At the turn of the century, industrial strikes for better conditions often erupted in violence, as this illustration shows.

Most of the workers have only bricks, stones, or sticks for weapons.

There were no laws protecting children from dangerous work or long hours.
The year is 1894. You work in a factory that is unheated and badly lit. The machine that you operate is dangerous. The economy is doing poorly, so the factory has cut your wages. Some of your coworkers have gone out on strike. They want better pay and working conditions.

Would you join the strike? Why or why not?

What Do You Think?
- What are some risks you would be taking if you join the strike?
- What might you gain if you take part in the strike?
- What other methods might you use to persuade your employer to meet your demands?
Reading Strategy: Analyzing Causes and Effects

What Do You Know?
Do you know of any businesses that started back in the 1800s? How do businesses grow?

Think About
- businesses that you see in your community
- businesses that are advertised on television, in magazines or newspapers, or on the Internet
- your responses to the Interact with History about conflict with workers (see page 583)

What Do You Want to Know?
What facts and details would help you understand how a nation of small businesses became a nation of giant corporations? In your notebook, list the facts and details you hope to learn from this chapter.

Analyzing Causes and Effects
The conditions or actions that lead to a historical event are its causes. The consequences of an event are its effects. As you read the chapter, look for the causes and effects of industrial and railroad growth. Causes include geographical factors and actions by individuals and the government. Effects include both benefits and problems. Use the diagram below to record both causes and effects.


Taking Notes

![Diagram of causes and effects](image-url)

EFFECT: GROWTH OF INDUSTRY AND RAILROADS

Benefits of Growth

Problems of Growth
The Growth of Industry

**ONE AMERICAN’S STORY**

In the 1850s, most Americans lit their homes with oil lamps. They could have used kerosene, an oil made from coal, but it was expensive. Then, in 1855, a chemist reported that kerosene could be made more cheaply from an oily liquid called **petroleum**. However, people didn’t know how to obtain petroleum from underground. They just gathered it slowly when it seeped to the surface.

In 1857, Edwin Drake visited a site in Pennsylvania where petroleum oozed to the surface.

Drake began drilling in 1859. He struck oil in August. This event launched the oil industry—one of many new industries that developed in the late 1800s, as this section explains.

The Industrial Revolution Continues

Throughout the 1800s, factory production expanded in the United States. By the Civil War, factory production had spread beyond New England textiles to other regions and industries. Several factors encouraged this growth.

1. **Plentiful natural resources.** America had immense forests and large supplies of water. It also had vast mineral wealth, including coal, iron, copper, silver, and gold. Industry used these resources to manufacture a variety of goods.

2. **Growing population.** From 1860 to 1900, the U.S. population grew from 31.5 million to 76 million. This led to a growing need for goods. The demand for goods spurred the growth of industry.

**MAIN IDEA**
The growth of industry during the years 1860 to 1914 transformed life in America.

**WHY IT MATTERS NOW**
Modern businesses rely on many of the inventions and products developed during that time.

**TERMS & NAMES**
- petroleum
- patent
- business cycle
- Bessemer steel process
- generator
- Thomas Edison
- Alexander Graham Bell
- Centennial Exhibition

**CALIFORNIA STANDARDS**
- 8.12.1 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.
- 8.12.4 Discuss entrepreneurs, industrialists, and bankers in politics, commerce, and industry (e.g., Andrew Carnegie, John D. Rockefeller, Leland Stanford).
- 8.12.5 Examine the location and effects of urbanization, renewed immigration, and industrialization (e.g., the effects on social fabric of cities, wealth and economic opportunity, the conservation movement).
- 8.12.9 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).
3. **Improved transportation.** In the early 1800s, steamboats, canals, and railroads made it possible to ship items long distances more quickly. Railroad building boomed after the Civil War. As shipping raw materials and finished goods became easier, industry grew.

4. **High immigration.** Between 1860 and 1900, about 14 million people immigrated to the United States. Many of them knew specialized trades, such as metalworking. In addition, unskilled immigrants supplied the labor that growing industry needed.

5. **New inventions.** New machines and improved processes helped industry produce goods more efficiently. Inventors applied for patents for the machines or processes they invented. A **patent** is a government document giving an inventor the exclusive right to make and sell his or her invention for a specific number of years.

6. **Investment capital.** When the economy was thriving, many businesses made large profits. Hoping to share in those profits, banks and wealthy people lent businesses money. The businesses used this capital to build factories and buy equipment.

7. **Government assistance.** Between 1860 and 1900 the United States imposed several tariffs on imported goods. State and federal governments also used land grants and subsidies to help businesses grow.

**The Business Cycle**

American industry did not grow at a steady pace; it experienced ups and downs. This pattern of good and bad times is called the **business cycle.**

During good times, called booms, people buy more, and some invest in business. As a result, industries and businesses grow. During bad times, called busts, spending and investing decrease. Industries lay off workers and make fewer goods. Businesses may shrink—or even close. Such a period of low economic activity is a depression.

