CHAPTER 9

Industrialization

1865–1901

Why It Matters

The rise of the United States as an industrial power began after the Civil War. Many factors promoted industry, including cheap labor, new inventions and technology, and plentiful raw materials. Railroads rapidly expanded. Government policies encouraged growth, and large corporations became an important part of the economy. As industry expanded, workers tried to form unions to fight for better wages and working conditions.

The Impact Today

Trends which began in this era can still be seen today.

- *Corporations continue to play an important role.*
- *Technology continues to change American life.*
- *Unions remain powerful in many industries.*

The American Republic Since 1877 Video
The Chapter 9 video, "Building America," examines industrial expansion in the United States in the late 1800s.

United States PRESIDENTS

A. Johnson 1865–1869

Grant 1869–1877

Hayes 1877–1881

Garfield 1881

Arthur 1881–1885

Cleveland 1885–1889

1869
- Transcontinental railroad completed

1876
- Alexander Graham Bell invents telephone

1879
- Edison perfects lightbulb

1882
- Standard Oil forms trust

1865 *1875* *1885*

World

1867
- British colonies unite to form Dominion of Canada

1869
- Chemist Dmitri Mendeleyev creates periodic table of elements

1876
- Korea forced to trade with Japan

1881
- Russian czar Alexander II assassinated

This painting by twentieth-century artist Aaron Bohrod captures the dynamism of an industrializing nation. Bohrod titled his work *The Big Blow: the Bessemer Process.*

1886
- Haymarket Square riot

1892
- Homestead strike occurs

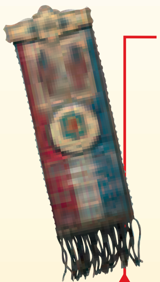
1894
- Pullman strike begins

B. Harrison 1889–1893

Cleveland 1893–1897

McKinley 1897–1901

T. Roosevelt 1901–1909



1901
- J.P. Morgan forms U.S. Steel

1903
- Women's Trade Union League founded

1895

1905

1892
- Rudolf Diesel patents diesel engine

1896
- Athens hosts first modern Olympic games

1900
- Boxer Rebellion begins in China

HISTORY Online

Chapter Overview

Visit the *American Republic Since 1877* Web site at tarvol2.glencoe.com and click on ***Chapter Overviews—Chapter 9*** to preview chapter information.

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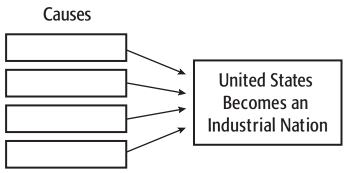
SECTION 1 The Rise of Industry

Guide to Reading

Main Idea
American industry grew rapidly after the Civil War, bringing revolutionary changes to American society.

Key Terms and Names
gross national product, Edwin Drake, laissez-faire, entrepreneur, Morrill Tariff, Alexander Graham Bell, Thomas Alva Edison

Reading Strategy
Organizing As you read about the changes brought about by industrialization, complete a graphic organizer similar to the one below listing the causes of industrialization.



Reading Objectives
- **Identify** the effects of expanding population on industry.
- **Explain** the effects of technological innovations such as the telephone and telegraph on American development.

Section Theme
Economic Factors The free enterprise system nurtured the growth of American industry.

Preview of Events

1860 · 1870 · 1880 · 1890

1859 Edwin Drake drills first oil well

1865 Thaddeus Lowe invents ice machine

1876 Alexander Graham Bell invents telephone

1879 Thomas Edison perfects lightbulb

c. 1893 Northrop automatic loom introduced

Thomas Edison

★ An American Story ★

On October 21, 1879, Thomas Alva Edison and his team of workers were too excited to sleep. For weeks they had worked to create an electric incandescent lamp, or lightbulb, that would burn for more than a few minutes. For much of the 1800s, inventors had struggled to develop a form of lighting that would be cheaper, safer, and brighter than traditional methods such as candles, whale oil, kerosene, and gas. If Edison and his team could do it, they would change the world. Finally, after weeks of dedicated effort, they turned night into day. Edison later recalled:

> “We sat and looked and the lamp continued to burn and the longer it burned the more fascinated we were. None of us could go to bed and there was no sleep for over 40 hours; we sat and just watched it with anxiety growing into elation. It lasted about 45 hours and then I said, ‘If it will burn 40 hours now I know I can make it burn a hundred.’”
>
> —quoted in ***Eyewitness to America***

The United States Industrializes

Although the Industrial Revolution began in the United States in the early 1800s, the nation was still largely a farming country when the Civil War erupted. Out of a population of more than 30 million, only 1.3 million Americans worked in industry in 1860. After the Civil War, industry rapidly expanded, and millions of Americans left their farms to work in mines and factories.

By the early 1900s, Americans had transformed the United States into the world's leading industrial nation. By 1914 the nation's **gross national product** (GNP)—the total value of all goods and services produced by a country—was eight times greater than it had been when the Civil War ended.

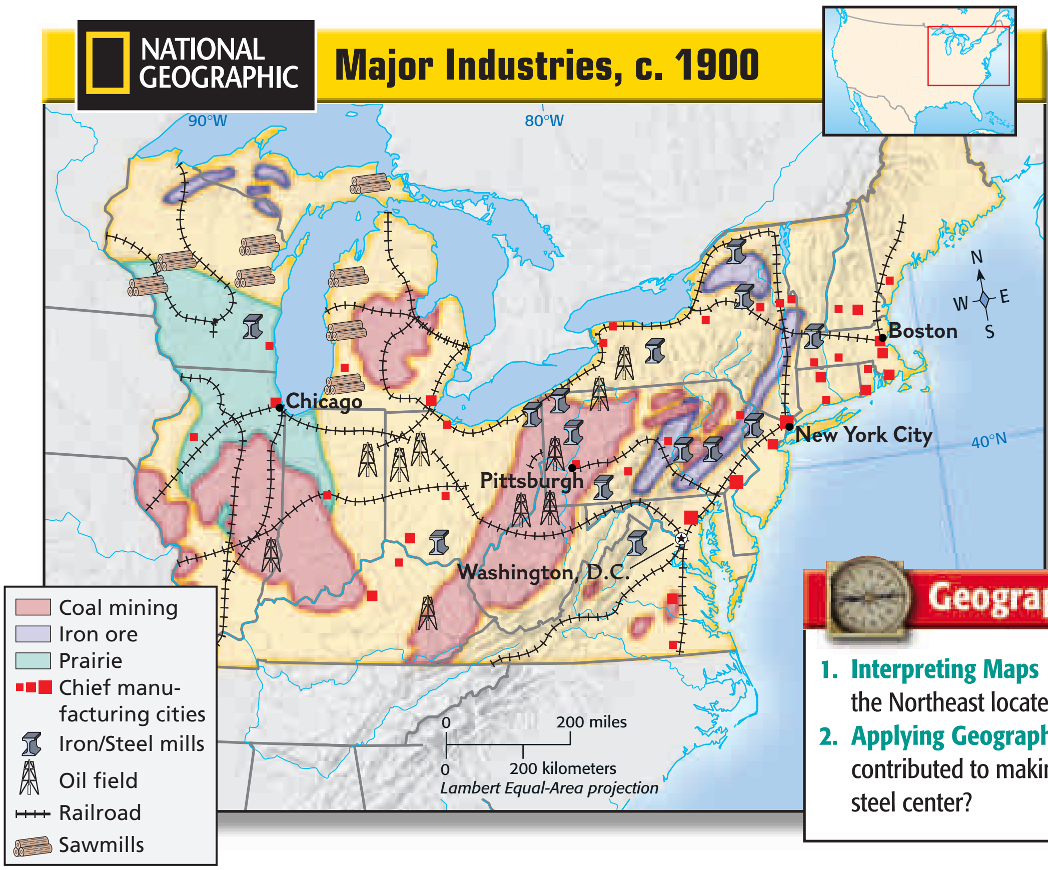
Natural Resources An abundance of raw materials was one reason for the nation's industrial success. The United States contained vast natural resources upon which industry in the 1800s depended, including water, timber, coal, iron, and copper. The presence of these resources meant that American companies could obtain them cheaply and did not have to import them from other countries. Many of the nation's resources were located in the mountains of the American West. The settlement of this region after the Civil War helped to accelerate industrialization, as did the construction of the transcontinental railroad. Railroads brought settlers and miners to the region, and carried the resources back to factories in the East.

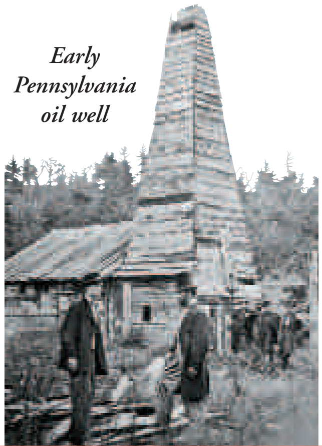
At the same time, a new resource, petroleum, began to be exploited. Even before the invention of the automobile, petroleum was in high demand because it could be turned into kerosene. Kerosene was used in lanterns and stoves. The American oil industry was built on the demand for kerosene. It began in western Pennsylvania, where residents had long noticed oil bubbling to the surface of area springs and streams. In 1859 **Edwin Drake** drilled the first oil well near Titusville, Pennsylvania. By 1900 oil fields from Pennsylvania to Texas had been opened. As oil production rose, it fueled economic expansion.

A Large Workforce The human resources available to American industry were as important as natural resources in enabling the nation to industrialize rapidly. Between 1860 and 1910, the population of the United States almost tripled. This population provided industry with a large workforce and also created greater demand for the consumer goods that factories produced.

Population growth stemmed from two causes—large families and a flood of immigrants. American industry began to grow at a time when social and economic conditions in China and eastern Europe convinced many people to leave their nations and move to the United States in search of a better life. Between 1870 and 1910, roughly 20 million immigrants arrived in the United States. These multitudes added to the growing industrial workforce, helping factories increase their production and furthering demand for industrial products.

✓ Reading Check **Explaining** How did oil production affect the American economy?





Early Pennsylvania oil well

Geography Skills

1. **Interpreting Maps** Where were most industrial cities in the Northeast located?
2. **Applying Geography Skills** What natural resources contributed to making Pittsburgh, Pennsylvania, a major steel center?

