

There's More Online!

- ✓ BIOGRAPHY Josephine Cochrane
- ✓ BIOGRAPHY Lewis Latimer
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- ✓ VIDEO Rise of Industry
- ✓ INTERACTIVE SELF-CHECK QUIZ



LESSON 1

The Rise of Industry

ESSENTIAL QUESTION • How did the United States become an industrialized society after the Civil War?

IT MATTERS BECAUSE

American business and industry grew rapidly after the end of the Civil War. Industrialization changed the way people lived and worked.

The United States Industrializes

GUIDING QUESTION Why was the United States successful at industrialization?

Although the First Industrial Revolution reached the United States in the early 1800s, most Americans still lived on farms when the Civil War began in 1861. After the war, industry rapidly expanded, and millions of Americans left their farms to work in mines and factories as part of the Second Industrial Revolution.

Building on the advances of the First Industrial Revolution, the Second Industrial Revolution was characterized by an increase in technology. This was primarily due to advances in electrification after 1890. By the late 1800s, the United States was the world's leading industrial nation. Its **gross national product** (GNP)—the total value of all goods and services that a country produces during a year—was growing faster than it ever had before.

Natural Resources

An abundance of raw materials was one reason for the nation's industrial success. The United States had vast natural **resources**, including timber, coal, iron, and copper. This meant that American companies could obtain resources cheaply and did not have to import them from other countries. Many of these resources were located in the American West. The settlement of the West helped accelerate industrialization, as did the transcontinental railroad. Railroads took settlers and miners to the West and carried resources back to the East.

At the same time, people began using a new resource: petroleum. Even before the automotive age, petroleum was in high demand because it could be turned into kerosene. The American oil industry was built on the demand for kerosene, a fuel used in lanterns and stoves. The industry began in western Pennsylvania,

Reading HELPDESK



Academic Vocabulary

- resource • practice

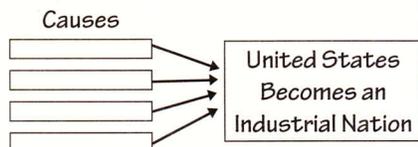
Content Vocabulary

- **gross national product**
- **laissez-faire**
- **entrepreneur**

TAKING NOTES:

Key Ideas and Details

Organizing As you read about the changes industrialization brought to the United States, complete the graphic organizer shown below with the causes of industrialization.



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, and by 1900, oil fields had been drilled from Pennsylvania to Texas. A rise in oil production led to 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 nearly tripled. This population growth provided industry with an abundant workforce and created greater demand for consumer goods.

Population growth stemmed from two sources—large families and a flood of immigrants. Because of better living conditions, more children survived and grew to adulthood. Social and economic conditions in parts of Europe and China convinced many people to immigrate to the United States in search of a better life. Some were seeking to escape oppressive governments and religious persecution. Between 1870 and 1910, more than 17 million immigrants arrived in the United States. Norwegian immigrant Andreas Ueland arrived in 1871:

PRIMARY SOURCE

“Father died in January, 1870. That changed abruptly my whole aspect of life. An older brother was to have the farm after Mother; what was I to do? . . . There was left the choice to stay home and wait for something to turn up, go out as a laborer or to learn a trade, or to sea, or to America!”

—from *Recollections of an Immigrant*

READING PROGRESS CHECK

Summarizing What were two significant factors in the growth of U.S. industry?

gross national product

the total value of goods and services produced by a country during a year

resources materials used in the production process, such as money, people, land, wood, or steel

GEOGRAPHY CONNECTION

A wealth of natural resources helped fuel U.S. industrialization.

- PLACES AND REGIONS** What natural resource in the states of West Virginia, Ohio, and Pennsylvania attracted high demand?
- HUMAN SYSTEMS** Why might the first steel factories have been built in Pennsylvania?



The Birth of the Telephone

“He then sketched for me an instrument that he thought would [transmit speech], and we discussed the possibility of constructing one. I did not make it; it was altogether too costly and the chances of its working too uncertain, to impress his financial backers . . . who were insisting that the wisest thing for Bell to do was to perfect the harmonic telegraph; then he would have money and leisure enough to build air castles like the telephone.”

—Thomas A. Watson, from
“Recollections of the Birth and
Babyhood of the Telephone,” 1913

DBQ MAKING INFERENCES

What can you infer about the difficulties that inventors faced during the late 1800s?

New Inventions

GUIDING QUESTION *What invention from this period has had the most impact on your daily life?*

New inventions and technology were also important to industrialization. Technologies and inventions eased transportation and communication. They also encouraged new industries, which in turn produced more wealth and jobs.

Perhaps the leading pioneer in new technology was Thomas Alva Edison. His laboratory at Menlo Park, New Jersey was the forerunner of the modern research laboratory. Edison first achieved international fame in 1877 with the invention of the phonograph. Two years later, he perfected the electric generator and the lightbulb. Inventor Lewis Latimer developed the carbon filament that made the incandescent bulb more durable and longer-lasting. Edison’s laboratory went on to invent or improve several other major devices, including the battery and the motion picture.