America experienced depressions in 1837 and 1857. Both were eventually followed by periods of strong economic growth. In the late 1800s, there were two harsh depressions, also called panics. The depression of 1873 lasted five years. At its height, three million people were out of work. During the depression that began in 1893, thousands of businesses failed, including more than 300 railroads.
Even with these economic highs and lows, industries in the United States grew tremendously between 1860 and 1900. Overall, the amount of manufactured goods increased six times during these years.

**Steel: The Backbone of Industry**

The steel industry contributed to America's industrial growth. Before the mid-1800s, steel was very expensive to manufacture because the steel-making process used huge amounts of coal. In the 1850s, William Kelly in the United States and Henry Bessemer in England independently developed a new process for making steel. It used less than one-seventh of the coal that the older process used. This new manufacturing technique was called the **Bessemer steel process**.

Because the Bessemer process cut the cost of steel, the nation's steel output increased 500 times between 1867 and 1900. Industry began to make many products out of steel instead of iron. These products included plows, barbed wire, nails, and beams for buildings. But the main use of steel throughout the late 1800s was for rails for the expanding railroads. (See Section 2.)

**Edison and Electricity**

Another industry that grew during the late 1800s was the electric-power industry. By the 1870s, inventors had designed efficient generators. A **generator** is a machine that produces electric current. As a result, people grew eager to tap the power of electricity.

The inventor who found the most ways to use electricity was **Thomas Edison**. In 1876, he opened a laboratory in Menlo Park, New Jersey. He employed many assistants, whom he organized into teams to do research. Edison's laboratory invented so many things that Edison received more than 1,000 U.S. patents, more than any other individual inventor.

Edison would start with an idea for a possible invention. Then he would work hard to make that idea a reality—even if problems arose.

Edison's most famous invention was practical electric lighting. Other inventors had already created electric lights, but they were too bright and...
flickery for home use. Edison figured out how to make a safe, steady light bulb. He also invented a system to deliver electricity to buildings. By 1882, he had installed electric lighting in a half-mile-square area of New York City. Electric lighting quickly replaced gaslights. By the late 1880s, Edison’s factory produced about a million light bulbs a year.

**Bell and the Telephone**

Electricity played a role in communications devices invented during the 1800s. In 1835, Samuel Morse developed the telegraph. It allowed people to use electrical impulses to send messages over long distances.

The next step in communications was the telephone, invented by **Alexander Graham Bell**. He was a Scottish immigrant who taught deaf students in Boston. At night, Bell and his assistant, Thomas Watson, tried to invent a device to transmit human speech using electricity.

After years of experiments, Bell succeeded. One day in March 1876, he was adjusting the transmitter in the laboratory in his apartment. Watson was in another room with the receiver. The two doors between the rooms were shut. According to Watson’s memoirs, Bell accidentally spilled acid on himself and said, “Mr. Watson, come here. I want you.” Watson rushed down the hall. He burst into the laboratory, exclaiming that he had heard and understood Bell’s words through the receiver.

Bell showed his telephone at the **Centennial Exhibition** in June 1876. That was an exhibition in Philadelphia to celebrate America’s 100th birthday. There, several of the world’s leading scientists and the emperor of Brazil saw his demonstration. Afterward, they declared, “Here is the greatest marvel ever achieved in electrical science.”

**Inventions Change Industry**

The telephone industry grew rapidly. By 1880, more than 50,000 telephones had been sold. The invention of the switchboard allowed more and more people to connect into a telephone network. Women commonly worked in the new job of switchboard operator.

The typewriter also opened jobs for women. Christopher Latham Sholes helped invent the first practical typewriter in 1867. He also
improved the machine and sold his rights to it to a manufacturer who began to make typewriters in the 1870s.

The sewing machine also changed American life. Elias Howe first patented it in 1846. In the next few years, the sewing machine received many design improvements. Isaac Singer patented a sewing machine in 1851 and continued to improve it. It became a bestseller and led to a new industry. In factories, people produced ready-made clothes. Instead of being fitted to each buyer, clothes came in standard sizes and popular styles. Increasingly, people bought clothes instead of making their own.

Other inventors helped industry advance. African-American inventor Granville T. Woods patented devices to improve telephone and telegraph systems. Margaret Knight invented machines for the packaging and shoemaking industries and also improved motors and engines.

Of all the up-and-coming industries of the middle 1800s, one would have a larger impact on American life than any other. That was the railroad industry. You will read about railroads in Section 2.

**SKILLBUILDER Interpreting Graphs**

1. How many more patents were issued from 1900 to 1909 than from 1860 to 1869?
2. Was this a time of increasing or decreasing inventiveness?

