacific.

▼ Time zones

As the railroad companies consolidated, railroad barons saw the advantages of being part of a national railroad network. During the late 1880s, almost all companies adopted a **standard gauge** (GAY) of 4 feet, 8.5 inches as the width of the railroad track. A standard gauge allowed faster shipment of goods at a reduced cost. It was no longer necessary to load and unload goods from one train to another. One train could make the entire journey.



**Railroad Technology** Railway transportation also improved with the introduction of new **technology**. Four developments were particularly important. Inventor **George Westinghouse** devised air brakes that improved the system for stopping trains, making train travel safer. Janney car couplers, named after inventor **Eli H. Janney**, made it easier for railroad workers to link cars. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator.

In the early 1870s, **Gustavus Swift** (guh • STAHV • uhs) hired an engineer to develop a refrigerated railroad car. In 1877 Swift shipped the first refrigerated load of fresh meat. The widespread use of refrigeration kept food fresh longer and reduced the risk of food poisoning.

Finally, **George M. Pullman** developed the Pullman sleeping car—a luxury railway car with seats that **converted** into beds for overnight journeys. Pullman also introduced improved dining cars, raising train travel to a new level of comfort.

## Competing for Customers

As the railroad network continued to grow, the railroad companies competed fiercely with one another to keep old customers and to win new ones. Large railroads offered secret discounts called **rebates** to their biggest customers. Smaller railroads that could not match these rebates were sometimes forced out of business. Giving discounts to big customers raised freight rates for farmers and other customers who shipped small amounts of goods.



The railroad barons also made secret agreements among themselves, known as **pools**. They divided the railway business among their companies and set rates for a region. With no other competition in its region, a railroad could charge higher rates and earn greater profits. Although Congress and some states passed laws to regulate the railroads, these laws did little to curb the railroad barons.

**How Did Railroads Change America?** The growing railroad network paved the way for American industry to expand into the West. The center of the flour milling industry, for example, shifted westward in the 1800s, moving from the East Coast to Ohio, to Minneapolis, and finally to Kansas City.

Other industries followed the same pattern. As farmers settled the Great Plains, the manufacturing center for agricultural equipment moved from central New York State to Illinois and Wisconsin.

Railroads also touched the lives of thousands of Americans. Trains redistributed the population. They carried homesteaders into the Great Plains and the West. Trains also made it easy for people to move from rural areas to the cities.

As you have learned, railroads affected the way Americans thought about time as well. As train travel became more common, people began measuring distances by how many hours the trip would take rather than by the number of miles traveled. The spread of the railroad system led to a national system of time with four time zones.

The railroads opened the entire United States to settlement and economic growth and united the different regions of the country into a single **network**. At the same time, inventions that revolutionized transportation and communication brought Americans together in new ways.

**Reading Check Explain** Why was adopting standard-gauge tracks important for the railroad industry?

## Section I Review

### Reading Summary

#### Review the Main Ideas

- After the Civil War, railroads continued to grow, allowing the faster transportation of goods and people.
- Railroads stimulated the American economy and resulted in many changes to the way Americans lived and traveled.

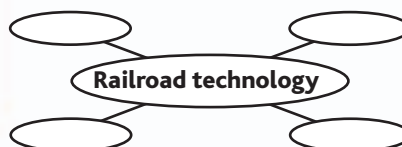
### What Did You Learn?

1. How did railroad barons drive smaller companies out of business?
2. How did the railroads pave the way for the expansion of industry in the West?

### Critical Thinking

3. **Organizing Information** Re-create the diagram below and identify the developments in technology that improved railroad transportation.

CA H12.



4. **The Big Ideas** Explain how railroads changed the American economy.

5. **Expository Writing** Should the U.S. government have intervened to regulate unfair practices of the railroad barons? Explain your position in a short essay. CA 8WA2.4

6. **READING Predict** Many innovations were made to improve railroad transportation. Write a short paragraph predicting the impact on the development of cities and regions. CA H13.

**Historyonline**

**Study Central** Need help understanding how railroad growth stimulated the economy? Visit [ca.hss.glencoe.com](http://ca.hss.glencoe.com) and click on Study Central.



# Section 2

## Inventions

### Guide to Reading



#### History Social Science Standards

**US8.12** Students analyze the transformation of the American economy and the changing social and political conditions in the United States in response to the Industrial Revolution.

#### Looking Back, Looking Ahead

In the last section, you read about how the expansion of railroads stimulated various sectors of the economy. In this section, you will learn how inventions changed the lives of the American people.

#### Focusing on the **Main Ideas**

- New inventions improved communication and allowed Americans to contact one another over long distances. (page 713)
- The harnessing of electricity gave America a new source of power. (page 714)
- Improvements in transportation made travel easier and helped industries make their goods available to a wider audience. (page 716)

#### Meeting People

Samuel Morse  
Alexander Graham Bell  
Thomas Edison  
Lewis Howard Latimer  
Granville Woods  
Henry Ford

#### Locating Places

Menlo Park, New Jersey  
Detroit, Michigan

#### Content Vocabulary

assembly line  
mass production

#### Academic Vocabulary

unify (YOO • nuh • FY)  
transmit  
device (dih • VYS)

#### Reading Strategy

**Organizing Information** As you read the section, re-create the diagram below to list each person's invention and to explain the significance of each invention to industrial growth.

	Invention	Significance
Samuel Morse		
Alexander Bell		
Thomas Edison		



### Who & When?

1870

**1876**  
Alexander Graham Bell develops the telephone

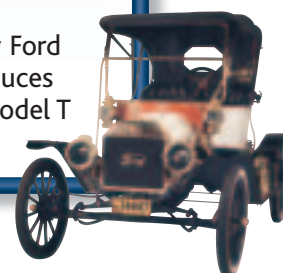


1890

**1903**  
The Wright brothers fly at Kitty Hawk

1910

**1908**  
Henry Ford introduces the Model T





**US8.12.9** Name the significant inventors and their inventions and identify how they improved the quality of life (e.g., Thomas Edison, Alexander Graham Bell, Orville and Wilbur Wright).

## Communication Changes

**Main Idea** New inventions improved communication and allowed Americans to contact one another over long distances.

**Reading Connection** Do you use a cell phone or a computer to communicate with your friends? These are relatively new methods of communication. Read on to find out about the new methods of communication developed in the mid-1800s.

### An American Story

In the early 1900s, American songwriters were caught up in the public fascination with new inventions. One of the most popular songs of 1905, “In My Merry Oldsmobile,” celebrated the automobile:

“Come away with me Lucile,  
In my merry Oldsmobile.  
Down the road of life we’ll fly,  
Automobubbling you and I.  
To the church we’ll swiftly steal,  
Then our wedding bells will peal;  
You can go as far as you like . . . ,  
In my merry Oldsmobile.”

—by Vincent Bryan and  
Gus Edwards

**How Did Life Change After 1870?** By 1910 Americans in cities drove cars through streets lit with electric lights. They went to department stores where they bought everything from kitchen sinks to shoes. Americans could also do their shopping by mail—or pick up the telephone and order groceries from the local store. The automobile, the electric light, and the telephone were all invented after 1870. Within a generation, they had become part of everyday life for millions of people. New inventions helped people communicate more quickly over long distances. Improvements in communication helped **unify** the regions of the country and promoted economic growth.

**The Telegraph** **Samuel Morse** had introduced the telegraph in 1844. By 1860 the United States had thousands of miles of telegraph lines, which were controlled for the most part by the Western Union Telegraph Company. At telegraph offices, trained operators transmitted messages called telegrams in Morse code. Telegrams offered almost instant communication. Shopkeepers relied on telegrams to order goods, and reporters used them to **transmit** stories to their newspapers. Americans also began sending personal messages by telegram.

The telegraph soon linked the United States and Europe. In the 1860s news from Europe traveled to this country by ship and took several weeks. Cyrus Field wanted to speed up the process. After several unsuccessful attempts, in 1866 Field managed to lay a telegraph cable across the Atlantic Ocean. The new transatlantic telegraph carried messages in a matter of seconds, bringing the United States and Europe closer together.

**The Telephone Rings** **Alexander Graham Bell** invented a **device** that revolutionized communications even more than Morse’s telegraph. Born and educated in Scotland, Bell moved to the United States, where he studied ways of teaching people with hearing loss to speak. At the same time, he experimented with sending voices through electrical wires.