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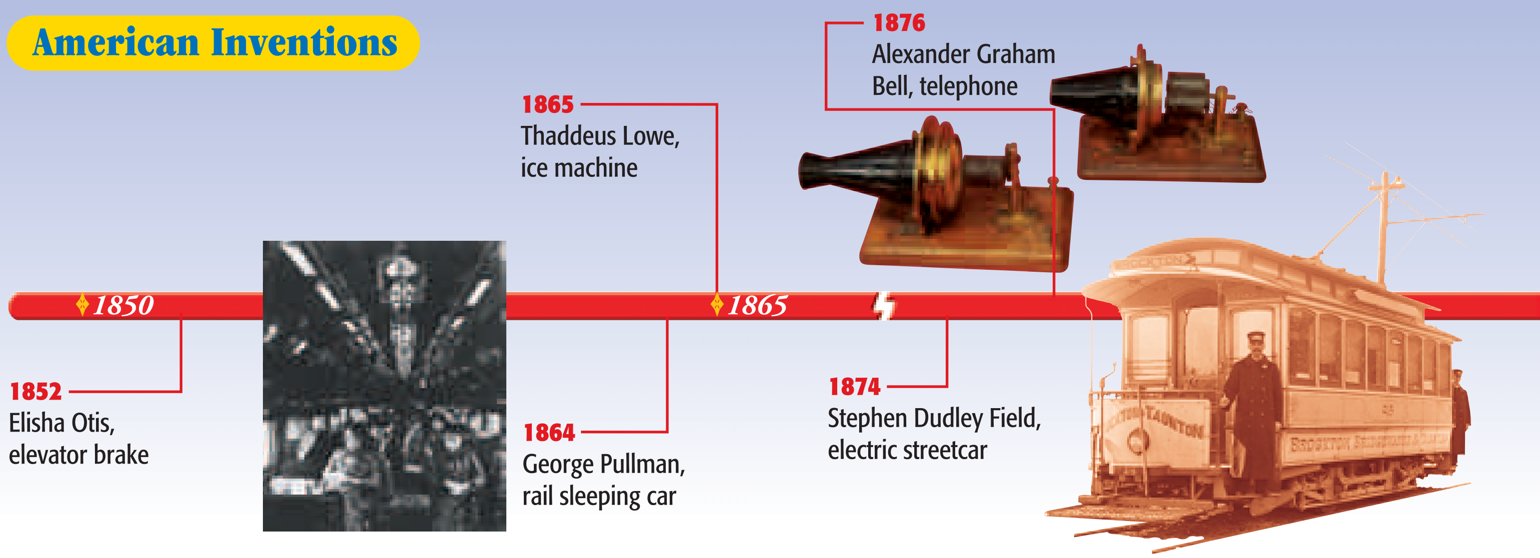


Free Enterprise

Another important factor that enabled the United States to industrialize rapidly was the free enterprise system. In the late 1800s, many Americans embraced the idea of **laissez-faire** (leh·say·FAR), literally "let do," a French phrase meaning "let people do as they choose." Supporters of laissez-faire believe the government should not interfere in the economy other than to protect private property rights and maintain peace. These supporters argue that if the government regulates the economy, it increases costs and eventually hurts society more than it helps.

Laissez-faire relies on supply and demand rather than the government to regulate prices and wages. Supporters claim that a free market with competing companies leads to greater efficiency and creates more wealth for everyone. Laissez-faire advocates also support low taxes to ensure that private individuals, not the government, will make most of the decisions about how the nation's wealth is spent. They also believe that the government's debt should be kept limited since money the government borrows from banks is not available to be loaned to individuals for their own uses.

In the United States, the profit motive attracted people of high ability and ambition into business. American **entrepreneurs**—people who risk their capital in organizing and running a business—appreciated the challenges and rewards of building a business and making profits for themselves.

In the late 1800s, the prospect of making money in manufacturing and transportation attracted many entrepreneurs. The savings that New Englanders accumulated through trade, fishing, whaling, textile mills, and shoe manufacturing helped build hundreds of factories and thousands of miles of railroad track. An equally important source of private capital was Europe, especially Great Britain. Foreign investors saw more opportunity for profit and growth in the United States than at home, and their money also helped to fund the nation's industrial buildup.

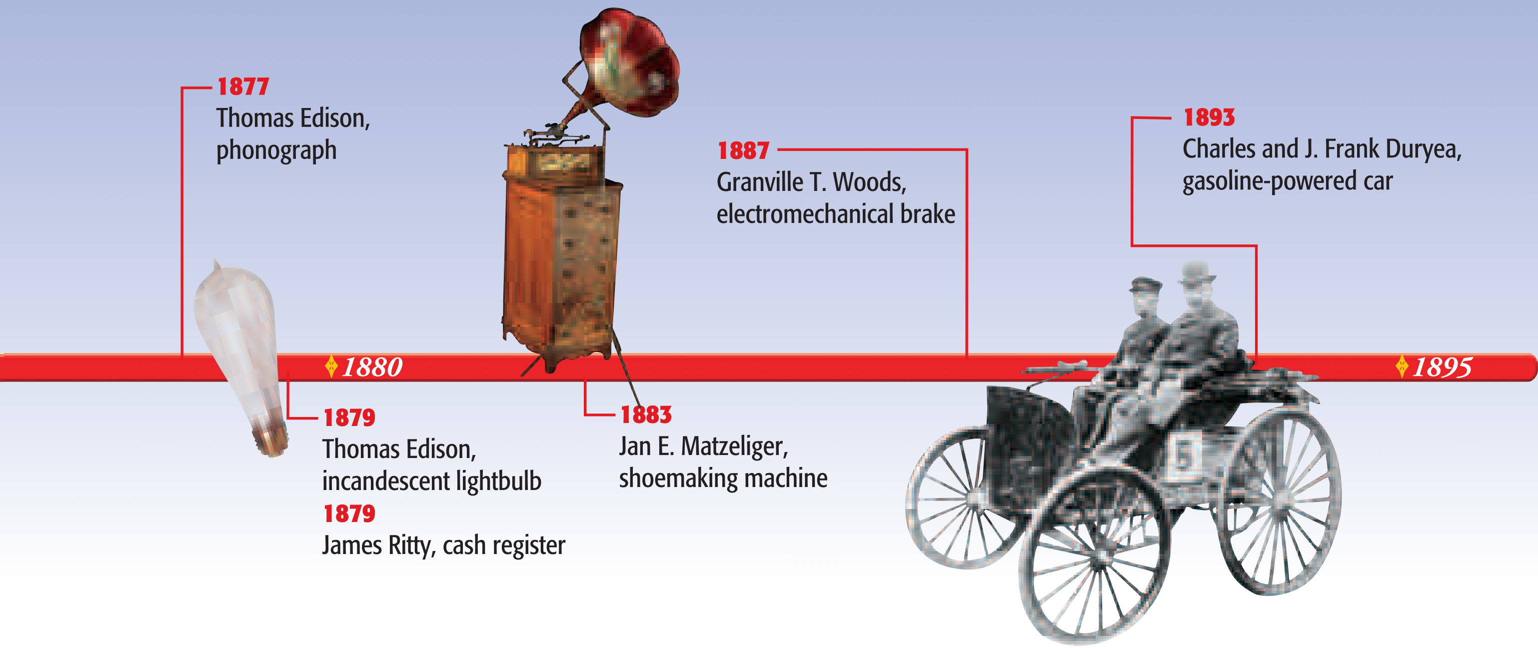
Reading Check **Explaining** What does it mean when a government has a laissez-faire economic policy?

Government's Role in Industrialism

In many respects, the United States practiced laissez-faire economics in the late 1800s. State and federal governments kept taxes and spending low and did not impose costly regulations on industry. Nor did they try to control wages and prices. In other ways, the government went beyond laissez-faire and adopted policies intended to help industry, although these policies frequently produced results other than what had been intended.

Since the early 1800s, the struggle between the northeastern states and the southern states had shaped the economic debate in the United States. Northern leaders wanted high tariffs to protect American industry from foreign competition. They also sought federal subsidies for companies building roads, canals, and railroads to the west. Southern leaders opposed subsidizing internal improvements, and they favored low tariffs to promote trade and to keep the cost of imported manufactured goods low.

The Civil War ended this debate. When the South seceded, the Republicans were left in control of Congress. They quickly passed the **Morrill Tariff,**



reversing years of declining tariffs. By the end of the Civil War, tariffs had risen sharply. Congress also gave vast tracts of western land and millions of dollars in loans to western railroads. The government also sold public lands with mineral resources for much less than their market value. Historians still dispute whether these policies helped to industrialize the country.

Supporters of laissez-faire generally favor free trade and oppose subsidies, believing that tariffs and subsidies drive up prices and protect inefficient companies. They point out that one reason the United States industrialized so rapidly in the 1800s was because it was one of the largest free trade areas in the world. Unlike Europe, which was divided into dozens of states, each with tariffs, the entire United States was open to trade. The Constitution bans states from imposing tariffs, and there were few federal regulations to impede the movement of goods across the country. Similarly, the United States practiced free trade in labor, placing very few restrictions on immigration.

High tariffs, however, contradicted laissez-faire ideas and hurt many Americans. When the United States raised tariffs against foreign goods, other countries raised their tariffs against American goods. This hurt American companies trying to sell goods overseas, and in particular, it hurt farmers who sold their products to Europe. Ironically, the problems farmers faced may have helped speed up industrialization, as many rural Americans decided to leave their farms and take jobs in the new factories.

Despite the problems tariffs created for trade, many business leaders and members of Congress believed they were necessary. Much of Western Europe had already industrialized, and few believed that the new American industries could compete with the large established European factories unless tariffs were put in place to protect them. By the early 1900s, many American industries were large and highly competitive. Business leaders increasingly began to push for free trade because they believed they could compete internationally and win.

✓ Reading Check **Analyzing** Do you think government policies at this time helped or hindered industrialization? Why?

New Inventions

A flood of important inventions helped increase the nation's productive capacity and improved the network of transportation and communications that was vital to the nation's industrial growth. New inventions led to the founding of new corporations, which produced new wealth and new jobs.

TECHNOLOGY

Bell and the Telephone One of the most dramatic inventions in the late 1800s came in the field of communications. In 1874 a young Scottish-American inventor named **Alexander Graham Bell** suggested the idea of a telephone to his assistant, Thomas Watson. Watson recalled, "He had an idea by which he believed it would be possible to talk by telegraph." Bell intended to make an electrical current of varying intensity transmit sound.

Bell worked until 1876 before he succeeded in transmitting his voice. Picking up the crude telephone, he called to the next room, "Come here, Watson, I want you." Watson heard and came. The telephone revolutionized both business and personal communication. In 1877 Bell and others organized the Bell Telephone Company, which eventually became the American Telephone and Telegraph Company (AT&T).

Edison and Electricity Perhaps the most famous inventor of the late 1800s was **Thomas Alva Edison.** A great innovator, Edison worked tirelessly to invent new products and to improve devices created by others. His laboratory at Menlo Park, New Jersey, staffed by skilled assistants, became the forerunner of the modern research laboratory. Edison stood as a symbol for the emerging age of technology.

Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, Edison perfected the lightbulb and the electric generator. His laboratory then went on to invent or improve several other major devices, including the battery, the dictaphone, the mimeograph (an early copying machine), and the motion picture.

In 1882 the Edison Electric Illuminating Company launched a new industry and began the transformation of American society when it began to supply electric power to customers in New York City. In 1889 several of Edison's companies merged to form the Edison General Electric Company, which today is known as GE.

Technology's Impact As knowledge about technology grew, almost everyone in the United States felt its effects. Shortly after the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In the early 1870s, Gustavus Swift 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 allowed food to be kept fresh longer and reduced the risk of disease from food poisoning.

The textile industry had long depended on machines to turn fibers into cloth. By the mid-1800s, the introduction of the Northrop automatic loom allowed cloth to be made at an even faster rate. Bobbins, which previously had been changed by hand, were now changed automatically without stopping the loom.

Great changes also took place in the clothing industry. Standard sizes, developed from measurements taken of Union soldiers during the Civil War, were used in the manufacture of ready-made clothes. Power-driven sewing machines and cloth cutters rapidly moved the clothing business from small tailor shops to large factories.