**Inventions**

- petroleum
- patent
- business cycle
- Bessemer steel process
- generator
- Thomas Edison
- Alexander Graham Bell
- Centennial Exhibition

**ACTIVITY OPTIONS**

**SCIENCE**

Choose an invention and learn more about it. Create a display explaining how it works or design a Web page linking to sites with more information. (REP1)
The railroads tied the nation together, speeded industrial growth, and changed U.S. life.

**WHY IT MATTERS NOW**
The railroad first made possible our modern system of shipping goods across the country.

**ONE AMERICAN’S STORY**
Ah Goong was one of thousands of Chinese workers on the Western railroads in the late 1800s. In some places, the workers had to blast rock from a cliff wall. The lightest Chinese were lowered in wicker baskets hundreds of feet to the blasting site. Years later, Ah Goong’s granddaughter described her grandfather’s job.

**A VOICE FROM THE PAST**
Swinging near the cliff, Ah Goong . . . dug holes, then inserted gunpowder and fuses . . . . The basketmen signaled one another to light the fuses. He struck match after match and dropped the burnt matches over the sides. At last his fuse caught; he waved, and the men above pulled hand over hand hauling him up, pulleys creaking.

Maxine Hong Kingston, *China Men*

This section discusses the building of the railroads.

**Deciding to Span the Continent**
Americans had talked about building a transcontinental railroad—one that spanned the entire continent—for years. Such a railroad would encourage people to settle the West and develop its economy. In 1862, Congress passed a bill that called for two companies to build a transcontinental railroad across the center of the United States.

The Central Pacific, led by Leland Stanford, was to start in Sacramento, California, and build east. The Union Pacific was to start in Omaha, Nebraska, and build west. To build the railroad, these two companies had to raise large sums of money. The government lent them millions of dollars. It also gave them 20 square miles of public land for every mile of track they laid. The railroad companies could then sell the land to raise money.

With the guarantees of loans and land, the railroads attracted many investors. The Central Pacific began to lay its first track in 1863. The
Union Pacific laid its first rail in July 1865 (after the Civil War had ended).

**Building the Railroad**

The Central Pacific faced a labor shortage because most men preferred to try to strike it rich as miners. Desperate for workers, the Central Pacific’s managers overcame the widespread prejudice against the Chinese and hired several dozen of them. The Chinese were small and weighed, on average, no more than 110 pounds. But they were efficient, fearless, and hard working.

They also followed their own customs, which led to an unexpected benefit for the railroad company. The Chinese drank tea instead of unboiled water, so they were sick less often than other workers. Pleased with the Chinese workers, the company brought more men over from China. At the peak of construction, more than 10,000 Chinese worked on the Central Pacific.

The Union Pacific hired workers from a variety of backgrounds. After the Civil War ended in 1865, former soldiers from both North and South flocked to work on the railroad. Freed slaves came, too. But one of the largest groups of Union Pacific workers was immigrants, many from Ireland.

Both railroads occasionally hired Native Americans. Washos, Shoshones, and Paiutes all assisted the race of the rails across the deserts of Nevada and Utah.

**Railroads Tie the Nation Together**

Only short, undergrown trees dotted the vast open space. To the south shimmered the Great Salt Lake. In the east rose the bluish shapes of the Rocky Mountains. Across that space, from opposite directions, the workers of the Central Pacific and the Union Pacific toiled. By May 10, 1869, Central Pacific workers had laid 690 miles of track. Union Pacific workers had laid 1,086 miles. Only one span of track separated the two lines at their meeting point at Promontory, Utah.

Hundreds of railroad workers, managers, spectators, and journalists gathered on that cool, windy day to see the transcontinental railroad completed. Millions of Americans waited to hear the news by telegraph. A band played as a Chinese crew and an Irish crew laid the last rails. The last spike, a golden one, was set in place. First, the president of the Central Pacific raised a hammer to drive in the spike. After he swung the hammer down, the crowd roared with laughter. He had missed. The vice-president of the Union Pacific took a turn and also missed. But the telegraph operator couldn’t see and had already sent the message: “done.” People across the nation celebrated.
The Union Pacific-Central Pacific line was the first transcontinental railroad. By 1895, four more U.S. lines had been built across the continent. Between 1869 and 1890, the amount of money railroads earned carrying freight grew from $300 million to $734 million per year.

**Railroad Time**

The railroads changed America in a surprising way: they altered time. Before the railroads, each community determined its own time, based on calculations about the sun's travels. This system was called “solar time.” Solar time caused problems for people who scheduled trains crossing several time zones and for travelers.

*A Voice From the Past*

I have been annoyed and perplexed by the changes in the time schedules of connecting railroads. My watch could give me no information as to the arrival and departure of trains, nor of the time for meals.