By 1876 Bell developed a device that transmitted speech—the telephone. While Bell was preparing to test the device, he accidentally spilled some battery acid on his clothes. In panic, Bell called out to his assistant in another room: “Mr. Watson, come here. I want you!” Watson heard Bell’s voice coming through the telephone. The invention was a success.

Bell formed the Bell Telephone Company in 1877. By the 1890s, he had sold hundreds of thousands of phones. Most early telephone customers were businesses. Before long, though, telephones became common in homes.

**Reading Check Explain** How did the telegraph affect communication?





**US8.12.9** Name the significant inventors and their inventions and identify how they improved the quality of life (e.g., Thomas Edison, Alexander Graham Bell, Orville and Wilbur Wright).

## The Genius of Invention

**Main Idea** The harnessing of electricity gave America a new source of power.

**Reading Connection** As you get ready for school in the morning, think about all the ways that you use electricity. Do you need lights to shower and dress? Do you blow-dry your hair or make your breakfast in the microwave? Read on to find out how electricity improved the lives of people living in the late 1800s.

The late 1800s saw a burst of inventiveness in the United States. Between 1860 and 1890, the United States government granted more than 400,000 patents for new inventions.

Many of the inventions helped businesses operate more efficiently. Among these were Christopher Sholes's typewriter (1868) and William Burroughs's adding machine (1888).

Other inventions affected everyday life. In 1888 George Eastman invented a small box camera—the Kodak—that made it easier and less costly to take photographs. John Thurman developed a vacuum cleaner in 1899 that simplified housework.

**The Wizard of Menlo Park** Thomas Edison was called “dull” by his teachers. Because of poor hearing, he had trouble in school and often didn't attend. His mother finally removed him from school and taught him at home.

## Why It Matters

### The First Flight at Kitty Hawk

A small crowd of people assembled on the sand dunes at Kitty Hawk, North Carolina, to test the Wrights' Flyer. Covering a few hundred feet in 12 seconds, the flight came to a halt when the Flyer's wing caught on one of the dunes. It was enough to encourage the Wrights to try further flights though. They would soon have a practical aircraft, and the world would have a new form of transportation.

#### Firsts in Aviation History

In less than 100 years, aviators advanced from making the first flight in a glider to breaking the speed of sound.

**1853** →  
Human-carrying flight in a glider built by Sir George Cayley takes place

**1874** →  
Steam-powered monoplane is briefly airborne

**1903** →  
Wright brothers take flight at Kitty Hawk

**1914** →  
Scheduled airline service opens between St. Petersburg and Tampa, Florida

**1919** →  
First nonstop flight across the Atlantic Ocean



#### The Beginning of Controlled, Powered Flight

Inventors experimented with engine-powered aircraft in the 1800s, but the age of air travel did not begin until 1903 at Kitty Hawk, North Carolina. Orville and Wilbur Wright, brothers and bicycle mechanics, built a wood-and-canvas plane with a 12-horsepower engine. On the morning of December 17, Orville Wright took off in their plane and flew a distance of 120 feet.

Edison loved anything related to science. His mother allowed him to set up a chemistry lab in the family's basement. When he was 12, he got a job working for the railroad, where he set up a new lab in an empty freight car. One day, Edison saved the life of a child who had fallen onto the tracks of an oncoming train. The child's father took an interest in Edison and taught him to use the telegraph. Edison's first invention was a gadget that sent automatic telegraph signals—which he invented so he could sleep on the job.

While still in his 20s, Thomas Edison decided to go into the "invention business." In 1876 Edison set up a workshop in **Menlo Park, New Jersey**. Out of this famous laboratory

came the phonograph, the motion picture projector, the telephone transmitter, and the storage battery. But Edison's most important invention was the electric lightbulb.

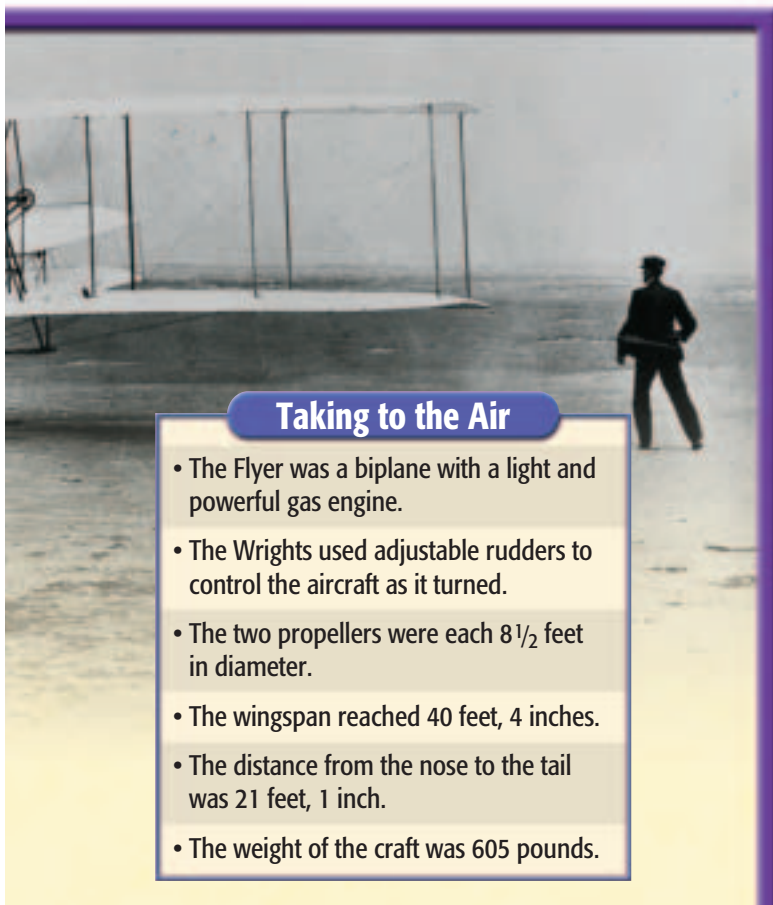
Edison developed the first workable lightbulb in 1879. He then designed power plants that could produce electric power and distribute it to lightbulbs. For Christmas in 1880, Edison used 40 bulbs to light up Menlo Park. Visitors came to see the "light of the future." He built the first central electric power plant in 1882 in New York City—illuminating 85 buildings!

Inventor George Westinghouse took Edison's work with electricity even further. In 1885 Westinghouse developed and built transformers that could send electric power more cheaply over longer distances. Soon electricity powered factories, trolleys, streetlights, and lamps all over America. Westinghouse also developed a system for transporting natural gas and invented many safety devices.

**African American Inventors** A number of African Americans contributed to the era of invention. **Lewis Howard Latimer**, an engineer, developed an improved filament for the lightbulb and joined Thomas Edison's company. **Granville Woods**, an electrical and mechanical engineer from Ohio, patented dozens of inventions. Among them were an electric incubator and railroad improvements such as an electromagnetic brake and an automatic circuit breaker. Elijah McCoy invented a mechanism for oiling machinery.

Jan E. Matzeliger, another African American inventor, developed a shoe-making machine that performed many steps that were previously done by hand. His device, which revolutionized the shoe industry, was adopted in shoe factories in the United States and overseas.

**Reading Check Evaluate** Which of Edison's inventions do you think is the most valuable to our world? Explain your reasoning.



### Taking to the Air

- The Flyer was a biplane with a light and powerful gas engine.
- The Wrights used adjustable rudders to control the aircraft as it turned.
- The two propellers were each 8½ feet in diameter.
- The wingspan reached 40 feet, 4 inches.
- The distance from the nose to the tail was 21 feet, 1 inch.
- The weight of the craft was 605 pounds.

**1927** →  
**Lindbergh completes first nonstop solo transatlantic flight**

**1947** →  
**Chuck Yeager is first to fly faster than the speed of sound**





**US8.12.1** Trace patterns of agricultural and industrial development as they relate to climate, use of natural resources, markets, and trade and locate such development on a map.

## A Changing Society

**Main Idea** Improvements in transportation made travel easier and helped industries make their goods available to a wider audience.

**Reading Connection** When your family takes a trip, how do you travel? Read on to find out how the automobile changed transportation.

In the 1900s, improvements ushered in a new era of transportation. After a period of experimentation, the automobile became a practical method of getting from place to place.

