

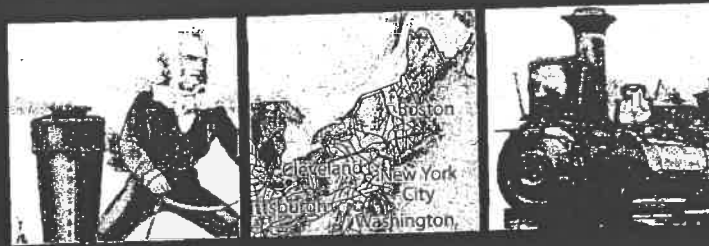
Railroads Lead the Way

1. Who was Cornelius Vanderbilt? (p551)
2. Name 1 advantage and 1 disadvantage of consolidation? (p551)
3. What industries benefited most from the expansion of the railroads? (p551)
4. What effect did railroads have on the way the nation kept track of time? (box on 552)
5. What was the importance of Gustavus Swift and his invention? (p552)
6. How did Railroad Barons create pools, and what did that do? (p.553)

networks

There's More Online!

- ✓ GRAPHIC ORGANIZER
Effects of Railroad Expansion
- ✓ MAP Railroads and Time Zones
- ✓ VIDEO



Lesson 1

Railroads Lead the Way

SENTIAL QUESTION *How does technology change the way people live and work?*

IT MATTERS BECAUSE

Railroads transformed the economy and the geography of the United States in the late 1800s.

The Growth of Railroads

GUIDING QUESTION *How did railroads pave the way for growth and expansion?*

Railroad building grew tremendously in the last half of the 1800s. This expansion powered a growing economy. In 1860 the United States already had about 30,000 miles (48,280 km) of railroad track—almost as much as the rest of the world combined. By 1900 that total had grown to nearly 193,000 miles (310,603 km) of track. Between 1870 and 1916, workers laid an average of 11 miles (18 km) of track every day. Work songs such as “John Henry” and “I’ve Been Working on the Railroad” became popular among the immigrants and other Americans who **labored** to build those miles of track.

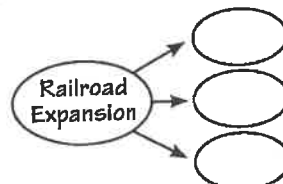
Combining Railroads

Along with expansion of railroads came **consolidation** (kuhn•sah•luh•DAY•shun)—the practice of combining separate companies. Large railroad companies bought smaller companies or drove them out of business. Consolidation made the large companies more efficient, or able to do more work with fewer resources. For example, the companies could set standard prices and processes. Consolidation also sometimes allowed a few large companies to control an entire industry.

Reading HELPDESK

Taking Notes: Determining Cause and Effect

As you read, create a diagram like this one to record the effects of railroad expansion in the United States. Title your diagram “Effects of Railroad Expansion.”



Content Vocabulary

- consolidation
- railroad baron
- standard gauge
- rebate
- pool

The Railroad Barons

After consolidation, a few powerful **individuals** known as **railroad barons** (BEHR•uhnz) controlled the nation's rail traffic. Cornelius Vanderbilt was one of the first railroad barons. His railroad empire stretched from New York City to the Great Lakes.

Another baron was James J. Hill. He built the Great Northern line between Minnesota and the state of Washington. Other barons, including Collis P. Huntington and Leland Stanford, founded the Central Pacific. This line connected California and Utah and formed part of the first transcontinental, or cross-continent, railroad. The barons were very competitive. They worked in an age when few laws limited their business practices.

PROGRESS CHECK

Analyzing What are the possible advantages and disadvantages of consolidation?

Railroads Aid Economic Growth

GUIDING QUESTION *What industries benefited from the expansion of the railroad system?*

Railroads carried raw materials such as iron ore, coal, and timber to factories. They moved manufactured goods from factories to markets. They also shipped crops from farming areas to the cities.

At first, demand for iron tracks and locomotives helped the iron industry grow. Around 1880, railroads began using tracks of steel. Steel is stronger than iron. This shift helped the steel industry grow. Railroads also helped the lumber industry, which supplied wood for railway ties, and the coal industry, which provided fuel. In addition, railroad companies provided thousands of jobs.