John Rodgers, quoted in *Passage to Union*

To solve this problem, the railroad companies set up standard time. It was a system that divided the United States into four time zones. Although the plan went into effect on November 18, 1883, Congress did not adopt standard time until 1918. By then, most Americans saw its benefit because following schedules had become part of daily life.
Economic and Social Changes

The railroads changed people's lives in many other important ways. They helped create modern America.

1. **Linked the economies of the West and East.**
   From the West, the railroads carried eastward raw materials such as lumber, livestock, and grain. Materials like these were processed in Midwestern cities such as Chicago and Cleveland. (See Geography in History on pages 598–599.) From Eastern cities, in turn, came manufactured goods, which were sold to Westerners.

2. **Helped people settle the West.**
   Railroads were lifelines for settlers. Trains brought them lumber, farm equipment, food, and other necessities and hauled their crops to market.

3. **Weakened the Native American hold on the West.**
   As Chapter 19 explained, the railroads carried hunters who killed off the herds of buffalo. They also brought settlers and miners who laid claim to Native American land.

4. **Gave people more control of the environment.**
   Before railroads, people lived mainly where there were waterways, such as rivers. Roads were primitive. Railroads made possible cities such as Denver, Colorado, which had no usable waterways.

Just as railroads changed life for many Americans in the late 1800s, so did big business. You will read about big business in Section 3.
The Rise of Big Business

**Main Idea**
Business leaders guided industrial expansion and created new ways of doing business.

**Why It Matters Now**
These leaders developed the modern corporation, which dominates business today.

**Terms & Names**
- robber baron
- corporation
- John D. Rockefeller
- Andrew Carnegie
- monopoly
- trust
- philanthropist
- Gilded Age

**California Standards**
- 8.12.1 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.
- 8.12.4 Discuss entrepreneurs, industrialists, and bankers in politics, commerce, and industry (e.g., Andrew Carnegie, John D. Rockefeller, Leland Stanford).
- 8.12.5 Examine the location and effects of urbanization, renewed immigration, and industrialization (e.g., the effects on social fabric of cities, wealth and economic opportunity, the conservation movement).

**One American’s Story**
In 1853, when Jay Gould was 17, he visited New York. Big-city wealth impressed Gould. After returning to his small hometown, he told a friend, “Crosby, I’m going to be rich. I’ve seen enough to realize what can be accomplished by means of riches, and I tell you I’m going to be rich.”

Gould achieved his goal. By the time he died in 1892, he was worth $77 million. He made a lot of his money using methods that are illegal today—such as bribing officials and selling fake stock. Most of his deals involved railroads.

Jay Gould was a robber baron. A robber baron was a business leader who became wealthy through dishonest methods. This section discusses other business leaders and their companies.

**The Growth of Corporations**
Until the late 1800s, most businesses were owned directly by one person or by a few partners. Then advances in technology made many business owners want to buy new equipment. One way to raise money to do so was to turn their businesses into corporations. A corporation is a business owned by investors who buy part of the company through shares of stock. A corporation has advantages over a privately owned business:

1. By selling stock, a corporation can raise large amounts of money.
2. A corporation has a special legal status and continues to exist after its founders die. Banks are more likely to lend a corporation money.
3. A corporation limits the risks to its investors, who do not have to pay off the corporation’s debts.

In the late 1800s, few laws regulated corporations. This led to the growth of a few giant corporations that dominated American industry. The oil and steel industries are examples of this process.
The Oil and Steel Industries

As Section 1 explained, the oil and steel industries began to grow in the late 1800s. Two men dominated these industries. John D. Rockefeller led the oil industry, and Andrew Carnegie controlled the steel industry.

John D. Rockefeller built his first refinery in 1863. He decided that the best way to make money was to put his competitors out of business. A company that wipes out its competitors and controls an industry is a monopoly. Rockefeller bought other refineries. He made secret deals with railroads to carry his oil at a lower rate than his competitors’ oil. He also built and purchased his own pipelines to carry oil.

Rockefeller’s most famous move to end competition was to develop the trust in 1882. A trust is a legal body created to hold stock in many companies, often in the same industry. Rockefeller persuaded other oil companies to join his Standard Oil Trust. By 1880, the trust controlled 95 percent of all oil refining in the United States—and was able to set a high price for oil. The public had to pay that price because they couldn’t buy oil from anyone else. As head of Standard Oil, Rockefeller earned millions of dollars. He also gained a reputation as a ruthless robber baron.

Businessmen in other industries began to follow Rockefeller’s example. Trusts were formed in the sugar, cottonseed oil, and lead-mining industries. Many people felt that these monopolies were unfair and hurt the economy. But the government was slow to regulate them.

Rockefeller tried to control all the companies in his industry. By contrast, Andrew Carnegie tried to beat his competition in the steel industry.

Vocabulary
refinery: a plant that purifies oil

Reading History
A. Analyzing Points of View
Why do you think people thought monopolies were unfair?