## Henry Ford's Automobiles

**Henry Ford** wanted to build an inexpensive car that would last a lifetime. While working as an engineer in **Detroit, Michigan**, in the 1890s, Ford had experimented with an automobile engine powered by gasoline. In 1903 he began designing cars at his automaking company.

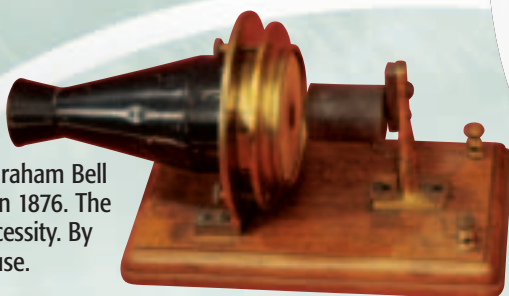
In 1906 Ford told Charles Sorenson, later Ford's general superintendent, "We're going to get a car now that we can make in great volume and get the prices way down." For the next year, Ford and Sorenson worked on the Model T, building the car and testing it on rough roads. In 1908 Ford introduced the Model T to the public.

## MORE ABOUT...

### Changing the Way We Live

**Inventions** American ingenuity, innovation, and imagination led to the inventions that changed the way we live and how we communicate.

**The Telephone** Alexander Graham Bell demonstrated the telephone in 1876. The telephone soon became a necessity. By 1900 there were 2 million in use.



**Phonograph** The first practical phonograph was built by Thomas Edison in 1877.



**Lighting the World** Lewis Latimer improved on Edison's version, creating a bulb that lasted much longer, and developed the threaded socket. Latimer directed the installation of electric streetlights in New York City, Philadelphia, Montreal, and London.

**Kodak Camera** In 1888 George Eastman invented a small camera that made it easier and less costly to take photographs.



Sorenson described the sturdy black vehicle as “. . . a car which anyone could afford to buy, which anyone could drive anywhere, and which almost anyone could keep in repair.”

The Model T became immensely popular. During the next 18 years, Ford’s company sold 15 million Model T’s. Henry Ford also pioneered a less expensive way to manufacture cars—the moving **assembly line**. On the line, each worker performed an assigned task again and again at a certain stage in the production of the automobile. The assembly line revolutionized industry, enabling manufacturers to produce large quantities of goods more quickly. This **mass production** of goods decreased manufacturing costs, so products could be sold more cheaply.

In 1908 the Model T’s first year, it sold for \$850. In 1914 mass production reduced the price to \$490. By 1924 Model Ts were selling for \$295. Ford’s business philosophy was simple. “Every time I reduce the charge for our car by one dollar,” he said, “I get a thousand new buyers. In this way, Ford made the automobile affordable for millions of Americans.

**Selling Goods** With factories churning out more and more products, merchants looked for better ways to sell their goods. One way was through the mail. In 1863 mail delivery to homes began—up to then, service was only to post offices. By the 1890s, the U.S. Post Office had expanded its delivery service in rural areas.

Some firms developed mail order businesses, receiving and shipping orders by mail. Companies such as Montgomery Ward and Sears Roebuck published catalogs that offered a wide range of goods from shoes to farm equipment. Catalogs introduced rural families to a wide assortment of goods not found in country stores.

Chain stores—stores with identical branches in many places—grew rapidly. F.W. Woolworth’s chain of “five-and-ten-cent stores” specialized in everyday household and personal items at bargain prices. By 1911, more than a thousand Woolworth stores were in operation.

 **Reading Check** **Describe** What qualities made the Model T popular?

## Section 2 Review

**History online**  
Study Central Need help understanding how inventions changed peoples lives? Visit [ca.hss.glencoe.com](http://ca.hss.glencoe.com) and click on Study Central.

### Reading Summary

#### Review the Main Ideas

- The telegraph and the telephone changed the way Americans communicated.
- Electricity and other inventions lit up the world in a new way.
- The introduction of the automobile made it easier for people to travel and helped businesses bring their goods to new areas.

### What Did You Learn?

1. Name and describe two inventions that changed the way Americans communicated.
2. How was transportation improved during the 1800s?

### Critical Thinking

3. **Organizing Information** Re-create the diagram below, and classify each invention described in this section in one of the categories. **CA HI2**

Mostly rural use	Mostly urban use	Both urban and rural	Mostly used by business and industry

4. **The Big Ideas** Which of the inventions discussed do you think had the greatest impact on the economy of the United States? Why?

**CA CST.**

5. **ANALYZE** **Compare and Contrast** Study the photographs of the inventions and products that appear in this section. Which have undergone the greatest change? Why do you think this is so?

**CA HI3.**



# The Age of Big Business

## Guide to Reading



### History Social Science Standards

**US8.12** Students analyze the transformation of the American economy and the changing social and political conditions in the United States in response to the Industrial Revolution.

### Looking Back, Looking Ahead

You have learned how inventions helped the American economy grow. In Section 3, you will learn how entrepreneurs gained control of various industries and turned them into successful businesses.

### Focusing on the **Main Ideas**

- The American economy grew because the country contained abundant land, labor, and capital. (page 719)
- The development of the oil industry created one of the first monopolies. (page 720)
- Monopolies in the steel business and other industries created the need for government regulation. (page 721)

### Locating Places

Pittsburgh, Pennsylvania (PIHTS • BUHRG)

Cleveland, Ohio

Chicago, Illinois

Birmingham, Alabama

### Meeting People

John D. Rockefeller

Andrew Carnegie (KAHR • nuh • gee)

J. Pierpont Morgan

### Content Vocabulary

**corporation** (KAWR • puh • RAY • shuhn)

**stock**

**shareholder**

**dividend** (DIH • vuh • DEHND)

**horizontal integration** (HAWR • uh • ZAHN • tuhl ih • tuh • GRAY • shuhn)

**trust**

**monopoly**

**vertical integration** (VUHR • tih • kuhl)

**philanthropy** (fuh • LAN • thruh • pee)

**merger** (MUHR • juhr)

### Academic Vocabulary

**resource**

**invest**

### Reading Strategy

**Analyze** Re-create the diagram below and explain the significance of each term in business in the late 1800s.

	Significance
Shareholders	
Stock exchanges	
Mergers	



## Who & When?

1870

1870

Rockefeller organizes the Standard Oil Company



1882

Rockefeller organizes trust

John D. Rockefeller

1885

1890

Andrew Carnegie dominates the steel industry

Andrew Carnegie





**US8.12.1** Trace patterns of agricultural and industrial development as they relate to climate, use of natural resources, markets, and trade and locate such development on a map. **US8.12.4** Discuss entrepreneurs, industrialists, and bankers in politics, commerce, and industry (e.g., Andrew Carnegie, John D. Rockefeller, Leland Stanford).

## Foundations for Growth

**Main Idea** The American economy grew because the country contained abundant land, labor, and capital.

**Reading Connection** Imagine you want to start your own business. What is needed to get that business up and running? Read on to find out how industries in America gained the resources they needed to succeed.

The period from the end of the Civil War to 1900 was an era of unmatched economic growth in the United States. New methods in technology and business allowed the country to tap its rich supply of natural **resources**, increase its production, and raise the money needed for growth. The growing transportation system made it easier for merchants to reach distant markets.

**What Are the Factors of Production?** The change from an agricultural economy to an industrial one was possible because the United States had the resources needed for a growing economy. Among these resources were what economists call the factors of production: land, labor, and capital.

The first factor of production, land, means not just the land itself but all natural resources. The United States held a variety of natural resources that had industrial uses.

The second production factor is labor. Large numbers of workers were needed to turn raw materials into goods. This need was met by the rapid growth of population. Between 1860 and 1900, the population of the country more than doubled.

The third production factor, capital, is the equipment—buildings, machinery, and tools—used in production. Land and labor are needed to produce capital goods. These goods, in turn, are essential for the production of consumer goods. The term *capital* is also used to mean money for investment. Huge amounts of money were needed to finance industrial growth. One source of money was the selling of stock by

corporations. Another was corporate savings, or businesses investing a portion of their earnings in better equipment.

**Raising Capital** With the economy growing after the Civil War, many businesses looked for ways to expand. To do so, they had to raise capital. They needed capital to buy raw materials and equipment, to pay workers, and to cover shipping and advertising costs.

One way a company could raise capital was by becoming a **corporation** (KAWR • puh • RAY • shuhn). A corporation is a company that sells **stock**, or shares, of its business to the public. The people who **invest** in the corporation by buying stock are its **shareholders**, or partial owners.