Cyrus Field laid a telegraph cable across the Atlantic Ocean in 1866, enabling faster communication between the United States and Europe. In 1874 Scottish immigrant Alexander Graham Bell began experimenting with ways to transmit sound via an electrical current. In 1876 he succeeded in inventing the telephone, revolutionizing communications.

Engineer and industrialist George Westinghouse invented an air-brake system for railroads, and an alternating current (AC) system to distribute electricity using transformers and generators. He founded the Westinghouse Electric Company, which was the first to use hydroelectric power.

Technology changed the way that people lived. After the Civil War, Thaddeus Lowe invented the ice machine, the basis of the refrigerator. In 1877 Gustavus Swift shipped the first refrigerated load of meat. In 1882 an Edison company started supplying electric power to New York City. Four years later, Josephine Cochrane developed the automatic dishwasher.

POLITICAL CARTOONS

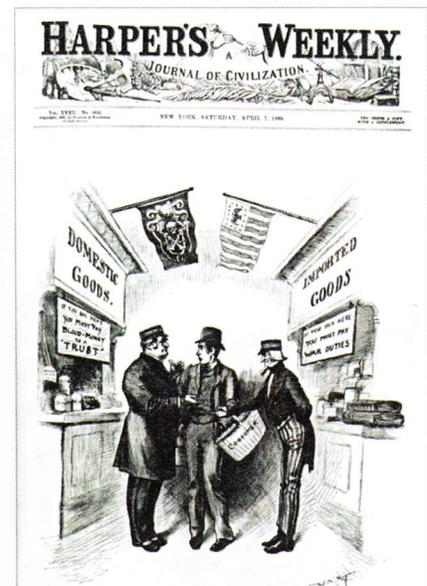
These two political cartoons address tariffs and protectionism in the United States in the late 1800s.

The cartoon on the left depicts a flood of European goods damaging the demand for products made at American factories. The cartoon on the right shows a shopper being pulled between paying extra money to trusts (monopolies) to buy domestic goods and extra money (duties) to buy foreign goods.

- 1 Interpreting** What event is shown as leading to the destruction of American factories?
- 2 Analyzing** What argument does the cartoon on the right make about free trade?



The gate is labeled “Protection.” The flood is labeled “European Pauper Manufacturers.”



This cartoon is entitled “The Consumer Consumed.”

Changes also took place in the clothing industry. The Northrop automatic loom allowed cloth to be made more quickly. Power-driven sewing machines and cloth cutters, as well as machines for producing shoes, meant that clothing and shoe production moved from small shops to large factories.

READING PROGRESS CHECK

Evaluating Which invention do you think has had the most lasting influence?

Free Enterprise

GUIDING QUESTION *How did laissez-faire economics promote industrialization?*

Laissez-faire (LEH•SAY•FAYR) economics helped the country industrialize. Supporters of laissez-faire believe that government should not interfere in the economy other than to protect property rights and maintain peace. They believe that government regulation of the economy increases costs and eventually hurts society more than it helps. An economic system with little or no government regulation is known as a free enterprise system.

Laissez-faire relies on supply and demand to regulate wages and prices. Supporters believe that competition promotes efficiency and wealth. They advocate low taxes and limited government debt to ensure that private individuals make most of the decisions about spending the nation's wealth. The United States **practiced** a mixture of laissez-faire economics by keeping taxes low while promoting private investment. The government also built transportation networks that supported economic growth.

The prospect of making money in manufacturing and transportation attracted **entrepreneurs**, people who risk their capital to organize and run businesses. Northern entrepreneurs traditionally supported high tariffs to protect their businesses from foreign competition. They also supported federal subsidies for companies building roads, canals, and railroads. Southern leaders were against subsidies and favored low tariffs to promote trade and to keep the cost of imported goods low.

During the Civil War, Congress greatly increased tariff rates on imports, causing other countries to raise their tariffs on U.S. goods. This hurt American companies trying to sell goods abroad. Tariffs were later lowered as American companies became larger and more competitive. The United States benefited from being one of the largest free-trade areas in the world. Supporters of laissez-faire contend this contributed to the nation's economic growth.

READING PROGRESS CHECK

Assessing How did laissez-faire economics encourage businesses to industrialize?

laissez-faire a policy that government should interfere as little as possible in the nation's economy

practice to do something repeatedly so it becomes the standard

entrepreneur one who organizes, manages, and assumes the risks of a business or enterprise

LESSON 1 REVIEW



Reviewing Vocabulary

1. Defining What does gross national product measure? Create a line graph of the nation's Gross National Product over the last five years.

Using Your Notes

2. Defending Use your notes to identify what you think was the most important cause of American industrialization. Then write a sentence or two identifying your choice and defending its importance.

Answering the Guiding Questions

3. Evaluating Why was the United States successful at industrialization?

4. Making Connections What invention from this period has had the most impact on your daily life?

5. Analyzing Cause and Effect How did laissez-faire economics promote industrialization?

Writing Activity

6. ARGUMENT Industrialization changed nearly every aspect of American life. Consider whether these changes have been generally positive or generally negative. Write a paragraph in which you express your thoughts and feelings about the pros and cons of widespread industrialization.