Similar changes took place in shoemaking. New processes and inventions made increased production possible in the shoe industry. Large factories could mass-produce shoes more cheaply and efficiently than local cobblers and could pass these savings on to their customers in the form of lower prices. By 1900 local cobblers had nearly disappeared. Prices of many other products also dropped as the United States industrialized.

✓ Reading Check **Explaining** How did the use of electric power affect the economic development of the United States?

SECTION 1 ASSESSMENT

Checking for Understanding

1. **Define:** gross national product, laissez-faire, entrepreneur.
2. **Identify:** Edwin Drake, Morrill Tariff, Alexander Graham Bell, Thomas Alva Edison.
3. **Explain** how an abundance of natural resources contributed to economic growth in the United States in the late 1800s.

Reviewing Themes

4. **Economic Factors** How did the principles of the free enterprise system, laissez-faire, and profit motive encourage the rise of industry?

Critical Thinking

5. **Synthesizing** What role did the federal government play in increasing industrialization in the United States after the Civil War?
6. **Organizing** Use a graphic organizer similar to the one below to indicate how the inventions listed affected the nature of American work and business.

Invention	Effects
telephone	
lightbulb	
automatic loom	

Analyzing Visuals

7. **Applying Time Lines** Copy the time line on pages 310 and 311 onto a separate sheet of paper. Add other inventions you have learned about to the time line in proper chronological order. Be sure to include the date for each invention.

Writing About History

8. **Descriptive Writing** Imagine you are a young person living in this country in the late 1800s. Choose one of the inventions discussed in the section, and write a journal entry describing its impact on your life. Use standard grammar, spelling, sentence structure, and punctuation.

Critical Thinking

SKILLBUILDER

Making Inferences

The Wright Brothers Triumph at Kitty Hawk

Why Learn the Skill?

Just as you are about to leave home to catch your school bus, you hear a radio report. Firefighters are battling a blaze near the bus garage. Your bus is late. Although no one told you, you know that the fire disrupted the bus schedule. You have made an *inference.* From the limited facts available, you formed a conclusion. By combining facts and general knowledge, you inferred that the fire trucks delayed your bus.

Learning the Skill

Learning how to make inferences will help you draw conclusions about particular situations. To make accurate inferences, follow these steps:

- Read or listen carefully for stated facts and ideas.
- Review what you already know about the same topic or situation.
- Use logic and common sense to form a conclusion about the topic.
- If possible, find information that proves or disproves your inference.

Practicing the Skill

Read the following passage about early airplanes, and then answer the questions that follow.

On December 8, 1903, Samuel Langley was ready for his second attempt at flying a manned, self-propelled aircraft. This had never been done before.

Langley used a $50,000 U.S. government grant to build a plane based on unmanned aircraft designs, adding a very powerful engine. The plane broke apart on takeoff and crashed into the Potomac River.

In contrast, Wilbur and Orville Wright used a little more than $1,000 of their personal savings to build their aircraft. The brothers carefully studied the problems with previous planes and designed one with better wings, a more efficient propeller, and a strong but light engine. On December 17, 1903, these intrepid Americans made the first manned, powered flight in history on the sand dunes of Kitty Hawk, North Carolina.

First flight at Kitty Hawk, December 17, 1903

1. What are the facts regarding Langley's attempt?
2. What are the facts regarding the Wright brothers' attempt?
3. What inferences might you draw based on the success of the Wright brothers and failure of Langley?

Skills Assessment

Complete the Practicing Skills questions on page 333 and the Chapter 9 Skill Reinforcement Activity to assess your mastery of this skill.

Applying the Skill

Making Inferences Reread the American Story about Thomas Edison on page 308, then answer these questions.

1. What device did inventors struggle to develop for much of the 1800s?
2. Why did Edison want to develop this new device?
3. Based on these facts, what inference can you make about Thomas Edison's methods? What inference can you make about how his invention would affect the economy?

Glencoe's **Skillbuilder Interactive Workbook CD-ROM, Level 2,** provides instruction and practice in key social studies skills.

SECTION 2

The Railroads

Guide to Reading

Main Idea

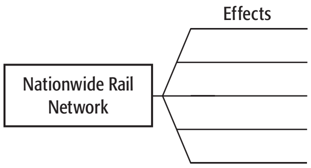
After the Civil War, the rapid construction of railroads accelerated the nation's industrialization and linked the country together.

Key Terms and Names

Pacific Railway Act, Grenville Dodge, Leland Stanford, Cornelius Vanderbilt, time zone, land grant, Jay Gould, Crédit Mobilier, James J. Hill

Reading Strategy

Organizing As you read about the development of a nationwide rail network, complete a graphic organizer similar to the one below listing the effects of this rail network on the nation.



Reading Objectives

- **Discuss** ways in which the railroads spurred industrial growth.
- **Analyze** how the railroads were financed and how they grew.

Section Theme

Individual Action The railroads provided new ways for some Americans to amass wealth.

Preview of Events

1870 — *1875* — *1880* — *1885*

1869 First transcontinental railroad completed

1872 Crédit Mobilier scandal takes place

1873 First direct rail service between New York and Chicago begins

1883 Time zones instituted

★ An American Story ★

At Promontory Summit, Utah, on May 10, 1869, hundreds of spectators gathered to watch a historic event. Dignitaries from the East and the West met to hammer gold and silver spikes into the final rails that would join two great railroad lines—the Union Pacific and Central Pacific—and span the entire country.

Telegraph offices around the country stood ready to receive news that the last spike had been driven. When the news arrived, bells pealed across the nation, and even the Liberty Bell was rung. In Chicago a seven-mile procession paraded through the streets, and the pealings of church bells resonated throughout the nation's small towns. General Grenville Dodge, who had overseen part of the construction, observed:

Grenville Dodge

"The trains pulled up facing each other, each crowded with workmen who sought advantageous positions to witness the ceremonies. . . . The officers and invited guests formed on each side of the track. . . . Prayer was offered; a number of spikes were driven in the two adjoining rails . . . and thus the two roads were welded into one great trunk line from the Atlantic to the Pacific."

—quoted in *Mine Eyes Have Seen*

Linking the Nation

In 1865 the United States had about 35,000 miles of railroad track, almost all of it east of the Mississippi River. After the Civil War, railroad construction expanded dramatically, linking the distant regions of the nation in a transportation network. By 1900 the United States, now a booming industrial power, boasted over 200,000 miles of track.

The railroad boom began in 1862 when President Abraham Lincoln signed the **Pacific Railway Act.** This act provided for the construction of a transcontinental railroad by two corporations, the Union Pacific and the Central Pacific railroad companies. To encourage rapid construction, the government offered each company land along its right-of-way. Feverish competition between the two companies developed, as each sought to obtain as much public land and money as possible.

The Union Pacific and Grenville Dodge

Under the direction of engineer **Grenville Dodge,** a former Union general, the Union Pacific began pushing westward from Omaha, Nebraska, in 1865.

The laborers faced blizzards in the mountains, scorching heat in the desert, and sometimes angry Native Americans. Labor, money, and engineering problems plagued the supervisors of the project. As Dodge observed:

> "At one time we were using at least ten thousand animals, and most of the time from eight to ten thousand laborers. . . . To supply one mile of track with material and supplies required about forty cars. . . . Everything—rails, ties, bridging, fastenings, all railway supplies, fuel for locomotives and trains, and supplies for men and animals on the entire work—had to be transported from the Missouri River."
>
> —quoted in *The Growth of the American Republic*

The railroad workers included Civil War veterans, new immigrants from Ireland recruited especially for the task, frustrated miners and farmers, cooks, adventurers, and ex-convicts. At the height of the project, the Union Pacific employed about 10,000 workers. While most of the laborers camped along the line, about one-fourth of them slept three-deep in bunk beds on rolling boarding cars. Camp life was rough, dirty, and dangerous, with lots of gambling, hard drinking, and fighting.

The Big Four and the Central Pacific

The Central Pacific Railroad began as the dream of engineer Theodore Dehone Judah, who convinced the California legislature to organize a state railroad convention to support his idea. He sold stock in his fledgling Central Pacific Railroad Company to four Sacramento merchants: grocer Leland Stanford, shop owner Charley Crocker, and hardware store owners Mark Hopkins and Collis P. Huntington.

These so-called "Big Four" eventually made huge fortunes from their investment. **Leland Stanford**

History

Engineering Victory The Union Pacific and Central Pacific were joined near Ogden, Utah. The last spike driven was made of gold. It was quickly removed and kept as a symbol. What did the event mean for the nation's commerce?

CLICK HERE

became governor of California and later served as a United States senator after founding Stanford University in 1885.

Because of a shortage of labor in California, the Central Pacific Railroad hired about 10,000 workers from China. All the equipment—rails, cars, locomotives, and machinery—was shipped from the East, either around Cape Horn at the tip of South America or over the Isthmus of Panama in Central America.

Reading Check **Examining** Why were many workers on the Central Pacific Railroad recruited from China?

Railroads Spur Growth

The transcontinental railroad was the first of many lines that began to crisscross the nation after the Civil War. This expansion spurred American industrial growth. By linking the nation, railroads helped increase the size of markets for many products. Huge consumers themselves, the railroads also stimulated the economy by spending extraordinary amounts of money on steel, coal, timber, and other necessities.

Linking Other Lines In the early 1800s, most railroads had been built to promote specific cities or to serve local needs. By 1865 hundreds of small unconnected lines existed. The challenge for eastern capitalists was to create a single rail transportation system from this maze of small companies.

Railroad consolidation proceeded rapidly from 1865 to 1900. Large rail lines took over about 400 small railroads, and by 1890 the Pennsylvania Railroad was a consolidation of 73 smaller companies. Eventually seven giant systems with terminals in major cities and scores of branches reaching into the countryside controlled most rail traffic.

One of the most famous and successful railroad consolidators was **Cornelius Vanderbilt,** a former boat captain who had built the largest steamboat fleet in America. By 1869 Vanderbilt had purchased and merged three short New York railroads to form the New York Central, running from New York City to Buffalo. Within four years he had extended his control over lines all the way to Chicago, which enabled him to offer the first direct rail service between New York City and Chicago. In 1871 Vanderbilt began construction of New York's Grand Central terminal.

The Benefits of a National System Before the 1880s each community set its clocks by the sun's position in the sky at high noon. At noon in Chicago, for example, it was 12:50 P.M. in Washington, D.C., 12:09 P.M. in Louisville, Kentucky, and 11:41 A.M. in St. Paul, Minnesota. 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 variations in time.

To make rail service safer and more reliable, in 1883 the American Railway Association divided the country into four **time zones** in regions where the same time was kept. The federal government ratified this change in 1918.

Large integrated railroad systems benefited the nation. They were able to shift cars from one section of the country to another according to seasonal needs and in order to speed long-distance transportation. At the same time, new locomotive technology and the introduction of air brakes enabled railroads to put longer and heavier trains on their lines. The new rail systems, along with more powerful locomotives,

HISTORY Online

Student Web Activity Visit the *American Republic Since 1877* Web site at tarvol2.glencoe.com and click on ***Student Web Activities— Chapter 9*** for an activity on industrialization.