In good times, shareholders earn **dividends** (DIH • vuh • DEHNDZ)—cash payments from the corporation's profits—on the stock they own. If the company prospers, its stock rises in value, and the shareholders can sell it for a profit. If the company fails, however, the shareholders lose their investment. In the late 1800s, hundreds of thousands of people shared in corporate profits by buying and selling stocks in special markets known as stock exchanges.

**Growth of Corporations** The nation's early corporations were created only for specific public benefits, such as the building of a highway. Soon many manufacturing and business firms were incorporating. Big corporations had several advantages over small manufacturing companies. Big corporations could produce goods more cheaply and efficiently. They could continue to operate in poor economic times by cutting prices to increase sales. Many were also able to negotiate refunds from the railroads, which lowered their operating costs further.

Banks played a major role in this period of economic growth. Businesses borrowed money from banks to start or expand their operations. The banks, in turn, made profits on the loans.

**Reading Check** Explain What happens to dividends when a company does well?





**US8.12.1** Trace patterns of agricultural and industrial development as they relate to climate, use of natural resources, markets, and trade and locate such development on a map. **US8.12.4** Discuss entrepreneurs, industrialists, and bankers in politics, commerce, and industry (e.g., Andrew Carnegie, John D. Rockefeller, Leland Stanford).

## The Oil Business

**Main Idea** The development of the oil industry created one of the first monopolies.

**Reading Connection** Is there someone in your town who has started a successful business? What type of business is it? Read on to find out how John D. Rockefeller created an empire in the oil industry.

In 1870 **John D. Rockefeller** organized the Standard Oil Company of Ohio and set out to dominate the oil industry. One method Rockefeller used to build his empire was **horizontal integration** (HAWR•uh•ZAHN•tuhl IHN•tuh•GRAY•shuhn)—combining two or more firms producing the same kind of product. The corporation produced and used its own tank cars, pipelines, and even its own wooden barrels—made from forests owned by Standard Oil. Standard Oil grew in wealth and power, becoming the most famous corporate empire of the day.

To strengthen Standard Oil's position in the oil industry, Rockefeller lowered his prices to drive his competitors out of business. In addition, he pressured customers not to deal with rival oil companies, and he persuaded the railroads to grant him rebates in exchange for his business.

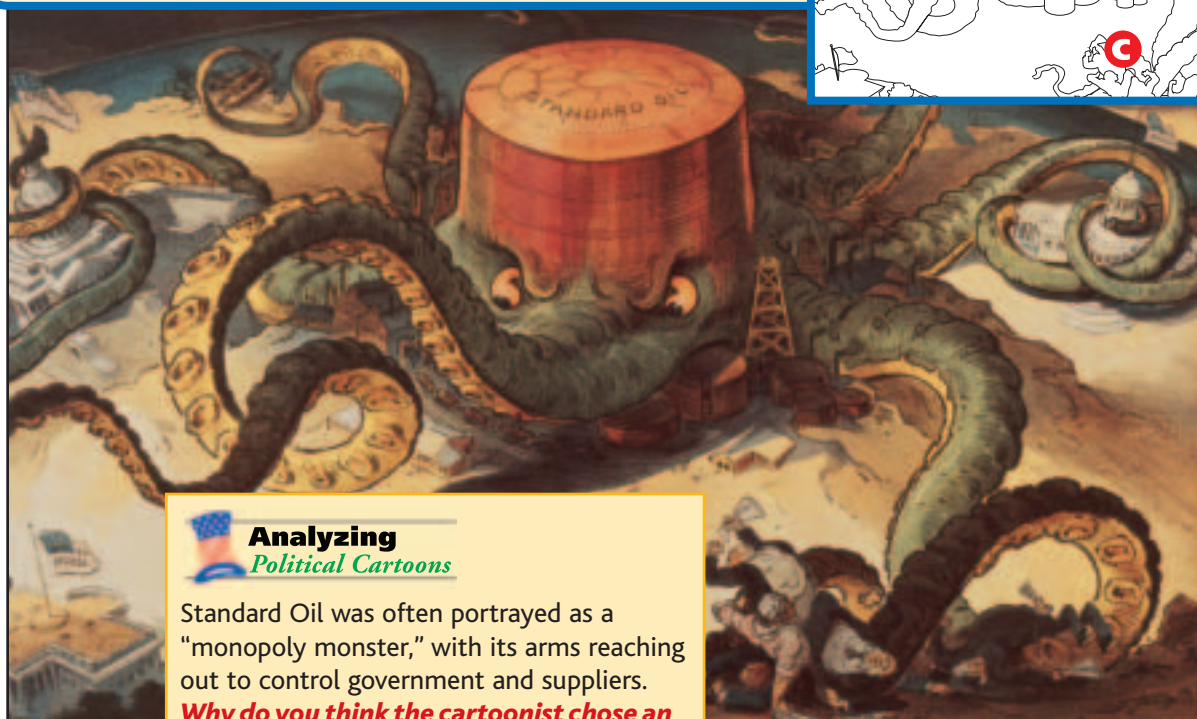
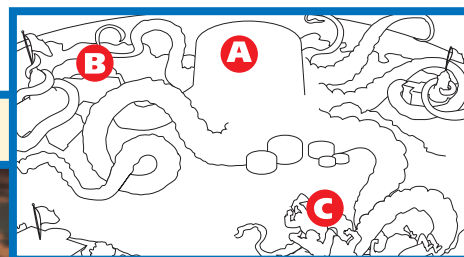
Rockefeller increased his control of the oil industry in 1882 by forming a **trust**, a group of companies managed by the same board of directors. First he acquired stock in many different oil companies. Then the shareholders of these companies traded their stock for Standard Oil stock, which paid higher dividends. This gave Standard Oil's board of directors ownership of the other companies' stock and the right to manage those companies. Rockefeller had created a **monopoly**—almost total control by a single producer—of the oil industry.

**Reading Check Explain** What method did Rockefeller use to build his oil empire?

**A** Standard Oil

**B** Government

**C** Suppliers



### Analyzing Political Cartoons

Standard Oil was often portrayed as a "monopoly monster," with its arms reaching out to control government and suppliers. **Why do you think the cartoonist chose an octopus to represent Standard Oil?**





**US8.12.1** Trace patterns of agricultural and industrial development as they relate to climate, use of natural resources, markets, and trade and locate such development on a map. **US8.12.4** Discuss entrepreneurs, industrialists, and bankers in politics, commerce, and industry (e.g., Andrew Carnegie, John D. Rockefeller, Leland Stanford).

## The Steel Business

**Main Idea** Monopolies in the steel business and other industries created the need for government regulation.

**Reading Connection** What kinds of cars do people drive in your neighborhood? Chances are they do not all drive the same type of car. That is because car companies compete with each other to get people to buy their products. Read on to find out how monopolies came to dominate certain industries.

Steel also became a huge business in the late 1800s. Steel is a strong and long-lasting form of iron treated with carbon—the ideal material for railroad tracks, bridges, and many other products. Before the 1860s, however, steel was not widely used because it was expensive to manufacture. The development of new manufacturing techniques helped overcome this problem.

### Steel Industry Growth

Two new methods of making steel—the Bessemer process, which was developed by Henry Bessemer of England, and the open-hearth process—changed the industry. With these new methods, mills could produce steel at affordable prices and in large quantities. In the 1870s, large steel mills were built close to sources of iron ore in western Pennsylvania and eastern Ohio. **Pittsburgh, Pennsylvania** (PIHTS•BUHRG), became the steel capital of the United States. Cities located near the mines and close to waterways like **Cleveland, Ohio**; **Chicago, Illinois**; **Birmingham, Alabama**; and Detroit, Michigan, also became centers of steel production.

**Andrew Carnegie** The leading figure in the early years of the American steel industry was **Andrew Carnegie** (KAHR•nuh•gee), son of a Scottish immigrant. Starting as a telegraph operator, Carnegie worked his way up to become manager of the Pennsylvania Railroad. While in that job, he introduced the first successful sleeping car. In 1865 he left the railroad to invest in the growing iron industry.

Carnegie soon realized that steel would have an enormous market. After learning about the Bessemer process, he built a steel plant near Pittsburgh that used the new process. Carnegie named the plant the J. Edgar Thompson Steel Works, after the president of the Pennsylvania Railroad—his biggest customer.

