3

Industrialization Spreads

MAIN IDEA	WHY IT MATTERS NOW	TERMS & NAMES
EMPIRE BUILDING The industrialization that began in Great Britain spread to other parts of the world.	The Industrial Revolution set the stage for the growth of modern cities and a global economy.	• stock • corporation

SETTING THE STAGE Great Britain's favorable geography and its financial systems, political stability, and natural resources sparked industrialization. British merchants built the world's first factories. When these factories prospered, more laborsaving machines and factories were built. Eventually, the Industrial Revolution that had begun in Britain spread both to the United States and to continental Europe. Countries that had conditions similar to those in Britain were ripe for industrialization.

CALIFORNIA STANDARDS

10.3.2 Examine how scientific and technological changes and new forms of energy brought about massive social, economic, and cultural change (e.g., the inventions and discoveries of James Watt, Eli Whitney, Henry Bessemer, Louis Pasteur, Thomas Edison).

10.3.3 Describe the growth of population, rural to urban migration, and growth of cities associated with the Industrial Revolution.

10.3.5 Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy.

10.4.1 Describe the rise of industrial economies and their link to imperialism and colonialism (e.g., the role played by national security and strategic advantage; moral issues raised by the search for national hegemony, Social Darwinism, and the missionary impulse; material issues such as land, resources, and technology).

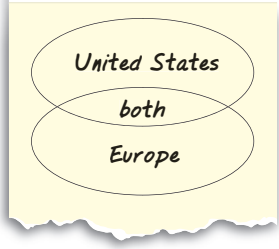
Industrial Development in the United States

The United States possessed the same resources that allowed Britain to mechanize its industries. America had fast-flowing rivers, rich deposits of coal and iron ore, and a supply of laborers made up of farm workers and immigrants. During the War of 1812, Britain blockaded the United States, trying to keep it from engaging in international trade. This blockade forced the young country to use its own resources to develop independent industries. Those industries would manufacture the goods the United States could no longer import.

Industrialization in the United States As in Britain, industrialization in the United States began in the textile industry. Eager to keep the secrets of industrialization to itself, Britain had forbidden engineers, mechanics, and toolmakers to leave the country. In 1789, however, a young British mill worker named Samuel Slater emigrated to the United States. There, Slater built a spinning machine from memory and a partial design. The following year, Moses Brown opened the first factory in the United States to house Slater's machines in Pawtucket, Rhode Island. But the Pawtucket factory mass-produced only one part of finished cloth, the thread.

TAKING NOTES

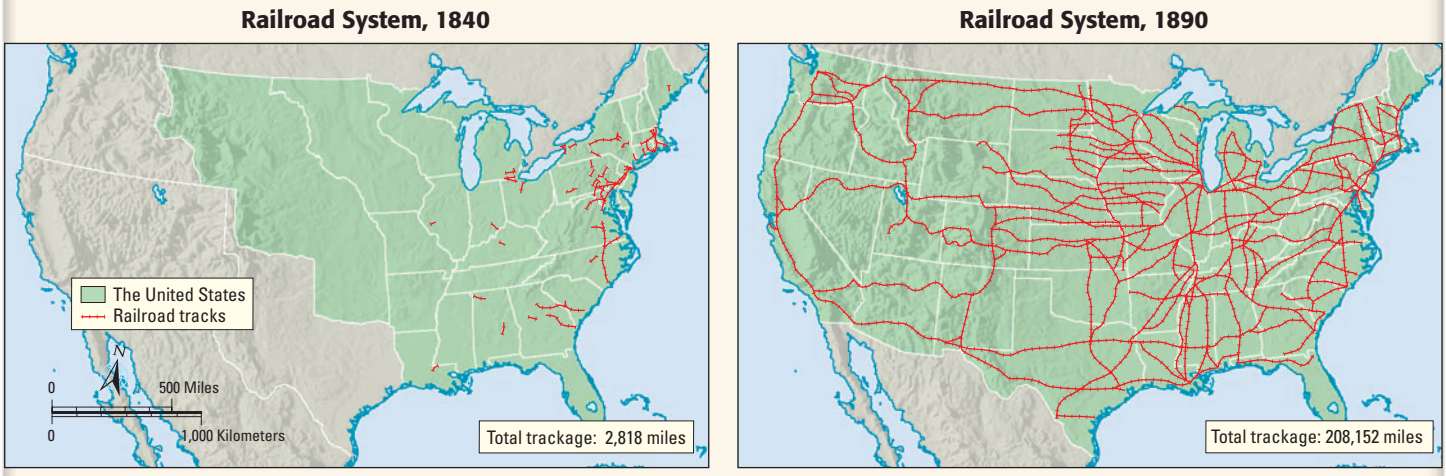
Comparing Use a Venn diagram to compare industrialization in the United States and in Europe.