World History Connection

The Trans-Siberian Railroad

Nearly 50 years after Americans completed their transcontinental railroad, the Russians hammered the final spike into their own cross-country rail line. Begun in 1891 and completed in 1916, the Trans-Siberian Railroad was the longest in the world, running nearly 5,800 miles (9,330 km) from Moscow in the west to Vladivostok on the Sea of Japan in the east. Like the American railroads, the Trans-Siberian line opened up the way for trade and settlement throughout Russia's frontier—an arctic, windswept land known as Siberia.

How might the construction of a railroad affect towns along the line?

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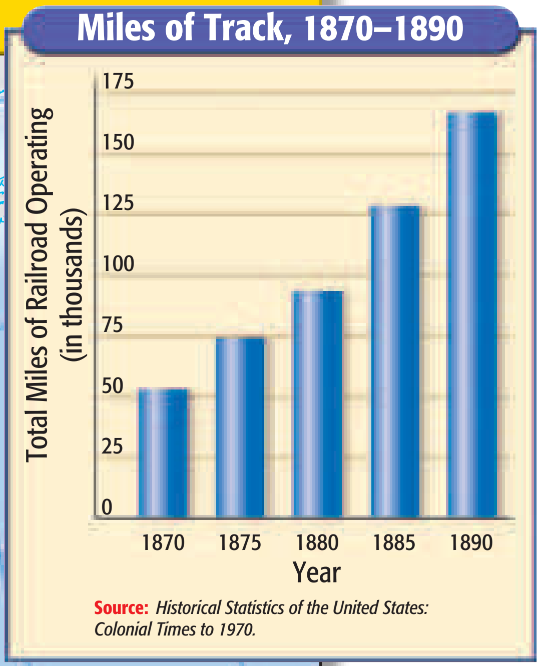


1. **Interpreting Maps** What part of the United States saw the greatest expansion in rail lines by 1890?
2. **Applying Geography Skills** In which time zone did the Central Pacific originate?

made railroad operation so efficient that the average rate per mile for a ton of freight dropped from two cents in 1860 to three-fourths of a cent in 1900.

The nationwide rail network also helped unite Americans in different regions. Looking back at a quarter century of railroad travel, the *Omaha Daily Republican* observed in 1883 that railroads had "made the people of the country homogeneous, breaking through the peculiarities and provincialisms which marked separate and unmingling sections." This was, perhaps, an overstatement, but it recognized a significant contribution that railroads made to the nation.

Reading Check **Explaining** Why did the American Railway Association divide the country into four time zones?

The Land Grant System

Building and operating railroad lines, especially across the vast unsettled regions of the West, often required more money than most private investors could raise on their own. To encourage railroad construction, the federal government gave **land grants** to many railroad companies. Railroads would then sell the land to settlers, real estate companies, and other businesses to raise the money they needed to build the railroad.

In the 1850s, the federal government granted individual states over 28 million acres of public lands to give to the railroads. After the Pacific Railway Acts of 1862 and 1864, the government gave the land directly to the railroad companies.

During the 1850s and 1860s, the federal land grant system awarded railroad companies over 120 million acres of land, an area larger than New England, New York, and Pennsylvania combined. Several railroad companies, including the Union Pacific and the Central Pacific, earned enough money from the government's generous land grants to cover much of the cost of building their lines.

Reading Check **Summarizing** How did the government help finance railroads?

Robber Barons

The great wealth many railroad entrepreneurs acquired in the late 1800s led to accusations that they had built their fortunes by swindling investors and taxpayers, bribing government officials, and cheating on their contracts and debts. The person with probably the worst reputation for this kind of activity was **Jay Gould,** who often practiced "insider trading." He used information he received as a railroad owner to manipulate stock prices to his benefit.

Bribery occurred frequently in this era, partly because the state and federal governments were so deeply entangled in funding the railroads. Railroad investors quickly discovered that they could make more money by acquiring government land grants than by operating the railroad. As a result, many investors bribed members of Congress and the state legislatures to vote for more grants.

The Crédit Mobilier Scandal The corruption in the railroad industry became public in 1872 when the Crédit Mobilier scandal erupted. **Crédit Mobilier** was a construction company set up by several stockholders of the Union Pacific, including Oakes Ames, a member of Congress. Acting for both the Union Pacific and Crédit Mobilier, the investors signed contracts with themselves. Crédit Mobilier greatly overcharged Union Pacific for the work it did, and since the same investors controlled both companies, the railroad agreed to pay the inflated bills.

By the time the Union Pacific railroad was completed, the investors had made several million dollars, but the railroad itself had used up its federal grants and was almost bankrupt. To convince Congress to give the railroad more grants, Ames gave other members of Congress shares in the Union Pacific at a price well below their market value.

During the election campaign of 1872, a disgruntled associate of Ames sent a letter to the *New York Sun* listing the members of Congress who had accepted shares. The scandal led to an investigation that implicated several members of Congress, including Speaker of the House James G. Blaine and James Garfield, who later became president. It also revealed that Vice President Schuyler Colfax had accepted stock from the railroad.

The Great Northern The Crédit Mobilier scandal provided sensational newspaper headlines. It created the impression that all railroad entrepreneurs were robber barons—people who loot an industry and give nothing back—but the term was not always deserved.

One railroad entrepreneur who was clearly not a robber baron was **James J. Hill.** Hill built and operated the Great Northern Railroad from St. Paul, Minnesota, to Everett, Washington, without any federal land grants or subsidies. He built the Great Northern across good land, carefully planning his route to pass by towns in the region. To increase business, he offered low fares to settlers who homesteaded along his route. He then identified American products that were in demand in China, including cotton, textiles, and flour, and arranged to haul those goods to Washington for shipment to Asia. This enabled the railroad to earn money by hauling goods both east and west, instead of simply sending lumber and farm products east and coming back empty, as many other railroads did. Operating without government subsidies or land grants, the Great Northern became the most successful transcontinental railroad and the only one that was not eventually forced into bankruptcy.

✓ Reading Check **Describing** How was the Great Northern different from other railroads of the time?

SECTION 2 ASSESSMENT

Checking for Understanding

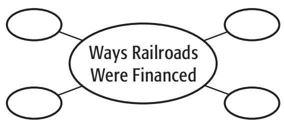
1. **Define:** time zone, land grant.
2. **Identify:** Pacific Railway Act, Grenville Dodge, Leland Stanford, Cornelius Vanderbilt, Jay Gould, Crédit Mobilier, James J. Hill.
3. **Explain** the provisions of the Pacific Railway Act.

Reviewing Themes

4. **Individual Action** How did Grenville Dodge contribute to the economic growth of the United States in the late 1800s?

Critical Thinking

5. **Synthesizing** How did railroad expansion in the United States lead to industrial growth?
6. **Organizing** Use a graphic organizer similar to the one below to list the different ways that railroads were financed.



Analyzing Visuals

7. **Examining Maps and Graphs** Study the map and the graph on page 317. Then make up a quiz of at least five questions based on the information presented.

Writing About History

8. **Persuasive Writing** Take on the role of an employee of a major railroad corporation. Your job assignment is to write an advertisement to recruit workers for your corporation. After writing the advertisement, present it to your class.

SECTION 3

Big Business

Guide to Reading

Main Idea
After the Civil War, big business assumed a more prominent role in American life.

Key Terms and Names
corporation, stockholder, stock, economies of scale, fixed costs, operating costs, pool, Andrew Carnegie, Bessemer process, vertical integration, horizontal integration, monopoly, trust, holding company

Reading Strategy
Organizing As you read about the rise of corporations in the United States, complete a graphic organizer similar to the one below to describe the steps large business owners took to weaken or eliminate competition.

Slashed prices temporarily → ☐ → ☐ → ☐

Reading Objectives
- **Analyze** how large corporations came to dominate American business.
- **Evaluate** how Andrew Carnegie's innovations transformed the steel industry.

Section Theme
Economic Factors Large national corporations formed in the United States in the mid-1800s and contributed to greater production.

Preview of Events

1865 — *1875* — *1885* — *1895*

- **1862** John D. Rockefeller buys first oil refinery
- **1875** Andrew Carnegie opens steel mill in Pittsburgh
- **1879** Woolworth's chain store opens
- **1882** Dow Jones & Company founded
- **1901** J.P. Morgan forms U.S. Steel

Cartoon of John D. Rockefeller

★ An American Story ★

In the 1860s, the oil industry in the United States was highly competitive. One highly efficient company was Standard Oil, owned by John D. Rockefeller and his associates. Because his company shipped so much oil, Rockefeller was able to negotiate rebates, or refunds, from railroads that wanted his business. This gave his company an advantage, and he began to pressure other oil companies to sell out to him.

Oil producer Franklin Tarbell pledged never to surrender. Tarbell's daughter Ida later recalled her father's indignation over Rockefeller's maneuvers:

> "It was as if somebody had tried to crowd me off the road. . . . There were rules, you couldn't use the road unless you obeyed those rules. . . . The railroads—so said my father—ran through the valley by the consent of the people; they had given them a right of way. The road on which I trotted was a right of way. One man had the same right as another, but the railroads had given to one something they would not give to another. . . . The strong wrested from the railroads the privilege of preying upon the weak."
>
> —quoted in ***All in the Day's Work***

The Rise of Big Business

Before the Civil War, the personal wealth of a few people operating in partnership financed most businesses, including many early factories. Most manufacturing enterprises were very small. By 1900 everything had changed. Big businesses dominated the economy, operating vast complexes of factories, warehouses, offices, and distribution facilities.

ECONOMICS

The Role of Corporations Big business would not have been possible without the corporation. A **corporation** is an organization owned by many people but treated by law as though it were a single person. A corporation can own property, pay taxes, make contracts, and sue and be sued. The people who own the corporation are called **stockholders** because they own shares of ownership called **stock.** Issuing stock allows a corporation to raise large amounts of money for big projects while spreading out the financial risk.

Before the 1830s, there were few corporations in the United States because entrepreneurs had to convince a state legislature to issue them a charter. Beginning in the 1830s, however, states began passing general incorporation laws, allowing companies to become corporations and issue stock without charters from the legislature.

Economies of Scale With the money they raised from the sale of stock, corporations could invest in new technologies, hire a large workforce, and purchase many machines, greatly increasing their efficiency. This enabled them to achieve what is called **economies of scale,** in which corporations make goods more cheaply because they produce so much so quickly using large manufacturing facilities.

All businesses have two kinds of costs, fixed costs and operating (or variable) costs. **Fixed costs** are costs a company has to pay, whether or not it is operating. For example, a company would have to pay its loans, mortgages, and taxes, regardless of whether it was operating. **Operating costs** are costs that occur when running a company, such as paying wages and shipping charges and buying raw materials and other supplies.

The small manufacturing companies that had been typical before the Civil War usually had very low fixed costs but very high operating costs. If sales dropped, it was cheaper to shut down and wait for better economic conditions. By comparison, big companies had very high fixed costs because it took so much money to build and maintain a factory. Compared to their fixed costs, big businesses had low operating costs. Wages and transportation costs were such a small part of a corporation's costs that it made sense to keep operating, even in a recession.

In these circumstances, big corporations had several advantages. They could produce goods more cheaply and efficiently. They could continue to operate in poor economic times by cutting prices to increase sales, rather than shutting down. Many were also able to negotiate rebates from the railroads, thus lowering their operating costs even further.