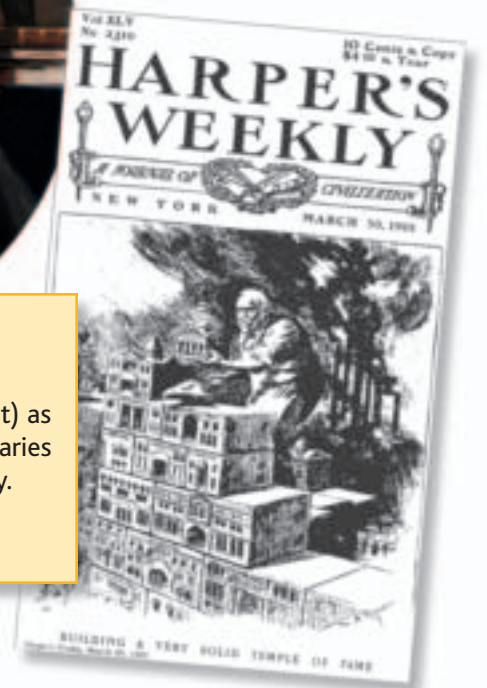
**Vertical Integration** By 1890 Andrew Carnegie dominated the steel industry. His company became powerful through **vertical integration** (VUHR•tih•kuhl), combining firms involved in different steps of manufacturing. Carnegie bought iron and coal mines, warehouses, ore ships, and railroads to gain control of all parts of the business of making and selling steel.



### Analyzing Political Cartoons

Andrew Carnegie is shown (right) as a mason. The blocks are the libraries to which he has donated money.

**What point do you think the cartoonist is making?**





▲ John D. Rockefeller

When Carnegie combined all his holdings into the Carnegie Steel Company in 1900, he was producing one-third of the nation's steel. In 1901 Carnegie sold his steel company to banker **J. Pierpont Morgan**. Morgan combined the Carnegie company with other businesses to form the United States Steel Corporation, the world's first billion-dollar corporation.

**Philanthropists** Andrew Carnegie, John D. Rockefeller, and other industrial millionaires of the time grew interested in **philanthropy** (fuh • LAN • thruh • pee)—the use of money to benefit the community. The philanthropists founded schools, universities, and other civic institutions across the United States.

Carnegie donated \$350 million to various organizations. He built Carnegie Hall in New York City, one of the world's most famous concert halls; the Carnegie Foundation for the

Advancement of Teaching; and more than 2,000 libraries worldwide. Carnegie often wrote about social and political issues. He felt that a person who has great wealth also has a duty to use the surplus to help humankind. He stated that a “man who dies rich dies disgraced.” Rockefeller used his fortune to establish the University of Chicago in 1890 and New York's Rockefeller Institute for Medical Research.

**Corporations Grow Larger** In 1889 New Jersey encouraged the trend toward business monopolies by allowing holding companies to obtain charters, a practice that some states prohibited. A holding company would buy controlling interests in the stock of other companies instead of purchasing the companies outright. Rockefeller formed Standard Oil of New Jersey so that the corporation could expand its holdings. Other states also passed laws that made corporate **mergers** (MUHR • juhrz)—the combining of companies—easier.

Mergers concentrated economic power in a few giant corporations and a few powerful individuals, such as Rockefeller and banker J. Pierpont Morgan. By 1900 one-third of all American manufacturing was controlled by just 1 percent of the country's corporations. These giant corporations were the driving force behind the great economic growth of the period, but they also posed problems. On the one hand, many Americans admired the efficiencies that large businesses provided. On the other hand, some argued that a lack of competition hurt consumers. Without competition, corporations had no reason to keep their prices low or to improve their goods and services.

**Big Business and Social Science** Some business practices in the late 1800s were based on a scientific idea known as social Darwinism. Charles Darwin, a British scientist, had published a theory in 1859 that all plants and animals evolved over long periods of time by a process known as natural selection. According to the theory, organisms competed for survival, and those animals best adapted to the environment survived, while the others did not.

Later thinkers applied Darwin's biological theory to human society and business. Some industrial leaders, such as John D. Rockefeller, argued that "survival of the fittest" helped explain the growth of huge companies. As one supporter of social Darwinism put it,

**“We have unmistakable proof that throughout all past time, there has been a ceaseless devouring of the weak by the strong.”**

—from *First Principles*  
by Herbert Spencer

Carnegie argued that big companies like his own were beneficial to society. The revolution in productivity enabled "the poor to enjoy what the rich could not before afford." Companies that grew and thrived raised their workers' standard of living.

**Government Regulation** Due to increasing pressure from the public, government stepped in to regulate business. During the 1880s, several states passed laws restricting business mergers. Corporations, however, avoided these laws by doing business in states that had no such laws.

Public pressure for a federal law to prohibit trusts and monopolies led Congress to pass the Sherman Antitrust Act in 1890. The law sought "to protect trade and commerce against unlawful restraint and monopoly." The act did not clearly define either "trusts" or "monopolies," however.

In its early years, the Sherman Antitrust Act did little to curb the power of big business. By contrast, in the 1890s the government did use the act to stop a strike by railroad workers that threatened to slow the nation's mail delivery.

 **Reading Check** **Compare** How does vertical integration differ from horizontal integration?

## Section 3 Review

### Reading Summary

#### Review the **Main Ideas**

- The American economy shifted from agriculture to industry as the nation realized it had the necessary materials for industrial growth.
- As oil was discovered, boomtowns sprang up around centers of oil and Rockefeller created his oil monopoly.
- Carnegie dominated the steel industry and as competing companies were driven out of business, the government attempted to regulate industrial growth.

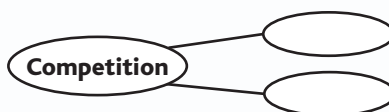
### What Did You Learn?

1. Which cities became centers of steel production in the late 1800s?
2. How did state and federal governments respond to the growth of trusts and monopolies?

### Critical Thinking

3. **Determining Cause and Effect** Re-create the diagram below and list the benefits of competition to consumers.

**CA CSI.**



4. **The Big Ideas** Compare methods used by Rockefeller and Carnegie to build their industrial empires. Describe any differences between the two. **CA HI2.**
5. **Analyze** Study the cartoon on page 720. Whom do the figures represent? What is the cartoon saying about the Standard Oil Company? **CA HR4.**
6. **Expository Writing** Research to find a philanthropist who has supported the community in which you live. Write a short essay describing his or her contributions. **CA 8WA2.1**

**History online**  
**Study Central** Need help understanding how industries grew and became monopolies? Visit [ca.hss.glencoe.com](http://ca.hss.glencoe.com) and click on Study Central.



# Section 4

## Industrial Workers

### Guide to Reading



#### History Social Science Standards

**US8.12** Students analyze the transformation of the American economy and the changing social and political conditions in the United States in response to the Industrial Revolution.

#### Looking Back, Looking Ahead

In the last section, you read about how industries were able to grow and expand. In this section, you will read about the workers in these industries and the conditions in which they worked.

#### Focusing on the **Main Ideas**

- Industrialization created many jobs, but it also created hazardous working conditions. (page 725)
- Workers created labor unions to combat unsafe working conditions in many of the nation's industries. (page 726)
- Strikes often ended in violence, causing many people to turn against labor unions. (page 727)

#### Meeting People

Terence V. Powderly  
Samuel Gompers  
Mary Harris Jones  
Eugene V. Debs (yoo • JEEN DEHBZ)  
Grover Cleveland

#### Locating Places

Philadelphia, Pennsylvania  
(FIH • luh • DEHL • fee • uh)  
New York City, New York  
Homestead, Pennsylvania

#### Content Vocabulary

sweatshop  
trade union  
collective bargaining  
strikebreaker  
injunction (ihn • JUHNK • shuhn)

#### Academic Vocabulary

job  
labor

#### Reading Strategy

**Organizing Information** As you read the section, re-create the diagram below and list actions labor unions took to improve working conditions.



### Who & When?

1885



**1886**  
American Federation of Labor forms;  
Haymarket Riot

Samuel Gompers

1890



Haymarket news report

**1892**  
Homestead Strike

**1894**  
Pullman Strike

1895



**US8.12.6** Discuss child labor, working conditions, and laissez-faire policies toward big business and examine the labor movement, including its leaders (e.g., Samuel Gompers), its demand for collective bargaining, and its strikes and protests over labor conditions.

