

## Early Industry and Inventions

### BEFORE YOU READ

In the last chapter, you read about the effects of the War of 1812 on the United States.

In this section, you will learn how new machines and factories changed the way people in the United States lived in the late 1700s and early 1800s.

### AS YOU READ

Use this chart to take notes on the changes brought about by inventions and developments of the late 1700s and early 1800s.

Invention or Development	Changes
Textile mill	
Interchangeable parts	
Steam engine	
Telegraph	
Steel plow	
Mechanical reaper	

### TERMS & NAMES

**Industrial Revolution** A time when factory machines replaced hand tools and large-scale manufacturing replaced farming as the main work

**factory system** System that brought many workers and machines together under one roof

**Samuel Slater** Built first spinning mill in Rhode Island

**Lowell mills** Early factories in Massachusetts that made cloth

**interchangeable parts** Parts that are exactly alike

**Robert Fulton** Inventor of the steamboat

**Samuel F. B. Morse** Inventor of the telegraph

### The Industrial Revolution Begins; Factories Come to New England

(pages 341–342)

*What was the Industrial Revolution?*

The **Industrial Revolution** began in Britain during the late 1700s. In this revolution, factory machines replaced hand tools and large-scale *manufacturing* replaced farming as the main form of work. Before the revolution, women spun thread and wove cloth at home. However, the invention of machines such as the spinning jenny and the power loom made it possible for unskilled workers to make cloth.

The **factory system** brought many workers and machines together under one roof. Most factories were built near water to power the machines. People left farms and moved to where the factories were.

Many people did not want the United States to *industrialize*. However, during the War of 1812 the British blockade kept imported goods from reaching the United States. So Americans had to start manufacturing their own goods.

America began to build its own factories, starting in New England. This region was a good place for factories. It had many rivers to provide water power. It had ships and access to the ocean. In addition, it had many willing workers who were not able to make a living by farming. **Samuel Slater** built his first spinning mill in Rhode Island in 1790 and a larger mill later. There he hired whole families to work.

#### 1. Where were the first U.S. factories?

## The Lowell Mills Hire Women

(pages 342–343)

**What** did the Lowell mills manufacture?

In 1813, Francis Cabot Lowell built a factory in Waltham, Massachusetts. This factory spun cotton into yarn and wove it into cloth on power looms. The factory was so successful that Lowell and his partners built a new factory town, called Lowell, near the Merrimack and Concord rivers.

Instead of families, the **Lowell mills** employed farm girls who lived in company-owned boardinghouses. These girls worked long hours in deafening noise. At first the girls received high wages. However, by the 1830s, wages dropped and working conditions worsened.

The Lowell mills and other early factories ran on water power. Later factories were run by powerful steam engines.

### 2. Who worked in the Lowell mills?

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## A New Way to Manufacture

(pages 343–344)

**What** were interchangeable parts?

In 1798, the U.S. government hired the inventor Eli Whitney to make 10,000 *muskets* for the army. Before then, guns were made one at a time by gunsmiths, from start to finish. Whitney wanted to make them in a different way. In 1801, he went to Washington with a box containing musket parts. He took parts from different piles and put a musket together in seconds. He had demonstrated the use of **interchangeable parts**, parts that were exactly alike.

Interchangeable parts made production faster and made repairs easy. They also allowed the use of lower-paid and less-skilled workers.

### 3. How did using interchangeable parts change factory work?

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## Moving People, Goods, and Messages

(pages 344–345)

**How** did inventions change transportation and communication in the United States?

New inventions improved transportation and communication. **Robert Fulton** invented a steamboat that could move against the current or strong wind. In 1807, he launched the *Clermont* on the Hudson River.

In 1816, Henry Miller Shreve, a trader on the Mississippi River, designed a more powerful steam engine. It ran a double-decker boat with a paddle wheel in the back. Shreve sailed the boat up the Mississippi and started a new era of trade and transportation on the river.

In 1837, **Samuel F. B. Morse** demonstrated the telegraph. This invention allowed messages to travel between cities in seconds. By 1861, telegraph lines spanned the country.

### 4. How did the telegraph change communication in the United States?

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## Technology Improves Farming (page 345)

**What** inventions improved agriculture?

Several inventions increased farm production in the United States. In 1836, John Deere invented a light-weight plow with a steel cutting edge. His invention made it easier for farmers to prepare heavy Midwestern soil for planting. As a result, more farmers began moving west.

In 1834, Cyrus McCormick's reaper cut ripe grain. The threshing machine separated kernels of wheat from husks.

New inventions helped to link regions of the United States. New farming equipment helped Midwestern farmers feed Northeastern factory workers. Midwestern farmers became a market for the goods manufactured in the Northeast. Northeastern textile mills increased the need for Southern cotton.

### 5. How did the steel plow improve agriculture?

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