Small businesses with high operating costs found it difficult to compete against large corporations, and many were forced out of business. At the time, many people criticized corporations for cutting prices and negotiating rebates. They believed the corporations were behaving unethically by using their wealth to drive small companies out of business. In many cases, the changing nature of business organization and the new importance of fixed costs that caused competition to become so severe forced many small companies out of business.

✓ Reading Check **Describing** What factors led to the rise of big business in the United States?

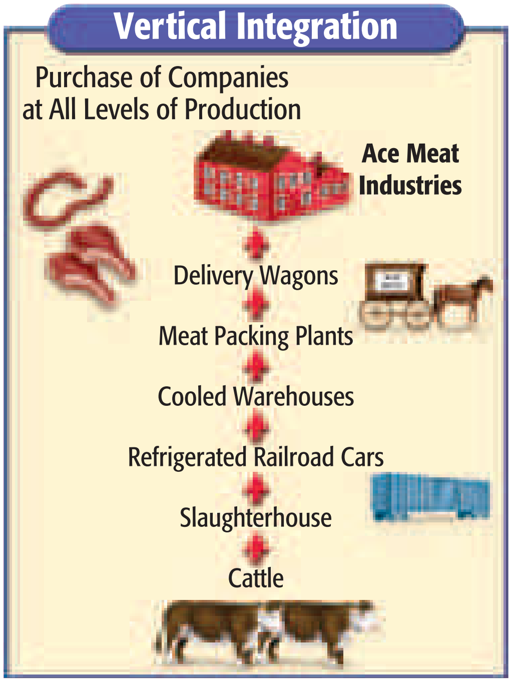
The Consolidation of Industry

Many corporate leaders did not like the intense competition that had been forced on them. Although falling prices benefited consumers, they cut into profits. To stop prices from falling, many companies organized **pools,** or agreements to maintain prices at a certain level.

American courts and legislatures were suspicious of pools because they interfered with competition and property rights. As a result, companies that formed pools had no legal protection and could not enforce their agreements in court. Pools generally did not last long. They broke apart whenever one member cut prices to steal the market share from another, which then allowed competition to resume. By the 1870s, competition had reduced many industries to a few large and highly efficient corporations.

Andrew Carnegie and Steel The remarkable life of **Andrew Carnegie** illustrates many of the different factors that led to industrialism and the rise of big business in the United States. He was born in Scotland, the son of a poor hand weaver who emigrated to the United States in 1848. At a young age, Carnegie worked as a bobbin boy in a textile factory earning $1.20 per week. At 14 he became a messenger in a telegraph office, then served as private secretary to Thomas Scott, a superintendent and later president of the Pennsylvania Railroad. Carnegie's energy impressed Scott, and when Scott was promoted, Carnegie succeeded him as superintendent.

As a railroad supervisor, Carnegie knew that he could make a lot of money by investing in companies that served the railroad industry. He bought shares in iron mills and factories that made sleeping cars and



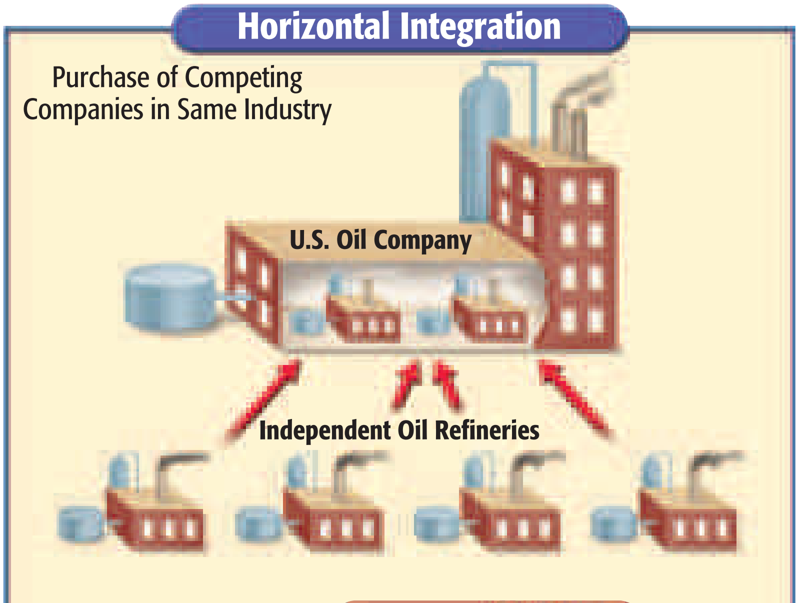


Chart Skills

Horizontal and vertical integration were the two most common business combinations in the late 1800s.

Evaluating Which combination do you think would yield the most efficient business? Why?

locomotives. He also invested in a company that built railroad bridges. In his early 30s, he was earning $50,000 per year, and he decided to quit his job with the railroad to concentrate on his own business affairs.

As part of his business activities, Carnegie frequently traveled to Europe to sell railroad bonds. On one trip, he met the English inventor, Sir Henry Bessemer, who had invented a new process for making high quality steel efficiently and cheaply. After meeting Bessemer, Carnegie decided to concentrate his investments in the steel industry. He opened a steel company in Pittsburgh in 1875 and quickly adapted his steel mills to use the **Bessemer process.** Carnegie often boasted about how cheaply he could produce steel:

> "Two pounds of iron stone mined upon Lake Superior and transported nine hundred miles to Pittsburgh; one pound and one-half of coal mined and manufactured into coke, and transported to Pittsburgh; one-half pound of lime, mined and transported to Pittsburgh; a small amount of manganese ore mined in Virginia and brought to Pittsburgh—and these four pounds of materials manufactured into one pound of steel, for which the consumer pays one cent."
>
> —quoted in *The Growth of the American Republic*

Vertical and Horizontal Integration To increase manufacturing efficiency even further, Carnegie took the next step in building a big business. He did this by beginning the **vertical integration** of the steel industry. A vertically integrated company owns all of the different businesses on which it depends for its operation. Instead of paying companies for coal, lime, and iron, Carnegie's company bought coal mines, limestone quarries, and iron ore fields. Vertical integration saved companies money while enabling big companies to become even bigger.

Successful business leaders like Carnegie also pushed for **horizontal integration,** or combining many firms engaged in the same type of business into one large corporation. Horizontal integration took place frequently as companies competed. When a company began to lose market share, it would often sell out to competitors to create a larger organization. By 1880, for example, a series of buyouts had enabled Rockefeller's Standard Oil to gain control of approximately 90 percent of the oil refining industry in the United States. When a single company achieves control of an entire market, it becomes a **monopoly.** Many Americans feared monopolies because they believed that a company with a monopoly could charge whatever it wanted for its products. Others, however, supported monopolies. They believed that monopolies had to keep prices low because raising prices would encourage competitors to reappear and offer the products for a lower price. In some industries companies had a virtual monopoly in the United States but were competing on a global scale. Standard Oil, for example, came very close to having a monopoly in the United States, but competition with other

NATIONAL GEOGRAPHIC

MOMENT in HISTORY

LABOR SAVERS

American inventiveness and the nation's growing industrial might combined to provide turn-of-the-century consumers with an ever-increasing array of products. Here, a homemaker wields an early electric vacuum cleaner. Mass-produced household devices had a tremendous impact on the lifestyles and buying habits of millions of middle-class Americans. In cities, huge shopping emporiums replaced the cozy dry goods stores of the 1800s. Even rural customers could buy an almost endless variety of merchandise from mail-order catalogues such as Sears, Roebuck and Montgomery Ward.

oil companies throughout the world forced the Standard Oil Company to keep its prices low.

Trusts By the late 1800s, many Americans had grown suspicious of large corporations and feared the power of monopolies. To preserve competition and prevent horizontal integration, many states made it illegal for one company to own stock in another without specific permission from the state legislature. In 1882 Standard Oil formed the first **trust,** a new way of merging businesses that did not violate the laws against owning other companies. A trust is a legal concept that allows one person to manage another person's property. The person who manages another person's property is called a trustee.

Instead of buying a company outright, which was often illegal, Standard Oil had stockholders give their stocks to a group of Standard Oil trustees. In exchange, the stockholders received shares in the trust, which entitled them to receive a portion of the trust's profits. Since the trustees did not own the stock but were merely managing it for someone else, they were not violating the law. This arrangement enabled the trustees to control a group of companies as if they were one large merged company.

Holding Companies Beginning in 1889 the state of New Jersey further accelerated the rise of big business with a new general incorporation law. This law allowed corporations chartered in New Jersey to own stock in other businesses without any need for special legislative action. Many companies immediately used the New Jersey law to create a new organization called a **holding company.** A holding company does not produce anything itself. Instead, it owns the stock of companies that do produce goods. The holding company controls all of the companies it owns, effectively merging them into one large enterprise. By 1904 the United States had 318 holding companies. Together these giant corporations controlled over 5,300 factories and were worth more than $7 billion.

✓ **Reading Check** **Explaining** What techniques did corporations use to consolidate their industries?

Selling the Product

The vast array of products that American industries churned out led retailers to look for new ways to market and sell goods. N.W. Ayer and Son of Philadelphia, for example, developed bold new formats for advertising. Large display ads with illustrations replaced the small-type line ads that had been standard in newspapers. By 1900 retailers were spending over $90 million a year on advertising in newspapers and magazines sold across the nation. Advertising attracted readers to the newest retail business, the department store.

In 1877 advertisements billed John Wanamaker's new Philadelphia department store, the Grand Depot, as the "largest space in the world devoted to retail selling on a single floor." When Wanamaker's opened, only a handful of department stores existed in the United States; soon hundreds sprang up. Department stores changed the idea of shopping by bringing a huge array of different products together in a large, elegant building. They created an atmosphere that made shopping seem glamorous and exciting.

Chain stores, a group of similar stores owned by the same company, first appeared in the mid-1800s. In contrast to department stores, which offered many services, chain stores focused on thrift, offering low prices instead of elaborate service and decor. Woolworth's, a chain store that opened in 1879, became one of the most successful retail chains in American history.

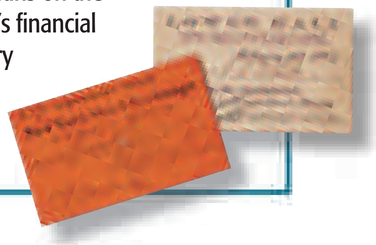
To reach the millions of people who lived in rural areas in the late 1800s—far from chain stores or department stores—retailers began issuing mail-order catalogs. Two of the largest mail-order retailers were Montgomery Ward and Sears, Roebuck. Their huge catalogs, widely distributed through the mail, used attractive illustrations and friendly descriptions to advertise thousands of items for sale.

Fact | Fiction | Folklore

The New York Stock Exchange In 1792 businesspeople met in New York City to establish a stock exchange—a marketplace for buying and selling stock in companies. At first, the new stock exchange was located under a buttonwood tree on Wall Street.

The organization took its present name, the New York Stock Exchange, in 1863. Huge amounts of the capital required for the nation's industrialization after the Civil War passed through the New York Stock Exchange.

As stock trading grew, investors across the nation needed financial news. In 1882 Henry Charles Dow and Edward D. Jones founded Dow Jones & Company. This new company sent bulletins on the day's business to Wall Street's financial houses. The day's last delivery contained a news sheet, which became the *Wall Street Journal* in July 1889.



Reading Check **Identifying** What innovations did retailers introduce in the late 1800s to sell goods to consumers?