## Working Conditions

**Main Idea** Industrialization created many jobs, but it also created hazardous working conditions.

**Reading Connection** What do your parents or guardians do for a living? What safeguards are in place to protect them from getting hurt at their jobs or to help them if they do? Read on to find out about the working conditions in the late 1800s.

The industrial growth of the late 1800s created new **jobs**. Growth also raised the standard of living for many American workers. That is, necessities and luxuries were more available and affordable. Yet workers paid a price for economic progress. Factories had once been small workplaces where employers and employees knew one another and often worked side by side. As mass production spread, however, factories became larger and less personal.

Industrial laborers worked for 10 or 12 hours a day, six days a week. They could be fired at any time for any reason. Many lost their jobs during business downturns or were replaced by immigrants who were willing to work for lower pay.

Factories and mines were noisy, unhealthy, and unsafe. Accidents were common. Steel workers suffered burns from spills of hot steel. Coal miners died in cave-ins and from the effects of gas and coal dust. Textile workers' lungs were damaged by airborne lint. Garment workers toiled in crowded urban factories called **sweatshops**, where their eyesight was ruined by sewing for hours in poor light. Filled with flammable materials, the sweatshops were also terrible firetraps.

**Women Workers** Although the majority of working women in the late 1800s had jobs as domestic servants, women also joined the industrial workforce, especially the textile industry. By 1900 more than one million women worked in industry. However, because no laws regulated workers' salaries, women generally received about half of what men earned for the same work. In addition, it was assumed that a woman

had a man to support her—either her father or her husband. A man, therefore, needed higher wages because he was supporting a family.

**Child Labor** Industries also hired children. In 1900 hundreds of thousands of children under 16 years of age worked in factories. Concerned groups brought child **labor** to the attention of their state legislatures. As a result, many states passed child labor laws. These laws stated that children working in factories had to be at least 12 years old and should not work more than 10 hours a day. Employers widely ignored child labor laws, however. Also, the laws did not apply to agriculture, which employed about one million children.

**Reading Check** **Examine** How did mass production change the size of factories?



### Picturing History

Young boys worked long hours in the mines to earn \$1 to \$3 a week. By 1900, many states had passed child labor laws. **Were the child labor laws effective? Why or why not?**





**US8.12.6** Discuss child labor, working conditions, and laissez-faire policies toward big business and examine the labor movement, including its leaders (e.g., Samuel Gompers), its demand for collective bargaining, and its strikes and protests over labor conditions.

## Labor Unions Form

**Main Idea** Workers created labor unions to combat unsafe working conditions in many of the nation's industries.

**Reading Connection** What do you think should be done about unsafe conditions at businesses and factories? Read on to learn about how employees attempted to change the conditions in which they worked.

Dissatisfied workers organized into groups—labor unions—to demand better pay and working conditions from their employers. Earlier in the 1800s, skilled workers had formed

unions to represent workers in certain crafts or trades, such as carpentry. These **trade unions** had little influence because each represented only one trade. By the mid-1800s, labor leaders looked to expand their unions.

### Noble and Holy Order Knights of Labor

In 1869 garment cutters in **Philadelphia, Pennsylvania** (FĪH • luh • DEHL • fee • uh), founded the Noble and Holy Order of the Knights of Labor. Employers fired workers who joined labor organizations, so the Knights met secretly and used special handshakes to identify each other. Under the leadership of **Terence V. Powderly**, the Knights of Labor became a national labor organization in the 1880s.



#### History Through Art

**The Ironworkers' Noontime** by Thomas Pollock Anshutz Factory workers in Wheeling, West Virginia, take their noontime break. **What national trade union represented skilled workers?**





**US8.12.6** Discuss child labor, working conditions, and laissez-faire policies toward big business and examine the labor movement, including its leaders (e.g., Samuel Gompers), its demand for collective bargaining, and its strikes and protests over labor conditions.

Unlike most unions, the Knights recruited people who had been kept out of trade unions, including women, African Americans, immigrants, and unskilled laborers. The Knights of Labor grew rapidly to more than 700,000 members by 1886. However, setbacks in many strikes weakened the unions and resulted in the loss of members and power in the 1890s.

**American Federation of Labor** In 1881 a group of national trade unions formed a federation that five years later became known as the American Federation of Labor (AFL). The AFL represented skilled workers in various crafts.

The AFL was led by **Samuel Gompers**, the tough, practical-minded president of the Cigar Makers' Union. The organization pressed for higher wages, shorter working hours, better working conditions, and the right to bargain collectively with employers. In the process of **collective bargaining**, unions represent workers in bargaining with management.

Although violent strikes turned some people against workers and unions in the late 1880s, the AFL survived and grew. By 1904 the AFL was able to claim more than 1.6 million members.

**Women and the Unions** Many unions would not admit women workers, so some women formed their own unions. **Mary Harris Jones**, better known as Mother Jones, spent 50 years fighting for workers' rights.

In 1911 a fire broke out at the Triangle Shirtwaist Company factory, a crowded sweatshop in **New York City, New York**. The workers, mostly young immigrant women, could not escape from the building because the company had locked the doors to prevent employees from leaving early. Nearly 150 workers died in the fire. The disaster led the International Ladies' Garment Workers Union (ILGWU) to push for a safer working environment.

**Reading Check** **Compare** Who was eligible for membership in the AFL? In the Knights of Labor?

## The Unions Act

**Main Idea** Strikes often ended in violence, causing some people to turn against labor unions.

**Reading Connection** Do you know anyone who was laid off from a job or whose wages were lowered due to economic downturns? How did these people cope with their loss of wages? Read on to find out about the conflict between employers and labor unions as an economic depression set in during the late 1800s.

## An American Story

On a spring day in 1886, about 12,000 workers in Chicago's Haymarket Square manufacturing district were on strike. At 2 o'clock, a man climbed up on an empty freight car near the crowd. He moved to the edge of the roof and waved frantically at the crowd below. "Stand firm," he yelled. "Let every man stand shoulder to shoulder and we will win this fight. We must have our rights. Strike while the iron is hot." The events at Haymarket Square soon turned violent, as did many other strikes.

**Strikes and Strikebreakers** Economic depressions in the 1870s and the 1890s led companies to fire workers and lower wages. Unions responded with large strikes that sometimes sparked violence.

Economic depression hit the nation following a financial panic in 1873. To cut costs, companies forced their workers to take pay cuts. In July 1877, as the depression continued, several railroads announced another round of wage cuts. This triggered the first nationwide labor protest. Angry strikers smashed equipment; tore up tracks; and blocked rail service in New York, Baltimore, Pittsburgh, Chicago, and other cities. The companies hired **strikebreakers** to replace the striking workers. State militia or federal troops restored order in different places. By the time the strike ended, however, more than 100 people lay dead, and millions of dollars of property had been destroyed.

# Biography

**US8.12.6** Discuss child labor, working conditions, and laissez-faire policies toward big business and examine the labor movement, including its leaders (e.g., Samuel Gompers), its demand for collective bargaining, and its strikes and protests over labor conditions.

## MARY HARRIS JONES

1830–1930

Mary Harris “Mother” Jones was born in Ireland and moved to the United States with her family. In 1867 her husband George and their four children died from yellow fever. Widowed and childless, Jones moved to Chicago and opened a dressmaker’s shop.

By the 1880s, Jones was fully involved in the union movement and became one of its most important leaders. For the next 50 years, she traveled around the country speaking to workers and promoting unions. She said, “My address is like my shoes: it travels with me. I abide where there is a fight against wrong.”

She told her listeners to “look on yourselves, and upon each other. Let us consider this together for I am one of you, and I know what it is to suffer.”



▲ Mary Harris Jones

## CÉSAR ESTRADA CHÁVEZ

1927–1993

César Chávez knew the suffering of farmworkers. He had labored in the fields since age 10, when his family lost their Arizona farm during the Great Depression. Like thousands of other farmers, the Chávez family became migrant workers. Chávez attended some 65 schools before dropping out at the end of eighth grade.

After serving in World War II, Chávez took a paid job to win greater rights for Mexican Americans. In 1962 with the support of his wife Helen Fabela Chávez, he returned to the fields and his dream of organizing farmworkers into a union.

In 1965 Chávez launched La Huelga—“the strike.” He asked Americans to boycott grapes until growers in the San Joaquin Valley signed union contracts. Some 17 million Americans responded. “For the first time,” Chávez said, “the farmworker got some power.” The power came from the United Farm Workers, the first successful farmworkers union in the nation’s history.