A. Possible Response
They didn’t like the way monopolies kept prices high.

AMERICA’S HISTORY MAKERS

JOHN D. ROCKEFELLER
1839–1937

John D. Rockefeller was born to a poor family in upstate New York. From his mother, he learned the habit of frugality—he avoided unnecessary spending. “Wilful waste makes woeful want” was a saying that Rockefeller’s mother passed down to him.

By 1897, he had made millions and millions of dollars. Instead of keeping all that vast fortune for himself and his family, he spent the rest of his life donating money to several worthy causes.

ANDREW CARNEGIE
1835–1919

When Andrew Carnegie was 12, he and his family moved from Scotland to Pennsylvania. Carnegie’s first job was in a cotton mill.

Later he worked in a telegraph office. There he was noticed by a railroad superintendent, who hired Carnegie as his assistant. Carnegie learned not only about running a big business but also about investing money. Eventually, he quit to start his own business.

Despite his fortune, Carnegie once wrote that none of his earnings gave him as much happiness as his first week’s pay.

Compare the characters of Rockefeller and Carnegie. What do you think made each of them successful?
by making the best and cheapest product. To do so, he sought to control all the processes related to the manufacture of steel. He bought the mines that supplied his iron ore, and the ships and railroads that carried that ore to his mills. Carnegie's company dominated the U.S. steel industry from 1889 to 1901, when he sold it to J.P. Morgan, the nation's most prominent banker.

Rockefeller and Carnegie were multimillionaires. They also were both philanthropists, people who give large sums of money to charities. Rockefeller donated money to the University of Chicago and Rockefeller University in New York. Carnegie also gave money to universities, and he built hundreds of public libraries. During his life, Rockefeller gave away more than $500 million. Carnegie gave away more than $350 million.

**The Gilded Age**

The rags-to-riches stories of people such as Rockefeller and Carnegie inspired many Americans to believe that they too could grow rich. Stories like theirs also inspired writer Horatio Alger. He wrote popular stories about poor boys who worked hard and became quite successful.

Inspiring as these stories were, they hid an important truth. Most people who made millions of dollars had not been raised in poverty. Many belonged to the upper classes and had attended college. Most began their careers with the advantage of money or family connections.

For the rich, the late 1800s was a time of fabulous wealth. Writers Mark Twain and Charles Warner named the era the **Gilded Age**. To
gild is to coat an object with gold leaf. Gilded decorations were popular during the era. But the name has a deeper meaning. Just as gold leaf can disguise an object of lesser value, so did the wealth of a few people mask society’s problems, including corrupt politics and widespread poverty.

The South Remains Agricultural

One region that knew great poverty was the South. The Civil War had left the South in ruins. Industry did grow in some Southern areas, such as Birmingham, Alabama. Founded in 1871, Birmingham developed as an iron- and steel-producing town. In addition, cotton mills opened from southern Virginia to Alabama. Compared with the Northern economy, however, the Southern economy grew very slowly after the war.

Most of the South remained agricultural. As you have read, many Southern landowners rented their land to sharecroppers who paid a large portion of their crops as rent. Often sharecroppers had to buy their seed and tools on credit. The price of cotton, the South’s main crop, was very low. Sharecroppers made little money from selling cotton and had difficulty paying what they owed. And because most sharecroppers had little education, merchants cheated them, increasing their debt.

At the same time that sharecroppers struggled to break free of debt, workers in the industrial North also faced injustices. In the next section, you will learn how labor unions tried to fight back.
Industry in the Midwest

The Midwest is the region around the Great Lakes and the Upper Mississippi Valley. The region saw explosive growth during the 1800s. The first wave came after 1825, when the Erie Canal linked the East with the Great Lakes region. The second wave, caused by investments in products related to the Civil War (1861–1865), saw a boom in mining, farming, forestry, and meat-packing. By 1890, 29 percent of the country's manufacturing employment was in the Midwest, and the next big wave of growth was just beginning. New industries included steel and steel products, such as train rails and skyscraper beams.

Transportation and resources spurred the region's growth. Coal, oil, iron ore, limestone, and lumber were abundant, and the land was fertile. Trains, rivers, and lakes connected the Midwest to markets in the East and South and brought in raw materials from the West. The map on page 599 shows the resources of the lower Great Lakes and how transportation by rail and water joined regions.

The industries of the Midwest used raw materials that came both from their own region and from other regions of the country. For example, the cattle in this photograph of the Chicago stockyards came by rail from the ranches of the West. In contrast, the logs being floated down the river came from the pine forests of Michigan and Wisconsin.

**CALIFORNIA STANDARDS**

8.12.1 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.

**ARTIFACT FILE**

A Quick Dinner  Midwestern meat-packing companies advertised canned meats as a way to save time feeding a hungry family.