In 1813, Francis Cabot Lowell of Boston and four other investors revolutionized the American textile industry. They mechanized every stage in the manufacture of cloth. Their weaving factory in Waltham, Massachusetts, earned them enough money to fund a larger

◀ Teenage mill girls at a Georgia cotton mill

The Growth of Railroads in the United States



GEOGRAPHY SKILLBUILDER: Interpreting Maps

1. **Region** *In what part of the country were the first railroads built? By 1890, what other part of the country was densely covered by railroad tracks?*
2. **Movement** *In what direction did the railroads help people move across the country?*

operation in another Massachusetts town. When Lowell died, the remaining partners named the town after him. By the late 1820s, Lowell, Massachusetts, had become a booming manufacturing center and a model for other such towns.

Thousands of young single women flocked from their rural homes to work as mill girls in factory towns. There, they could make higher wages and have some independence. However, to ensure proper behavior, they were watched closely inside and outside the factory by their employers. The mill girls toiled more than 12 hours a day, 6 days a week, for decent wages. For some, the mill job was an alternative to being a servant and was often the only other job open to them:

PRIMARY SOURCE A

Country girls were naturally independent, and the feeling that at this new work the few hours they had of everyday leisure were entirely their own was a satisfaction to them. They preferred it to going out as "hired help." It was like a young man's pleasure in entering upon business for himself. Girls had never tried that experiment before, and they liked it.

LUCY LARCOM, *A New England Girlhood*

MAIN IDEA

Analyzing Primary Sources

A Why did Lucy Larcom think mill work benefited young women?

Textiles led the way, but clothing manufacture and shoemaking also underwent mechanization. Especially in the Northeast, skilled workers and farmers had formerly worked at home. Now they labored in factories in towns and cities such as Waltham, Lowell, and Lawrence, Massachusetts.

Later Expansion of U.S. Industry The Northeast experienced much industrial growth in the early 1800s. Nonetheless, the United States remained primarily agricultural until the Civil War ended in 1865. During the last third of the 1800s, the country experienced a technological boom. As in Britain, a number of causes contributed to this boom. These included a wealth of natural resources, among them oil, coal, and iron; a burst of inventions, such as the electric light bulb and the telephone; and a swelling urban population that consumed the new manufactured goods.

Also, as in Britain, railroads played a major role in America's industrialization. Cities like Chicago and Minneapolis expanded rapidly during the late 1800s. This

was due to their location along the nation's expanding railroad lines. Chicago's stockyards and Minneapolis's grain industries prospered by selling products to the rest of the country. Indeed, the railroads themselves proved to be a profitable business. By the end of the 1800s, a limited number of large, powerful companies controlled more than two-thirds of the nation's railroad tracks. Businesses of all kinds began to merge as the railroads had. Smaller companies joined together to form a larger one.

The Rise of Corporations Building large businesses like railroads required a great deal of money. To raise the money, entrepreneurs sold shares of **stock**, or certain rights of ownership. Thus people who bought stock became part owners of these businesses, which were called corporations. A **corporation** is a business owned by stockholders who share in its profits but are not personally responsible for its debts. Corporations were able to raise the large amounts of capital needed to invest in industrial equipment.

In the late 1800s, large corporations such as Standard Oil (founded by John D. Rockefeller) and the Carnegie Steel Company (founded by Andrew Carnegie) sprang up. They sought to control every aspect of their own industries in order to make big profits. Big business—the giant corporations that controlled entire industries—also made big profits by reducing the cost of producing goods. In the United States as elsewhere, workers earned low wages for laboring long hours, while stockholders earned high profits and corporate leaders made fortunes.

Continental Europe Industrializes

European businesses yearned to adopt the "British miracle," the result of Britain's profitable new methods of manufacturing goods. But the troubles sparked by the French Revolution and the Napoleonic wars between 1789 and 1815 had halted trade, interrupted communication, and caused inflation in some parts of the continent. European countries watched the gap widen between themselves and Britain. Even so, industrialization eventually reached continental Europe.

▼ Danish workers labor in a steel mill in this 1885 painting by Peter Severin Kroyer.

Global Impact

Industrialization in Japan

With the beginning of the Meiji era in Japan in 1868, the central government began an ambitious program to transform the country into an industrialized state. It financed textile mills, coal mines, shipyards, and cement and other factories. It also asked private companies to invest in industry.

Some companies had been in business since the 1600s. But new companies sprang up too. Among them was the Mitsubishi company, founded in 1870 and still in business.

The industrializing of Japan produced sustained economic growth for the country. But it also led to strengthening the military and to Japanese imperialism in Asia.

Beginnings in Belgium Belgium led Europe in adopting Britain's new technology. It had rich deposits of iron ore and coal as well as fine waterways for transportation. As in the United States, British skilled workers played a key role in industrializing Belgium.

Samuel Slater had smuggled the design of a spinning machine to the United States. Much like him, a Lancashire carpenter named William Cockerill illegally made his way to Belgium in 1799. He carried secret plans for building spinning machinery. His son John eventually built an enormous industrial enterprise in eastern Belgium. It produced a variety of mechanical equipment, including steam engines and railway locomotives. Carrying the latest British advances, more British workers came to work with Cockerill. Several then founded their own companies in Europe.