▲ César Estrada Chávez

### Then and Now

Mary Harris Jones and César Chávez both worked to better the lives of workers. Who might they choose to represent today? Why?

**Major Strikes** Antilabor feeling grew stronger after events in Chicago's Haymarket Square in May 1886. Striking workers from the McCormick Harvester Company gathered to protest the killings of four strikers the previous day. When police ordered the crowd to break up, an unidentified person threw a bomb that killed a police officer. Several more were killed in a riot that followed. Following the Haymarket Riot, some Americans associated the labor movement with violence and disorder.


In 1892 workers went on strike at Andrew Carnegie's steel plant in **Homestead, Pennsylvania**. Homestead managers hired nonunion workers and brought in 300 armed guards to protect them. A fierce battle left at least 10 people dead. The plant reopened with nonunion workers, protected by the troops. After the failure of the Homestead Strike, the steelworkers' union dwindled.

After employees of George Pullman's railway-car plant near Chicago went on strike

in May 1894, Pullman closed the plant. One month later, workers in the American Railway Union supported the strikers by refusing to handle Pullman cars, paralyzing rail traffic.

Pullman and the railroad owners fought back. They persuaded U.S. Attorney General Richard Olney to obtain an **injunction** (ihn•JUHnk•shuhn), or court order, to stop the union from "obstructing the railways and holding up the mails." The workers and their leader, **Eugene V. Debs** (yoo•JEEN DEHBZ), refused to end the strike. Debs was arrested for interfering with the mail.

President **Grover Cleveland** sent federal troops to Chicago, and soon the strike was over. The failure of the Pullman Strike dealt another blow to the union movement. Despite these setbacks, workers continued to organize to work for better wages and working conditions.

 **Reading Check Describe** Why did many railroad workers go on strike in 1877?

## Section 4 Review

**HistoryOnline**

**Study Central** Need help understanding the labor movement? Visit [ca.hss.glencoe.com](http://ca.hss.glencoe.com) and click on Study Central.

### Reading Summary

Review the **Main Ideas**

- Industrial workers labored long hours for low pay, often in unsafe conditions.
- Labor unions helped workers gain economic and political power.
- Strikes ending in violence and deaths caused labor unions to lose much of their power.

### What Did You Learn?

- What role did Samuel Gompers play in union growth?
- What were the goals of the American Federation of Labor when it was founded?
- Analyze** Explain how the separate words in the term *sweatshop* can help you determine its meaning. **CA 8RW1.0**
- The Big Ideas** Why do you think many Americans did or did not support the labor unions?
- Analyze** Find two sources that discuss unions—one from the early 20<sup>th</sup> century and one modern source. Identify how the authors view unions. How has new historical information impacted the views of the modern author? **CA HI.5**

### Critical Thinking

- Organizing Information** Re-create the diagram below and describe the roles each person played in labor-management issues. **CA HI.1**

Individual	Role
Terence Powderly	
Mary Harris Jones	
George Pullman	



# Connecting to the Constitution



**US8.12.6** Discuss child labor, working conditions, and laissez-faire policies toward big business and examine the labor movement, including its leaders (e.g., Samuel Gompers), its demand for collective bargaining, and its strikes and protests over labor conditions.

## Government and Labor

**Why It Matters** Labor unions are an important part of the American society. They present the concerns of many workers to businesses and to the U.S. government at all levels. Through unions, workers try to improve their wages and working conditions. They also can gain a voice in almost all matters relating to their jobs. Unions have helped unite workers and provide a source of pride and a sense of dignity to workers.

In the past, unions were formed mainly by workers in heavy industries that produce goods such as machines, mining equipment, and steel. Today, however, people in jobs as different as airline workers, teachers, and professional athletes also belong to unions. Although only a small number of American workers are union members, the influence of unions is powerfully felt, especially on issues such as job safety, working conditions, and workers' grievances. In national, state, and local government, labor unions are active in backing candidates and laws favorable to their interests.



### Government, Business, and Labor

During the late 1800s, some unions won recognition from employers and influenced local and state laws. However, many federal and state governments favored big business over labor unions. Many states passed laws to restrict union activities. On the national level, the Sherman Antitrust Act of 1890—passed to break up large companies that hindered trade—was used mostly against labor. The courts found union leaders guilty of breaking the law, stating that unions interfered with commerce. Judges often issued **injunctions**, or court orders, banning strikes.

During the early 1900s, the political climate changed. An increasing number of Americans began to call for limits on big business and more rights for workers. As a result, government attitudes toward labor began to change. Most of the larger cities and more than half the states placed limits on working hours for employees on public works.

*"The fight is never about grapes or lettuce. It is always about people."*

—César Chávez, quoted in *Great Labor Quotations*

◀ César Chávez



▲ Union strikes, such as the Pullman strike of 1894, sometimes turned violent.

The courts, however, supported employers who challenged state laws that tried to regulate wages and working conditions. In 1905, for example, the Supreme Court ruled in the case *Lochner v. New York* that states could not set limits on the working hours of bakery workers. The Court reasoned that the New York law was unconstitutional because it interfered with the right of employers and employees to make contracts, or agreements, about working hours. The Court's reasoning was based on the principle that individuals have "liberty of contract" based on the Fourteenth Amendment.

**Protecting Unions and Workers** The Great Depression of the 1930s left many American workers without jobs. President Franklin D. Roosevelt's effort to end the Depression included helping labor. One of the most important laws passed by Congress during Roosevelt's administration was the Wagner Act in 1935. This law sought to protect the right of workers to organize and to bargain collectively, or hold contract talks with employers. Under the Wagner Act, companies could not punish a worker because of union activities. Another measure was the Fair Labor Standards Act of 1938. It set the first minimum wage for workers and banned child labor.

Many employers believed that the Wagner Act was unconstitutional, but the Supreme Court upheld the act. In the case *National Labor Relations Board v. Jones & Laughlin Steel Corporation* (1937), the Court ruled that local activities of trade unions may affect commerce.

Because Congress had the constitutional power to regulate commerce, it could also regulate relations between business and labor. This meant that the National Labor Relations Board created by Congress had the authority to punish businesses involved in interstate commerce that discriminated against union members.

**Unions Today** During the 1960s and 1970s, several groups, such as government workers and farmworkers, formed new unions. For example, César

E. Chávez, a Mexican American labor leader, began to organize farmworkers in California. Chávez founded what is now the United Farm Workers of America (UFW), a union of migrant workers and other farm laborers. Union membership among other Hispanic Americans, African Americans, and women also increased during this period.

Over the years, labor unions—as well as economic prosperity—have raised workers' standards of living. However, as a result of political and economic changes, the number of workers belonging to unions has declined sharply in recent years. Unions face other challenges too. One is defending workers' interests in declining industries that have fewer jobs. Another is protecting the jobs and wages of workers affected by **automation**, or the use of machines to do tasks once performed by people. Despite these difficulties, labor unions remain a powerful force in American life.

#### Checking for Understanding

1. What reason did the courts of the late 1800s give for finding union leaders guilty of breaking the law?
2. How did the federal government help labor during the Great Depression?

#### Critical Thinking

3. **Evaluate** Why did the Supreme Court adjust its view on labor in *NLRB v. Jones & Laughlin Steel Company*? **CA HI.2.**
4. **Analyze** Restate the Court's reasoning in *Lochner v. New York* and predict the ruling's impact on other industries. **CA HI.6.**



# Analyzing Primary Sources



**US8.12** Students analyze the transformation of the American economy and the changing social and political conditions in the United States in response to the Industrial Revolution.

## The Growth of Industry in America

*Following the Civil War, the railroads expanded throughout the country. The railroads and inventions created the chance for other industries to grow. Many companies in these industries had long working hours, paid minimal salaries, and provided unsafe working conditions.*

*Read the passages on pages 732 and 733 and answer the questions that follow.*

These women are working on the cloth after it has been woven. ►



### Reader's Dictionary

**shaker:** person who shook and turned the drill after each blow to keep the drill from getting caught in the rock or the rock dust

**haste** (HAYST): hurrying too fast

**garments** (GAHR • muhnts): pieces of clothing

**inclined plane:** slanted surface

**slate:** type of rock that is used for chalkboards and roof tiles

### John Henry

*"John Henry" is a song that railroad men sang as they worked. John Henry hand drilled holes into stone to place dynamite.*

When John Henry was a little baby,  
Sitting on his pappy's knee,  
He grabbed a hammer and a little piece of steel,  
Said, "This hammer'll be the death of me,  
Lord, Lord,  
This hammer'll be the death of me. . . ."