SECTION 3 ASSESSMENT

Checking for Understanding

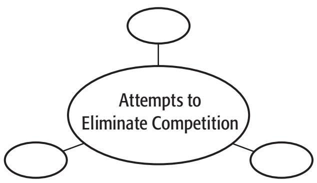
1. **Define:** corporation, economies of scale, fixed costs, operating costs, pool, vertical integration, horizontal integration, monopoly, trust, holding company.
2. **Identify:** stockholder, stock, Andrew Carnegie, Bessemer process.
3. **List** the new methods of advertising and selling that helped push consumer goods in the late 1800s.

Reviewing Themes

4. **Economic Factors** What factors allowed corporations to develop in the United States in the late 1800s?

Critical Thinking

5. **Forming an Opinion** Do you think an individual today can rise from "rags to riches" like Andrew Carnegie did? Why or why not?
6. **Organizing** Use a graphic organizer like the one below to list ways business leaders in the late 1800s tried to eliminate competition.



Analyzing Visuals

7. **Analyzing Photographs** Study the photograph on page 322 of a woman using an early electric vacuum cleaner. How would you compare this to today's vacuum cleaners? How do you think new mass-produced appliances such as this one affected the lives of women in this era?

Writing About History

8. **Expository Writing** Write a newspaper editorial in which you explain why entrepreneurs such as John D. Rockefeller and Andrew Carnegie were a positive or a negative force on the U.S. economy in the late 1800s.

CONTENTS

You're the Historian

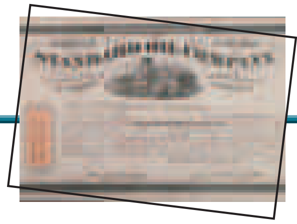
Investigating Standard Oil

John D. Rockefeller

By the 1880s, the Standard Oil Company, under the direction of John D. Rockefeller and his associates, had gained control of more than 90 percent of the oil refining business in the United States. Did Standard Oil use unfair tactics? The United States Industrial Commission investigated, calling Rockefeller himself to testify. Rockefeller said his success was due to the efficiency of his company. George Rice, an independent refiner from Marietta, Ohio, told the Industrial Commission that Standard Oil's advantage was criminal collusion with the railroads. Was he right? You're the historian.

Read the following excerpts from the Industrial Commission hearings of 1899. Then complete the questions and activities on the next page.

Standard Oil stock



From John D. Rockefeller's testimony

Question: To what advantages, or favors, or methods of management do you ascribe chiefly the success of the Standard Oil Company?

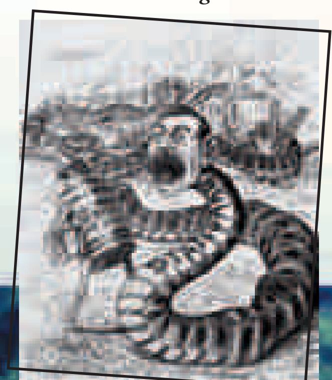
Answer [Rockefeller]: I ascribe the success of the Standard to its consistent policy to make the volume of its business large through the merits and cheapness of its products. It has spared no expense in finding, securing, and utilizing the best and cheapest methods of manufacture. It has sought for the best superintendents and workmen and paid the best wages. It has not hesitated to sacrifice old machinery and old plants for new and better ones. It has placed its manufactories at the points where they could supply markets at the least expense. It has not only sought markets for its principal products, but for all possible by-products, sparing no expense in introducing them to the public. It has not hesitated to invest millions of dollars in methods of cheapening the gathering and distribution of oils by pipe lines, special cars, tank steamers, and tank wagons. . . .

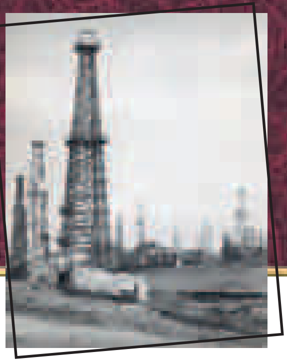
Question: What are, in your judgment, the chief advantages from industrial combinations—(a) financially to stockholders; (b) to the public?

Answer: All the advantages which can be derived from a cooperation of person and aggregation of capital. . . . It is too late to argue about advantages of industrial combinations. They are a necessity. And if Americans are to have the privilege of extending their business in all the States of the Union, and into foreign countries as well, they are a necessity on a large scale, and require the agency of more than one corporation. Their chief advantages are:

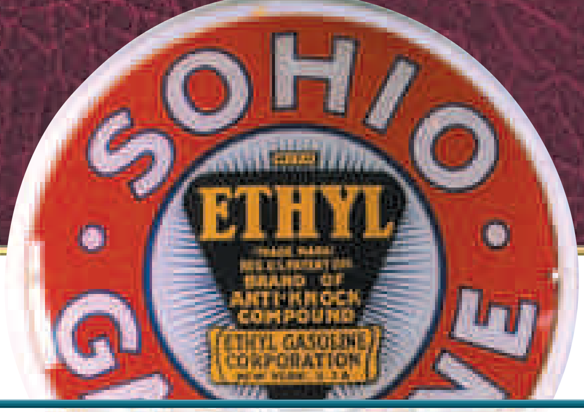
1. Command of necessary capital.
2. Extension of limits of business.
3. Increase the number of persons interested in the business.
4. Economy in the business.
5. Improvements and economies which are derived from knowledge of many interested persons of wide experience.
6. Power to give the public improved products at less prices and still make a profit from stockholders.
7. Permanent work and good wages for laborers.

Cartoon criticizing Standard Oil





Oil derricks



From George Rice's testimony

I am a citizen of the United States. . . . Producer of petroleum for more than 30 years, and a refiner of same for 20 years, but my refinery has been shut down during the past 3 years, owing to the powerful and all-prevailing machinations of the Standard Oil Trust, in criminal collusion and conspiracy with the railroads to destroy my business of 20 years of patient industry, toil, and money in building up, wholly by and through unlawful freight discriminations. I have been driven from pillar to post, from one railway line to another, for 20 years, in the absolutely vain endeavor to get equal and just freight rates with the Standard Oil Trust, so as to be able to run my refinery at anything approaching a profit, but which I have been utterly unable to do. I have had to consequently shut down, with my business absolutely ruined and my refinery idle. This has been a very sad, bitter, and ruinous experience for me to endure, but I have endeavored to the best of my circumstances and ability to combat it the utmost I could for many a long waiting year, expecting relief through the honest and proper execution of our laws, which have as yet, however, never come. . . .

Outside of rebates or freight discriminations I had no show with the Standard Oil trust, because of their unlawfully acquired monopoly, by which they could temporarily cut only my customers' prices, and below cost, leaving the balance of the town, nine-tenths, uncut. This they can easily do without any appreciable harm to their general trade, and thus effectually wipe out all competition, as fully set forth. Standard Oil prices generally were so high that I could sell my goods 2 to 3 cents a gallon below their prices and make a nice profit, but these savage attacks and cuts upon my customers' goods, and their consequent loss, plainly showed them their power for evil, and the uselessness to contend against such odds, and they would buy no more of my oil. . . .

Understanding the Issue

1. What potential advantages could companies like Standard Oil offer consumers?
2. What did George Rice believe to be the reason Standard Oil was so successful?
3. How would you assess the credibility of the two accounts?

Activities

1. **Investigate** Today many industries, unions, and special interest groups lobby Congress for favorable legislation. What are the most powerful groups? How do they operate?
2. **Check the News** Are there any companies that recently have been investigated for unfair or monopolistic practices? Collect headlines and news articles and create a bulletin board display.

SECTION 4

Unions

Guide to Reading

Main Idea

In an attempt to improve their working conditions, industrial workers came together to form unions in the late 1800s.

Key Terms and Names

deflation, trade union, industrial union, blacklist, lockout, Marxism, Knights of Labor, arbitration, closed shop

Reading Strategy

Sequencing As you read about the increase of American labor unions in the late 1800s, complete a time line similar to the one below by filling in the incidents of labor unrest discussed and the results of each incident.

1877			

Reading Objectives

- **Describe** industrial working conditions in the United States in the late 1800s.
- **List** the barriers to labor union growth.

Section Theme

Individual Action People like Samuel Gompers and Mother Jones strove to balance the power of corporations with the needs of workers.

Preview of Events

1875 — 1885 — 1895 — 1905

- **1877** Great Railroad Strike
- **1886** American Federation of Labor founded
- **1886** Riot in Chicago's Haymarket Square
- **1894** Pullman Strike
- **1903** Women's Trade Union League founded

★ An American Story ★

On September 6, 1869, hundreds of miners' wives and children heard the repeated shrill blasts of the Avondale Mine's whistle, which signaled an accident. The families ran to the mine's entry and beheld a terrifying sight: hot smoke billowing from the mine shaft.

The owners of the Avondale Coal Mine in Luzerne County, Pennsylvania, had not built a second entrance. Without an escape route, the 179 miners trapped below soon died. Songs to commemorate the disaster later gave voice to the silenced victims:

> "And as their souls ascended
> To God who gave them breath
> They plead against the company
> Whose greed had caused their death"

Avondale Mine disaster

Following the deaths at Avondale, John Siney, an Irish immigrant and union leader, urged his fellow miners to unionize:

> "Men, if you must die with your boots on, die for your families, your homes, your country, but do not longer consent to die like rats in a trap. . . ."
>
> —quoted in *Labor's Untold Story*

Working in the United States

Life for workers in industrial America was difficult. As machines replaced skilled labor, work became monotonous. Workers had to perform highly specific, repetitive tasks and could take little pride in their work. In addition, working conditions were often unhealthy and dangerous. Workers breathed in lint, dust, and toxic fumes. Heavy machines lacking safety devices caused a high number of injuries.

Despite the difficult working conditions, industrialism brought about a dramatic rise in the standard of living. While only a few entrepreneurs became rich, real wages earned by the average worker rose by about 50 percent between 1860 and 1890.

Despite the rise in the standard of living, the uneven division of income between the wealthy and the working class caused resentment among workers. In 1900 the average industrial worker made approximately 22¢ per hour and worked an average of 59 hours per week.

At the same time, an economic phenomenon of the late 1800s made relations between workers and employers even more difficult. Between 1865 and 1897, the United States experienced **deflation,** or a rise in the value of money. Throughout the late 1800s, deflation caused prices to fall, which increased the buying power of workers' wages. Although companies cut wages regularly in the late 1800s, prices fell even faster, so that wages were actually still going up in buying power. Most workers, however, believed that the companies wanted to pay them less money for the same work, and it made them angry. Eventually, many workers decided that the only way to improve their working conditions was to organize unions.

Reading Check

Describing What aspects of industrial life caused frustration for workers in the late 1800s?

Early Unions

There were two basic types of industrial workers in the United States in the 1800s—craft workers and common laborers. Craft workers had special skills and training. They included machinists, iron molders, stonecutters, glassblowers, shoemakers, printers, carpenters, and many others. Craft workers generally received higher wages and had more control over how they organized their time on the shop floor. Common laborers had few skills and received lower wages.

In the 1830s, as industrialism began to spread, craft workers began to form **trade unions**—unions limited to people with specific skills. By the early 1870s, there were over 30 national trade unions in the United States. Among the largest and most successful were the Iron Molders' International Union, the International Typographical Union, and the Knights of St. Crispin—the shoemakers' union.