Germany Industrializes Germany was politically divided in the early 1800s. Economic isolation and scattered resources hampered countrywide industrialization. Instead, pockets of industrialization appeared, as in the coal-rich Ruhr Valley of west central Germany. Beginning around 1835, Germany began to copy the British model. Germany imported British equipment and engineers. German manufacturers also sent their children to England to learn industrial management. B

MAIN IDEA
Analyzing Causes
B What factors slowed industrialization in Germany?

Most important, Germany built railroads that linked its growing manufacturing cities, such as Frankfurt, with the Ruhr Valley's coal and iron ore deposits. In 1858, a German economist wrote, "Railroads and machine shops, coal mines and iron foundries, spinneries and rolling mills seem to spring up out of the ground, and smokestacks sprout from the earth like mushrooms." Germany's economic strength spurred its ability to develop as a military power. By the late 1800s, a unified, imperial Germany had become both an industrial and a military giant.

Expansion Elsewhere in Europe In the rest of Europe, as in Germany, industrialization during the early 1800s proceeded by region rather than by country. Even in countries where agriculture dominated, pockets of industrialization arose. For example, Bohemia developed a spinning industry. Spain's Catalonia processed more cotton than Belgium. Northern Italy mechanized its textile production, specializing in silk spinning. Serf labor ran factories in regions around Moscow and St. Petersburg.

In France, sustained industrial growth occurred after 1830. French industrialization was more measured and controlled than in other countries because the agricultural economy remained strong. As a result, France avoided the great social and economic problems caused by industrialization. A thriving national market for new French products was created after 1850, when the government began railroad construction.

For a variety of reasons, many European countries did not industrialize. In some nations, the social structure delayed the adoption of new methods of production. The accidents of geography held back others. In Austria-Hungary and Spain, transportation posed great obstacles. Austria-Hungary's mountains defeated railroad builders. Spain lacked both good roads and waterways for canals.

The Impact of Industrialization

The Industrial Revolution shifted the world balance of power. It increased competition between industrialized nations and poverty in less-developed nations.

Rise of Global Inequality Industrialization widened the wealth gap between industrialized and nonindustrialized countries, even while it strengthened their economic ties. To keep factories running and workers fed, industrialized countries required a steady supply of raw materials from less-developed lands. In turn, industrialized countries viewed poor countries as markets for their manufactured products.

Britain led in exploiting its overseas colonies for resources and markets. Soon other European countries, the United States, Russia, and Japan followed Britain's lead, seizing colonies for their economic resources. Imperialism, the policy of extending one country's rule over many other lands, gave even more power and wealth to these already wealthy nations. Imperialism was born out of the cycle of industrialization, the need for resources to supply the factories of Europe, and the development of new markets around the world. (See Chapter 11.) C

MAIN IDEA

Clarifying

C Why did imperialism grow out of industrialization?

Transformation of Society Between 1700 and 1900, revolutions in agriculture, production, transportation, and communication changed the lives of people in Western Europe and the United States. Industrialization gave Europe tremendous economic power. In contrast, the economies of Asia and Africa were still based on agriculture and small workshops. Industrialization revolutionized every aspect of society, from daily life to life expectancy. Despite the hardships early urban workers suffered, population, health, and wealth eventually rose dramatically in all industrialized countries. The development of a middle class created great opportunities for education and democratic participation. Greater democratic participation, in turn, fueled a powerful movement for social reform.

▲ The Crystal Palace Exposition in London in 1851 (shown above) celebrated the "works of industry of all nations."

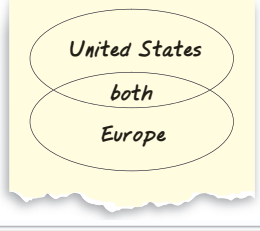
SECTION 3 ASSESSMENT

TERMS & NAMES **1.** For each term or name, write a sentence explaining its significance.

- stock
- corporation

USING YOUR NOTES

2. Which development had the most impact in the United States? in continental Europe? (10.3.2)



MAIN IDEAS

3. What early industries mechanized in the United States? (10.3.2)

4. Why did Belgium lead Europe in adopting industrialization? (10.3.5)

5. How did the Industrial Revolution shift the world balance of power? (10.3.2)

CRITICAL THINKING & WRITING

6. RECOGNIZING BIAS Go back to the quote from Lucy Larcom on page 296. Do you think her feelings about working in the mill are typical? Why or why not? (10.3.2)

7. MAKING INFERENCES Why was Britain unable to keep industrial secrets away from other nations? (10.3.5)

8. FORMING AND SUPPORTING OPINIONS What was the most significant effect of the Industrial Revolution? (10.3.3)

9. WRITING ACTIVITY EMPIRE BUILDING Draw a **political cartoon** that could have been used by the British government to show their sense of superiority over nonindustrialized nations they planned to colonize. (Writing 2.2.a)

INTEGRATED TECHNOLOGY **INTERNET ACTIVITY**

Use the Internet to research the economy of a less-developed nation in either Asia, Africa, or South America. Create a **database** of economic statistics for that country. (10.3.5)

INTERNET KEYWORD
country profiles