John Henry told his captain,  
"A man ain't nothing but a man,  
But before I'll let that steam drill beat me down  
I'll die with my hammer in my hand,  
Lord, Lord,  
I'll die with my hammer in my hand."

John Henry said to his shaker,  
"Now shaker, why don't you sing?  
'Cause I'm throwing twelve pounds from my hips on down,  
Just listen to that cold steel ring,  
Lord, Lord,  
Just listen to that cold steel ring."

The man that invented the steam drill,  
He thought he was mighty fine,  
But John Henry he made fourteen feet  
While the steam drill only made nine,  
Lord, Lord,  
The steam drill only made nine.

John Henry hammered on the mountain  
Till his hammer was striking fire,  
He drove so hard he broke his poor heart,  
Then he laid down his hammer and he died,  
Lord, Lord,  
He laid down his hammer and he died.



They took John Henry to the graveyard,  
And they buried him in the sand,  
And every locomotive comes rolling by  
Says, "There lies a steel-driving man,  
Lord, Lord,  
There lays a steel-driving man."  
—Anonymous in *Annals of America*

## The Sweatshop

**I**n factories, people had to work very quickly. In this passage, a young woman described her day in a factory where clothing was made.

At seven o'clock we all sit down to our machines and the boss brings to each one the pile of work that he or she is to finish during the day. . . . This pile is put down beside the machine and as soon as a skirt is done it is laid on the other side of the machine. . . .

The machines go like mad all day, because the faster you work, the more money you get. Sometimes in my **haste** I get my finger caught and the needle goes right through it. . . . We all have accidents like that. . . . Sometimes a finger has to come off. . . .

All the time we are working the boss walks about examining the finished **garments** and making us do them over again if they are not just right. So we have to be careful as well as swift.

—Sadie Frowne, "The Story of a Sweatshop Girl"

## Child Labor

**L**aws forbidding children to work did not exist or were not enforced at this time.

In a little room in this big, black shed—a room not twenty feet square—forty boys are picking their lives away. The floor of this room is an **inclined plane**, and a stream of coal pours constantly in. They work here, in this little black hole, all day and every day, . . . picking their way among the black coals, bending over till their little spines are curved. . . .

Not three boys in this roomful could read or write. Shut out from everything that is pleasant, with no chance to learn, with no knowledge of what is going on about them. . . .

They know nothing but the difference between **slate** and coal.

—from a local Labor Standard Newspaper,  
St. Clair, Pennsylvania



▲ Young coal miners



### Document-Based Questions

#### John Henry

1. What does John Henry predict in the first stanza?
2. Who won the contest? How do you know?

#### The Sweatshop

3. Why do people work quickly at the factory?
4. Why do people have to work carefully?

#### Child Labor

5. Where do the boys work?
6. What is their job?

#### Read to Write

7. Make two lists—one labeled Working Conditions and the other Effects of Working Conditions. Use the information in "The Sweatshop," "Child Labor," and what you already know about working conditions at this time to complete the lists. Write a paragraph explaining how you feel about these conditions. Include ideas for how they could be improved. **CA 8RC2.3**

# Chapter 16

## Assessment

### Standard US8.12

#### Review Content Vocabulary

Write the key term that completes each sentence.

- standard gauge
  - assembly line
  - horizontal integration
  - trade union
  - rebates
- Railroads offered \_\_\_\_, or discounts, to their largest customers.
  - Railroad companies adopted 4 feet, 8.5 inches as the width of the railroad track, also known as the \_\_\_\_.
  - The Knights of Labor was a \_\_\_\_ of garment workers.

#### Review the Main Ideas

##### Section 1 • Railroads Lead the Way

- What improvements in railway transportation were brought about by new technology?
- Why did the American Railway Association divide the country into four time zones?

##### Section 2 • Inventions

- What inventions improved communications in the late 1800s?
- What manufacturing methods did Henry Ford use to make his new automobile affordable?

##### Section 3 • The Age of Big Business

- What is vertical integration?
- What action did Congress take to control trusts and monopolies in response to pressure from the American people?

##### Section 4 • Industrial Workers

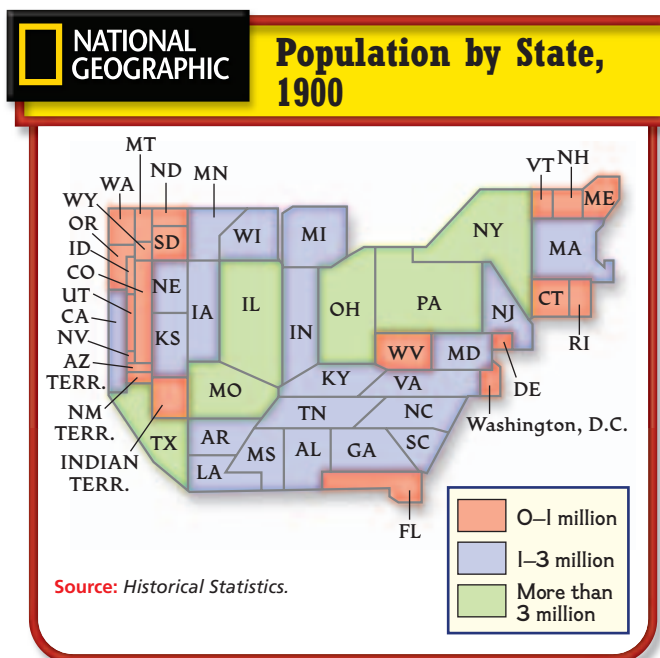
- What is collective bargaining?
- How did the Haymarket Riot of 1886 affect public opinion about the labor movement?

#### Critical Thinking

- Conclude** Why did workers think that forming organized labor unions would help them get what they wanted from employers? **CA CS1.**
- Analyze** How did American industry benefit from the growing railroad network in the late 1800s? **CA HI2.**

#### Geography Skills

A cartogram is a kind of map used to present statistical information. On a population cartogram the sizes of the states appear in proportion to their populations. Study the population cartogram below and answer the following questions. **CA CS3.**



- Location** Did Florida or Illinois have a larger population 1900?
- Location** Did North Dakota have more or fewer people than South Dakota?

## Read to Write

16. **The Big Ideas Evaluate** In a short essay, describe how the increasing size of corporations was both beneficial and harmful to American business. **CA 8WA2.3**
17. **Summarize** Review the chapter for information about the four major union strikes between 1877 and 1894. Write a headline for each that might have appeared in newspapers following the strike. **CA 8WA2.2**
18. **Using Your FOLDABLES** Write a poem, series of journal entries, or short story using the main ideas and supporting details from your completed foldable. **CA 8WA2.1**

## Using Academic Vocabulary

Identify the correct form of the academic vocabulary word to complete each sentence.

- technology technological technologically**
19. The computer is an example of a \_\_\_\_ advance.  
**transmit transmits transmitted**
  20. The reporter used the telegraph to \_\_\_\_ the story to the newspaper.

## Building Citizenship

21. **Evaluate** With another student, write a short essay in which you support or criticize labor unions from the point of view of a young person who has just entered the workforce. Note how you think a union could or could not improve your life. Share your essay with the class. **CA 8WS1.1**

## Reviewing Skills

22. **Predicting Consequences** How would the growth of industry and new innovations in technology impact preparations for a war? Write a short essay predicting the potential effect. **CA 8WA2.3**

23. **Organizing Information** Do research to find the dates when the inventions described in this chapter were first created. Also find other inventions created by the inventors mentioned in the chapter, along with their dates of creation. Draw an annotated time line with the information you have found. Be sure to include the importance of each invention. **CA CS2**

## Standards Practice

Select the best answer for each of the following questions.

- 24 The development of the transformers that Westinghouse built led to an increase in  
A the price of electricity.  
B the use of gas to heat homes.  
C the use of electricity to power factories.  
D imported goods.
- 25 John D. Rockefeller was the founder of the  
A Pennsylvania Railroad.  
B United States Steel Corporation.  
C Titusville oil well.  
D Standard Oil Company of Ohio.
- 26 The process in which a union represents its workers when negotiating with management is known as  
A collective bargaining.  
B strikebreaking.  
C vertical integration.  
D philanthropy.