Industry Opposes Unions Employers were often forced to recognize and negotiate with trade unions because they represented workers whose skills they needed. However, employers generally regarded unions as illegitimate conspiracies that interfered with their property rights. Owners of large corporations particularly opposed **industrial unions,** which united all craft workers and common laborers in a particular industry.

Companies used several techniques to prevent unions from forming. They required workers to take

Picturing History

Unsafe Working Conditions Workers in the late 1800s often faced unsafe working conditions. Many began to join labor unions in an attempt to improve these conditions. What unsafe conditions does this photograph of a steel mill show?

oaths or sign contracts promising not to join a union, and they hired detectives to go undercover and identify union organizers. Workers who tried to organize a union or strike were fired and placed on a **blacklist**—a list of "troublemakers." Once blacklisted, a laborer could get a job only by changing residence, trade, or even his or her name.

If workers formed a union, companies often used a **lockout** to break it. They locked workers out of the property and refused to pay them. If the union called a strike, employers would hire replacement workers, or **strikebreakers.**

Political and Social Opposition Workers who wanted to organize a union faced several major problems. There were no laws giving workers the right to organize or requiring owners to negotiate with them. Courts frequently ruled that strikes were "conspiracies in restraint of trade," for which labor leaders might be fined or jailed.

Unions also suffered from the perception that they threatened American institutions. In the late 1800s, the ideas of Karl Marx, called **Marxism,** had become very influential in Europe. Marx argued that the basic force shaping capitalist society was the class struggle between workers and owners. He believed that workers would eventually revolt, seize control of the factories, and overthrow the government.

Marxists claimed that after the revolution, the government would seize all private property and create a socialist society where wealth was evenly divided. Eventually, Marx thought, the state would wither away, leaving a Communist society where classes did not exist. Marxism strongly shaped the thinking of European unions.

While many labor supporters agreed with Marx, a few supported anarchism. Anarchists believe that society does not need any government. At the time, some believed that with only a few acts of violence, they could ignite a revolution to topple the government. In the late 1800s, anarchists assassinated government officials and set off bombs all across Europe, hoping to trigger a revolution.

As Marxist and anarchist ideas spread in Europe, tens of thousands of European immigrants began arriving in the United States. Nativism—anti-immigrant feelings—was already strong in the United States. As people began to associate immigrant workers with revolution and anarchism, they became increasingly suspicious of unions. These fears, as well as the government's duty to maintain law and order, often led officials to use the courts, the police, and even the army to crush strikes and break up unions.

Reading Check **Identifying**
Why were some Americans suspicious of Unions?

Profiles IN HISTORY

Mother Jones *1830–1930*

Mary Harris "Mother" Jones emigrated to the United States from Ireland in 1835 at the age of five. Jones became the nation's most prominent woman union leader after a tragic personal loss. In 1867 her husband George, a union organizer, and their four children died from yellow fever.

Widowed and childless, Jones moved to Chicago and opened a dressmaker's shop. From her shop window, Jones could see the effects of the economic downturn of the 1870s: "poor shivering wretches, jobless and hungry." At night she attended rallies for the Knights of Labor.

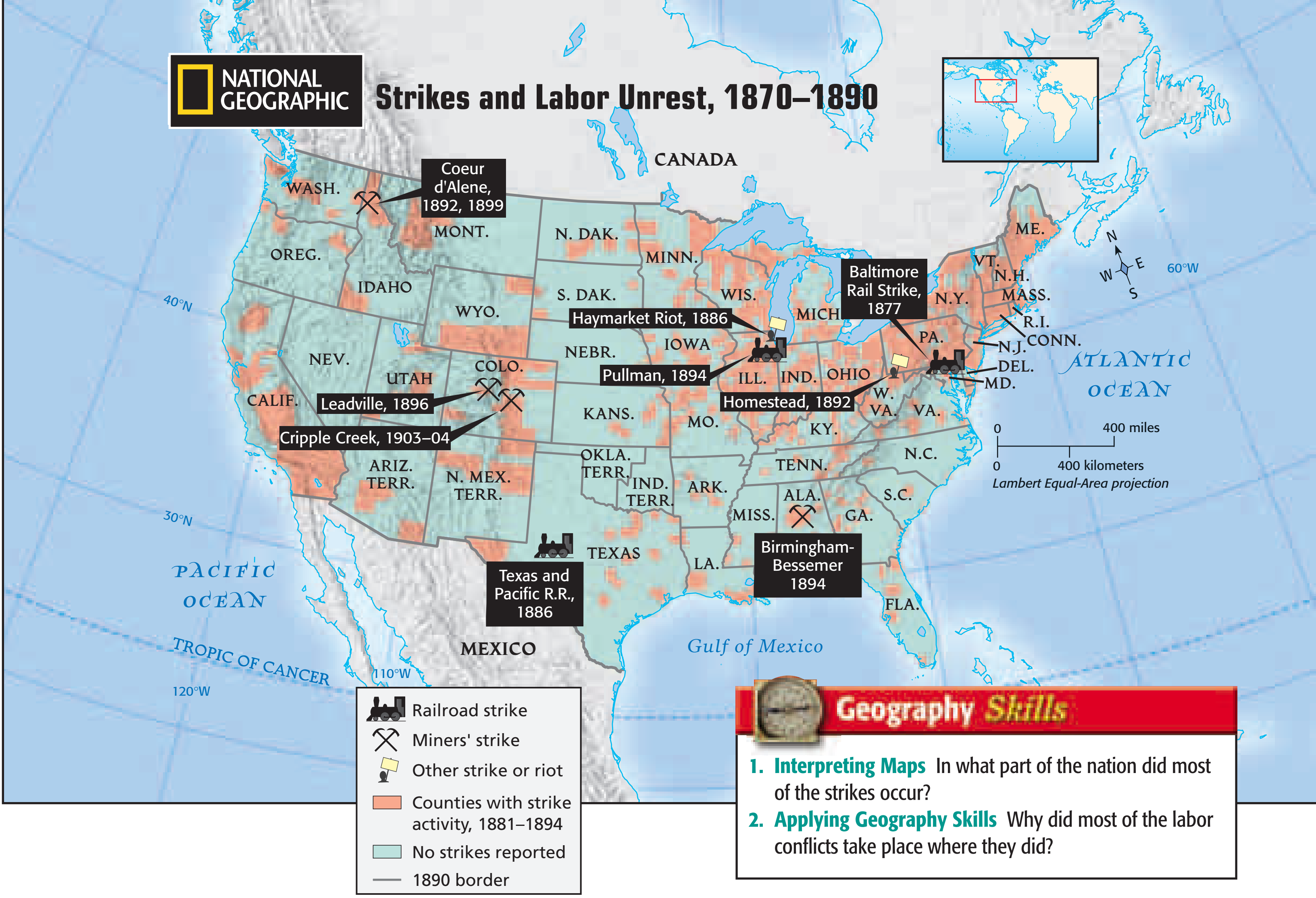
By 1890 Jones had become an organizer for the United Mine Workers. In 1897 she traveled to West Virginia. The intrepid labor organizer trudged from camp to camp along railroad tracks or rode atop farm wagons. She slept in a tent.

A journalist who followed Jones on her trip reported that Jones began her speeches slowly, encouraging 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." Then Mother Jones would make an impassioned plea for the miners to join the union. "You pity yourselves, but you do not pity your brothers, or you would stand together to help one another."

The Struggle to Organize

Although workers attempted on many occasions to create large industrial unions, they rarely succeeded. In many cases the confrontations with owners and the government led to violence and bloodshed. In 1868 William Sylvis, president of the Iron Molders Union and leader of the National Labor Union, wrote to Karl Marx to encourage Marx's work and express his own hopes:

> "Our cause is a common one. . . . Go ahead in the good work that you have undertaken, until the most glorious success crowns your efforts . . . monied



Geography Skills

1. **Interpreting Maps** In what part of the nation did most of the strikes occur?
2. **Applying Geography Skills** Why did most of the labor conflicts take place where they did?

power is fast eating up the substance of the people. We have made war upon it, and we mean to win it. If we can we will win through the ballot box; if not, we will resort to sterner means. A little bloodletting is sometimes necessary in desperate causes.”

—quoted in *Industrialism and the American Worker*

The Great Railroad Strike of 1877 In 1873 a severe recession known as the Panic of 1873 struck the American economy and forced many companies to cut wages. In July 1877, as the recession continued, several railroads announced another round of wage cuts. This triggered the first nationwide labor protest. The day after the cuts took effect, railroad workers in Martinsburg, West Virginia, walked off the job and blocked the tracks.

As word spread, railroad workers across the country walked off the job. The strike eventually involved 80,000 railroad workers in 11 states and affected two-thirds of the nation's railways. Angry strikers smashed equipment, tore up tracks, and blocked rail service in New York, Baltimore, Pittsburgh, St. Louis, and Chicago. The governors of several states called out their militias to stop the violence. In many places, gun battles erupted between the militia and striking workers.

Determined to stop the violence, President Hayes ordered the army to open the railroad between Philadelphia and Pittsburgh. He then sent troops to Chicago, where the strike had paralyzed the entire city. The troops restored order, but by the time the strike ended, more than 100 people lay dead, and millions of dollars of property had been destroyed.

The Knights of Labor The failure of the Great Railroad Strike convinced many labor organizers that workers across the nation needed to be better organized. By the late 1870s, enough workers had joined a new organization, the **Knights of Labor,** to make it the first nationwide industrial union.

The Knights called for an eight-hour workday and a government bureau of labor statistics. They also supported equal pay for women, the abolition of child labor, and the creation of worker-owned factories. The Knights' leaders initially opposed the use of strikes, preferring to use boycotts to pressure employers. They also supported **arbitration,** a process in which an impartial third party helps workers and management reach an agreement.

In the early 1880s, the Knights began to use strikes, and they achieved great success initially. After striking Knights convinced one of Jay Gould's railroads to reverse wage cuts in 1885, membership in the union leapt from 100,000 to 700,000 in less than a year. The following year, 1886, marked the peak of their success. In the spring of that year, an event known as the **Haymarket Riot** undermined the Knights' reputation, and the union rapidly declined.

The Haymarket Riot In the early 1880s, the movement for an eight-hour workday began to build support. In 1886 organizers called for a nationwide strike on May 1 to show support for the idea. On that date, strikes took place in many cities, including Chicago.

On May 3, a clash between strikers and police in Chicago left one striker dead. The next evening, an anarchist group organized a meeting in Chicago's Haymarket Square to protest the killing. Around 3,000 people gathered to hear the speeches. When police entered the square, someone threw a bomb. The police opened fire, and workers shot back. Seven police officers and four workers were killed.

Police arrested eight people for the bombing. Seven of those arrested were German immigrants and advocates of anarchism. The incident horrified people across the country.

No one knew who threw the bomb. Although the evidence was weak, all eight men were convicted, and four were later executed. Unfortunately for the Knights of Labor, one of the men arrested was a member of the union. The incident badly hurt the Knights' reputation, and they began to lose members rapidly.

The Pullman Strike Although the Haymarket Riot set back the drive to create industrial unions, other labor organizers continued their efforts. In 1893 railroad workers created the American Railway Union (ARU) under the leadership of Eugene V. Debs. One of the companies the ARU unionized was the Pullman Palace Car Company.