Affordable Housing  People began to build with wooden siding over a frame of wooden two-by-fours. These homes were cheap and quick to construct.
1. **Region** What advantages did the Midwest have that helped it become highly industrialized?


3. **Analyzing Causes** Chicago was a big meatpacking center. Why do you think that industry chose to locate there?

Iron ore from the Lake Superior region and coal from southern Illinois were used to manufacture steel.

**CONNECT TO GEOGRAPHY**

1. **Region** What advantages did the Midwest have that helped it become highly industrialized?


**CONNECT TO HISTORY**

3. **Analyzing Causes** Chicago was a big meatpacking center. Why do you think that industry chose to locate there?
ONE AMERICAN’S STORY

In 1867, Mary Harris Jones lost her husband and four children to yellow fever. Moving to Chicago, she started a dressmaking business. But the great Chicago fire of 1871 destroyed everything she owned. Instead of giving up in despair, Jones found a cause to fight for.

A VOICE FROM THE PAST

From the time of the Chicago fire I . . . decided to take an active part in the efforts of the working people to better the conditions under which they worked and lived.

Mary Harris Jones, *Autobiography of Mother Jones*

Jones became an effective labor leader. Workers loved her so much that they called her Mother Jones. In this section, you will learn about the labor movement of the late 1800s.

Workers Face Hardships

Business owners of the late 1800s wanted to keep their profits high, so they ran their factories as cheaply as possible. Some cut costs by requiring workers to buy their own tools or to bring coal to heat the factories. Others refused to buy safety equipment. For example, railroads would not buy air brakes or automatic train-car couplers. Because of this, 30,000 railroad workers were injured and 2,000 killed every year.

If a factory became too crowded, the owner rarely built a larger one. Instead, the owner sent part of the work to be done by smaller businesses that critics called sweatshops. Sweatshops were places where workers labored long hours under poor conditions for low wages. Often children—some as young as five years old—worked alongside adults.

Factory and sweatshop workers did the same jobs, such as sewing collars or making buttonholes, all day long. They grew bored and did not
experience the satisfaction that came from making an entire product themselves. Further, both factory and sweatshop owners kept wages low. In the 1880s, the average weekly wage was less than $10. This barely paid a family’s expenses. If a worker missed work due to illness or had any unexpected bills, the family went into debt. Most families could not survive unless everyone had a job. Between 1890 and 1910, 20 percent of boys and 10 percent of girls under age 15 had full-time jobs. Workers began to feel that only other working people could understand their troubles.

**A VOICE FROM THE PAST**

They know what it is to bring up a family on ninety cents a day, to live on beans and corn meal week in and week out, to run in debt at the stores until you cannot get trusted [credit] any longer, to see the wife breaking down . . . , and the children growing sharp and fierce like wolves day after day because they don’t get enough to eat.

*A railroad worker, quoted in the Philadelphia Inquirer, July 23, 1877*

So discontented workers joined together to try to improve their lives. They formed labor unions—groups of workers that negotiated with business owners to obtain better wages and working conditions.

**Early Unions**

As you read in Chapter 14, the first labor unions began in the mid-1800s but were unable to win many improvements for workers. After the Civil War, some unions started to form national organizations. One of these was the **Knights of Labor**. This was a loose federation of workers from all different trades. Unlike many labor organizations, the Knights allowed women and, after 1878, African-American workers to join their union. They inspired many people to support their cause.

Then, beginning in 1873, the United States fell into a serious economic depression. Over the next four years, millions of workers took pay cuts, and about one-fifth lost their jobs. In July 1877, the Baltimore and Ohio (B & O) Railroad declared a wage cut of 10 percent. The day the pay cut was to go into effect, B & O workers in Martinsburg, West Virginia, refused to run the trains. No labor union had called the strike. The workers themselves had stopped working on their own.

This work stoppage was the Railroad Strike of 1877. As the news spread, workers in many cities and in other industries joined in. This threw the country into turmoil. In several cities, state militias battled angry mobs. President Rutherford B. Hayes called out federal troops. Before the two-week strike ended, dozens of people were killed.

The strike did not prevent the railroad pay cut, but it showed how angry American workers had become. In 1884–1885, railroaders again went out on strike. This time they went on strike against the Union
Pacific and two other railroads. The strikers, who were members of the Knights of Labor, gained nationwide attention when they won their strike. Hundreds of thousands of new workers joined the union.

**Union Setbacks**

The growth of labor unions scared many business leaders. They blamed the labor movement on socialists and anarchists. Socialists believe in **socialism**. In that economic system, all members of a society are equal owners of all businesses—they share the work and the profits.

Anarchists are far more extreme. They want to abolish all governments.

Business and government leaders feared that unions might spread such ideas, so they tried to break union power. In Chicago in 1886, the McCormick Harvester Company locked out striking union members and hired strikebreakers to replace them. On May 3, union members, strikebreakers, and police clashed. One union member was killed.

The next day, union leaders called a protest meeting at Haymarket Square. Held on a rainy evening, the rally was small. As police moved in to end the meeting, an unknown person threw a bomb. It killed 7 police and wounded about 60. The police then opened fire on the crowd, killing several people and wounding about a hundred. This conflict was called the **Haymarket affair**.

Afterward, the Chicago police arrested hundreds of union leaders, socialists, and anarchists. Opposition to unions increased. The membership in the Knights of Labor dropped rapidly—even though that wasn’t the union that had called the meeting at Haymarket Square.

**The Homestead and Pullman Strikes**

Labor conflicts grew more bitter. In 1892, Andrew Carnegie reduced wages at his steel mills in Homestead, Pennsylvania, but the union refused to accept the cut. The company responded by locking out union workers from the mills and announcing that it would hire nonunion labor. The company also hired 300 armed guards. In response, the locked-out workers gathered weapons. The guards arrived on July 6, and a battle broke out that left ten people dead. The Pennsylvania state militia began to escort the nonunion workers to the mills. After four months, the strike collapsed, breaking the union.

Workers lost another dispute in 1894. In that depression year, many railroad companies went bankrupt. To stay in business, the Pullman Palace Car Company, which made railroad cars,
cut workers’ pay 25 percent. But Pullman did not lower the rent it charged workers to live in company housing. After their rent was deducted from the lower pay, many Pullman workers took home almost nothing.

The Pullman workers began the **Pullman Strike**, a strike which spread throughout the rail industry in 1894. When the Pullman Company refused to negotiate, American Railway Union president **Eugene V. Debs** called on all U.S. railroad workers to refuse to handle Pullman cars. Rail traffic in much of the country came to a halt. President Grover Cleveland called out federal troops, which ended the strike. Debs was put in jail.

**Gompers Founds the AFL**

Not all companies treated workers as harshly as Carnegie and Pullman did. For instance, in the 1880s, the soap company Procter & Gamble began to give its employees an extra half day off a week. It also began a profit-sharing plan, in which a company gives part of its profits to workers. However, workers at most companies received low wages and few benefits. So in spite of the opposition to unions, the labor movement did not die. In 1886, labor leader **Samuel Gompers** helped found a new national organization of unions called the **American Federation of Labor (AFL)**. Gompers served as AFL president for 37 years.

The AFL focused on improving working conditions. By using strikes, boycotts, and negotiation, the AFL won shorter working hours and better pay for workers. By 1904, it had about 1.7 million members. In the next few decades, labor unions helped change the way all Americans worked. At the same time, city growth and immigration transformed America. You will read about that in Chapter 21.

### Section 4 Assessment

**1. Terms & Names**

**Explain the significance of:**
- sweatshop
- Knights of Labor
- socialism
- Haymarket affair
- Pullman Strike
- Eugene V. Debs
- Samuel Gompers
- American Federation of Labor (AFL)

**ACTIVITY OPTIONS**

**LANGUAGE ARTS**

Decide whether unions should be encouraged. Write an **editorial** or create a **public message poster** expressing your opinion. (REPS)

**ART**

- the Railroad Strike of 1877
- the Homestead Strike
- the Pullman Strike

**2. Using Graphics**

Review this section and find five key events to place on a time line like the one below.

```
1870 event event 1910
  event event event
```

What individuals played significant roles in these events? (CST2)

**3. Main Ideas**

a. What hardships did workers face in the late 1800s? (HI1)

b. What happened to unions after the protest at Haymarket Square? (HI2)

c. How did Carnegie’s company break the union at the Homestead mills? (HI2)

**4. Critical Thinking**

**Drawing Conclusions** In your opinion, was the government more supportive of unions or business in the late 1800s? Explain. (REP4)

**THINK ABOUT**

- the Railroad Strike of 1877
- the Homestead Strike
- the Pullman Strike

**Now and then**

**MODERN BENEFITS WON BY UNIONS**

Today, many Americans work 40 hours per week—perhaps 9-to-5, Monday through Friday. Contrast this situation with the 10-to-12-hour days of most 19th-century workers. The 8-hour day was one benefit won by labor unions. Other benefits unions won include workers’ compensation (insurance that pays for injuries received on the job), pensions, and paid vacation.

Unions continue to fight to improve the lives of working Americans. In recent years they have tried to increase benefits for part-time and temporary workers. They have also fought for safety standards to prevent injuries, such as carpal tunnel syndrome, which affects many workers who use computers.

**Today’s Workers**

- Many workers have union membership.
- Union members get many benefits, paid leave, and protection.
- National unions are organized by skill or kind of work.
- Some workers prefer non-union employment.
- Workers are motivated by job security and higher pay.