The Pullman Company was based in Illinois. It had built a town named Pullman near its factory and required its workers to live in the town and to buy goods from company stores. In 1893 a depression struck the United States, causing the Pullman Company to slash wages. The wage cuts made it difficult for workers to pay their rent or the high prices at the company stores. In May 1894, after Pullman fired three workers who complained, a strike began. In support, the ARU stopped handling Pullman cars all across the United States.

The boycott of Pullman cars tied up railroads and threatened to paralyze the economy. Determined to break the union, railroad managers arranged for U.S. mail cars to be attached to the Pullman cars. If the strikers refused to handle the Pullman cars, they would be interfering with the U.S. mail, a violation of federal law. President Grover Cleveland then sent in troops, claiming it was his responsibility to keep the mail running. When a federal court issued an injunction ordering the union to halt the boycott, the strike at Pullman and the ARU both collapsed.

Reading Check **Analyzing** Why did industrial unions frequently fail in the late 1800s?

The American Federation of Labor

Although large-scale industrial unions generally failed in the late 1800s, trade unions continued to prosper. In 1886 delegates from over 20 of the nation's trade unions organized the **American Federation of Labor** (AFL). The AFL's first leader was **Samuel Gompers.** His approach to labor relations—which he called "plain and simple" unionism—helped unions to become accepted in American society.

Samuel Gompers

Gompers believed that unions should stay out of politics. He rejected socialist and communist ideas. Rather, he believed that the AFL should fight for small gains—such as higher wages and better working conditions—within the American system. He was willing to use the strike but preferred to negotiate.

Under Gompers's leadership, the AFL had three main goals. First, it tried to convince companies to recognize unions and to agree to collective bargaining. Second, it pushed for **closed shops,** meaning that companies could only hire union members. Third, it promoted an eight-hour workday.

The AFL grew slowly, but by 1900 it was the biggest union in the country, with over 500,000 members. Still, at that time, the AFL represented less than 15 percent of all non-farm workers. All unions, including railroad unions, represented only 18 percent. As the 1900s began, the vast majority of workers remained unorganized, and unions were relatively weak.

Reading Check **Analyzing** What AFL policies contributed to its growth as a union?

Working Women

Throughout the 1800s, most wage-earning workers in the United States were men. After the Civil War, the number of women wage earners began to increase. By 1900 women made up more than 18 percent of the labor force.

The type of jobs women did outside the home in the late 1800s and early 1900s reflected society's ideas about what constituted "women's work." Roughly one-third of women worked as domestic servants. Another third worked as teachers, nurses, sales clerks, and secretaries. The remaining third were industrial workers, but they were employed in light industrial jobs that people believed appropriate to their gender. Many worked in the garment industry and food processing plants.

Regardless of their employment, women were paid less than men even when they performed the same jobs. It was assumed that a woman had a man helping to support her, either her father or her husband, and that a man needed higher wages to support a family. For this reason, most unions, including the AFL, excluded women.

In 1903 two woman labor organizers, Mary Kenney O'Sullivan and Leonora O'Reilly, decided to establish a separate union for women. With the help of Jane Addams and Lillian Wald—the founders of the settlement house movement—they established the **Women's Trade Union League** (WTUL), the first national association dedicated to promoting women's labor issues. The WTUL pushed for an eight-hour day, the creation of a minimum wage, an end to evening work for women, and the abolition of child labor. The WTUL also collected funds to support women on strike.

Picturing History

Detail Work These women worked in the National Elgin Watch Company's gilding room, where they gilded metal watches with thin layers of gold. What do you notice about their working conditions?

Reading Check **Comparing** How were female industrial workers treated differently than male workers in the late 1800s?

SECTION 4 ASSESSMENT

Checking for Understanding

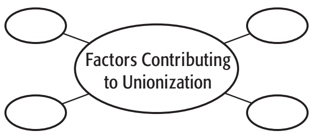
1. **Define:** deflation, trade union, industrial union, lockout, Marxism, arbitration, closed shop.
2. **Identify:** blacklist, Knights of Labor.
3. **List** the groups of workers represented by the Knights of Labor and the American Federation of Labor.

Reviewing Themes

4. **Individual Action** What political contribution did Mary Harris "Mother" Jones make to American society?

Critical Thinking

5. **Analyzing** Why did early labor unions fail?
6. **Organizing** Use a graphic organizer similar to the one below to list the factors that led to an increase in unions in the late 1800s.



Analyzing Visuals

7. **Analyzing Photographs** Examine the photograph at the top of this page of workers in a watch factory. Most of the people in the picture are women. What do you think the jobs were of the men in the photograph?

Writing About History

8. **Persuasive Writing** Imagine that you are an American worker living in one of the nation's large cities. Write a letter to a friend explaining why you support or oppose the work of labor unions.

CHAPTER 9 ASSESSMENT and ACTIVITIES

Reviewing Key Terms

On a sheet of paper, use each of these terms in a sentence.

1. gross national product
2. laissez-faire
3. entrepreneur
4. time zone
5. land grant
6. corporation
7. economies of scale
8. fixed costs
9. operating costs
10. pool
11. vertical integration
12. horizontal integration
13. monopoly
14. trust
15. holding company
16. deflation
17. trade union
18. industrial union
19. lockout
20. Marxism
21. arbitration
22. closed shop

Chapter Summary

Factors Behind Industrialization

- Abundant natural resources
- Cheap immigrant labor force
- High tariffs that reduced foreign goods
- National communication and transportation networks

Growth of Business

- Little or no government intervention
- Development of pools, trusts, holding companies, and monopolies
- Small businesses could not compete with economies–of–scale of large businesses
- Practices of some big businesses sometimes limited competition

Changing Workplace

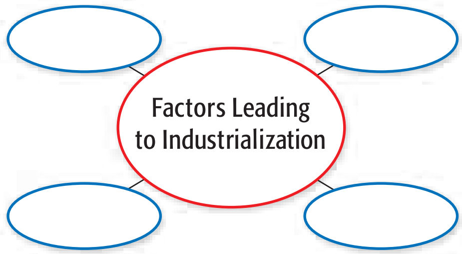
- Rural migration and immigration created large, concentrated workforce
- In large–scale industries, low wages, long hours, and dangerous working conditions were common
- First large unions formed but had little bargaining power against large companies

Reviewing Key Facts

23. **Identify:** Morrill Tariff, Andrew Carnegie.
24. The United States had an advantage in industrializing due to its resources and large workforce. What resources did the nation have? Why was its workforce large?
25. How did inventions contribute to economic growth in the United States in the late 1800s?
26. How did the federal government encourage railroad companies to construct railroads?
27. What new methods of selling products were developed in the late 1800s?
28. Why did workers try to organize labor unions in the United States in the late 1800s?
29. What were the two basic types of workers in American industry at this time?

Critical Thinking

30. **Analyzing Themes: Individual Action** List the names and actions of five people who contributed to American economic growth in the late 1800s.
31. **Organizing** Use a graphic organizer similar to the one below to list the factors that led to making the United States an industrial nation.



32. **Interpreting Primary Sources** Americans like Ida Tarbell criticized large corporations such as the Standard Oil Company. In the following excerpt from *History of the Standard Oil Company,* she warns of the results of Rockefeller's business practices on the nation's morality. Read the excerpt and answer the questions that follow:

> "Very often people who admit the facts, who are willing to see that Mr. Rockefeller has employed force and fraud to secure his ends, justify him by declaring, 'It's business.' That is, 'It's business' has come to be a legitimate excuse for hard dealing, sly tricks, special privileges. It is a common enough thing to hear men arguing that the ordinary laws of morality do not apply in business.

CLICK HERE

HISTORY Online

Self-Check Quiz

Visit the *American Republic Since 1877* Web site at tarvol2.glencoe.com and click on ***Self-Check Quizzes—Chapter 9*** to assess your knowledge of chapter content.

As for the ethical side, there is no cure but in an increasing scorn of unfair play. . . . When the business-man who fights to secure special privileges, to crowd his competitor off the track by other than fair competitive methods, receives the same summary disdainful ostracism by his fellows that the doctor or lawyer who is 'unprofessional,' the athlete who abuses the rules, receives, we shall have gone a long way toward making commerce a fit pursuit for our young men."

—quoted in *Readings in American History*

a. According to Tarbell, what practices had Rockefeller used to establish the Standard Oil Company?

b. In what way did Tarbell believe the attitudes of the American people contributed to Rockefeller's business practices?

33. **Analyzing** Analyze the impact of technological innovations and industrialization on the American labor movement.

Practicing Skills

34. **Making Inferences** Reread the passage titled "Working in the United States" from Section 4, page 326. Then answer the following questions.

a. What facts are stated about working conditions in the United States during this time period?

b. Based on your answer to the previous question, what can you infer about the attitude of employers toward their workers during this time?

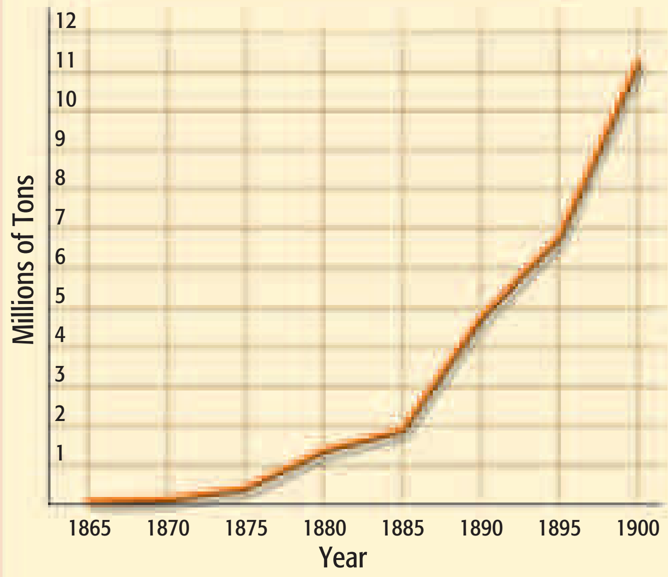
Writing Activity

35. **Portfolio Writing: Persuasive Writing** Think of a product that you think is essential to life today. Write an advertisement for this product that would persuade people to purchase it.

Chapter Activity

36. **American History Primary Source Document Library CD-ROM** Read "Driving the Golden Spike" by Alexander Toponce, under *Reshaping the Nation.* For further background, reread your textbook's coverage of the same subject on page 315. Then prepare a presentation for your classmates. In it, describe what Toponce had to say about the workers during the celebration and what Grenville Dodge had to say about their experience during the project. What attitudes do you think each man had toward the workers?

Steel Production, 1865–1900



Source: *Historical Statistics of the United States: Colonial Times to 1970.*

Economics and History

37. The graph above shows steel production from 1865 to 1900. Study the graph and answer the questions below.

a. **Interpreting Graphs** Between what years did steel production have the greatest increase?

b. **Making Inferences** How did increased steel production contribute to American industrialism?

The Princeton Review

Standardized Test Practice

Directions: Choose the best answer to the following question.

Labor unions were formed in order to

F protect factory owners and improve workers' wages.

G improve workers' wages and make factories safer.

H make factories safer and prevent lockouts.

J prevent lockouts and fight deflation.

Test-Taking Tip: Read each part of each answer choice carefully. Only one answer choice contains *two* correct reasons.