**Quick Review**

- **Hardships:** Low wages, few benefits, long hours
- **Solutions:** Strikes, boycotts, negotiation
- **Modern Benefits:** 40-hour workweek, insurance, pensions, paid vacation
Chapter 20 ASSESSMENT

TERMS & NAMES
Briefly explain the significance of each of the following.
1. patent
2. business cycle
3. transcontinental railroad
4. standard time
5. corporation
6. John D. Rockefeller
7. Andrew Carnegie
8. Haymarket affair
9. Pullman Strike
10. American Federation of Labor (AFL)

CRITICAL THINKING
1. USING YOUR NOTES: ANALYZING CAUSES AND EFFECTS
Using your completed chart, answer the questions below. (HI2)

<table>
<thead>
<tr>
<th>Cause</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. How did the growth of railroads act as a cause of industrial growth?
b. Who do you think benefited most from the growth of industry? Explain.

2. THEME: ECONOMICS IN HISTORY
Who is someone from this chapter that might view the United States as a land of economic opportunity? Explain your answer. (REPS)

3. ANALYZING LEADERSHIP
What characteristics of a good leader did Mother Jones possess? (HI1)

4. APPLYING CITIZENSHIP SKILLS
Were John D. Rockefeller and Andrew Carnegie good citizens? Support your answer with details from this chapter. (HI1)

5. COMPARING
How were the problems of sharecroppers, described on page 597, similar to those of Pullman workers, described on pages 602–603? (CST1)

6. DRAWING CONCLUSIONS
Why do you think unions were more successful at attracting members in the late 1800s than in the early 1800s? (HI1)

Now that you have read the chapter, would you change your mind about joining the strike? Explain.

REVIEW QUESTIONS
The Growth of Industry (pages 585–589)
1. How do inventors protect their rights to what they invent? (H11)
2. What did Thomas Edison and Alexander Graham Bell invent? (H11)

Railroads Transform the Nation (pages 590–593)
3. What geographic feature made building the Central Pacific difficult? (H12)
4. What took place when workers connected the Central Pacific and the Union Pacific? (H11)

The Rise of Big Business (pages 594–599)
5. What is a monopoly? (H11)
6. What are trusts, and why did some people think they were bad for the country? (H11)
7. Why did writers Mark Twain and Charles Warner name the late 1800s the Gilded Age? (H11)

Workers Organize (pages 600–603)
8. What ideas did business leaders fear that unions would spread? (H11)
9. How did the Pullman Strike begin and end? (H12)
10. Which unions were led by Eugene V. Debs and Samuel Gompers? (H11)
Use the graph and your knowledge of U.S. history to answer questions 1 and 2. Additional Test Practice, pp. S1–S22.

1. Which decade saw the biggest change in rail production? (8.12.1)
   A. 1870–1879
   B. 1880–1889
   C. 1890–1899
   D. 1900–1909

2. What does this graph indicate about what was happening in the railroad industry? (8.12.1)
   A. The industry grew quickly and leveled off.
   B. The industry was booming.
   C. The industry was failing.
   D. The industry grew in very small increments.

Thomas Edison describes the process of inventing in this quotation. Use the quotation and your knowledge of U.S. history to answer question 3.

**PRIMARY SOURCE**

It has been just so in all my inventions. The first step is an intuition—and comes with a burst, then difficulties arise. . . . “Bugs”—as such little faults and difficulties are called—show themselves and months of anxious watching, study and labor are requisite [needed] before commercial success—or failure—is certainly reached.

_Thomas Edison, quoted in_ Edison _by Matthew Josephson_

3. According to Edison, what elements are common to the creation of his inventions? (8.12.9)
   A. idea, observation, study, and work
   B. observation, energy, study, and work
   C. study, observation, work, and energy
   D. work, idea, energy, and luck

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**ALTERNATIVE ASSESSMENT**

**1. WRITING ABOUT HISTORY**

Assume the role of a labor leader, such as Mother Jones, and write a speech informing workers of their rights and urging them to unite. (REPS)

- Use library resources to write your speech.
- Focus your speech by addressing one major issue, such as safe working conditions, shorter working hours, or increased wages.

**2. COOPERATIVE LEARNING**

With your group, research the life of a business or labor leader from this chapter. Write and perform a monologue in which the leader discusses his or her life. Group members can share the responsibilities for researching and writing the monologue, finding costumes and props, and acting out the monologue. (REP3)

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**INTEGRATED TECHNOLOGY**

**DOING INTERNET RESEARCH**

During different periods of U.S. history, scientific ideas have influenced technological developments. Use the Internet and the library to research how scientific ideas affected industrialization in the 19th century. (H13)

- Use keywords such as industrialization + electricity to do research on the Internet.
- Look for Web sites for museums of science and industry.
- In your research, consider how the Bessemer process affected industrialization. Compile your research into a report.

For more about science and technology . . .