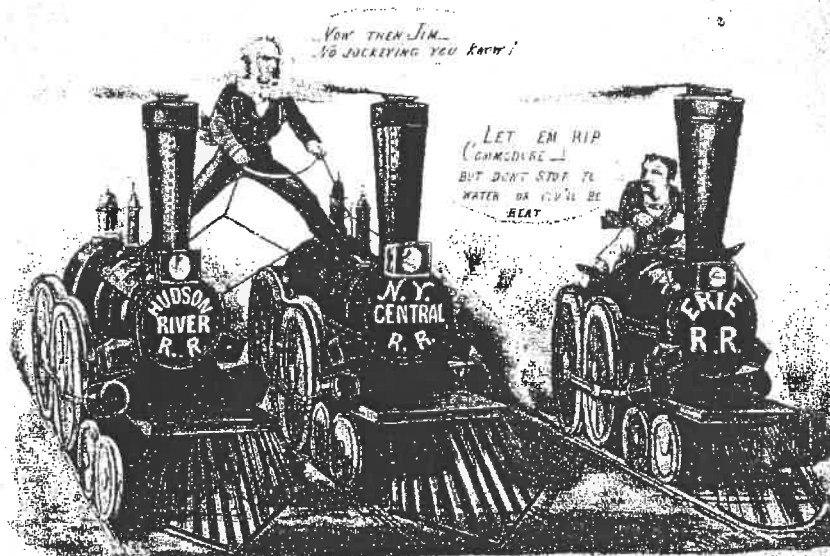
Making a National Rail System

The first railroads covered only a small area. Different railroads used tracks of different gauges, or distances between the rails. Trains of one railroad could not use another line's tracks.

Thinking Like a HISTORIAN

Analyzing Primary Sources

Cornelius Vanderbilt once said, "What do I care about law. Ain't I got the power?" What does this quote and the cartoon below tell you about Vanderbilt? For more about analyzing primary sources, review *Thinking Like a Historian*.



THE GREAT RACE FOR THE WESTERN STAKES 1870

Cornelius Vanderbilt was a railroad baron known for his tight grip on his railroad empire.

consolidation the practice of combining different companies into one

railroad baron powerful business leader who controlled a major railroad

Academic Vocabulary

labor to work or try hard

individual a single person



Railroads and Time Zones 1890



GEOGRAPHY CONNECTION

Before railroads existed, each community set its own time. In order to create sensible schedules, the country needed a shared system for setting times. This system divided the country into four different time zones. Each zone was exactly one hour apart from its neighboring zone.

- 1 REGION** Which time zone had the most miles of railroad track?
- 2 CRITICAL THINKING**
Speculating How might the lack of standard time zones have complicated travel?

If a manufacturer wanted to ship goods over more than one railroad line, workers had to unload goods from one train and move them to another. This slowed rail travel and also made it more expensive.

As railroad companies consolidated, they began using a **standard gauge** (GAY) of 4 feet, 8.5 inches (1 m, 41.6 cm). The use of a standard gauge drove down shipping times and costs.

New Technology Improves Railroads

New technology also improved railway transportation. Four developments were especially important. Inventor George Westinghouse created air brakes that improved the system for stopping trains, making them safer. Janney car couplers, named after inventor Eli H. Janney, made it easier for railroad workers to link cars. Gustavus Swift developed refrigerated railroad cars, allowing railroads to ship meat and crops over long distances without spoiling. Finally, George Pullman developed the Pullman sleeping car. This was a luxury railway car with seats that changed into beds for overnight journeys.

Railroads Compete for Customers

Railroad companies competed fiercely to keep old customers and win new ones. Large railroads offered discounts called **rebates** (REE•bayts) to their biggest customers. Smaller

standard gauge 4 feet, 8.5 inches, the distance between rails agreed upon by all railroad companies
rebate a discount or return of part of a payment

pool a group sharing in some activity, for example, among railroad barons who made secret agreements and set rates among themselves

railroads that could not match these prices were often forced out of business. Giving discounts to big customers, however, meant higher rates for farmers and other customers who shipped small loads.

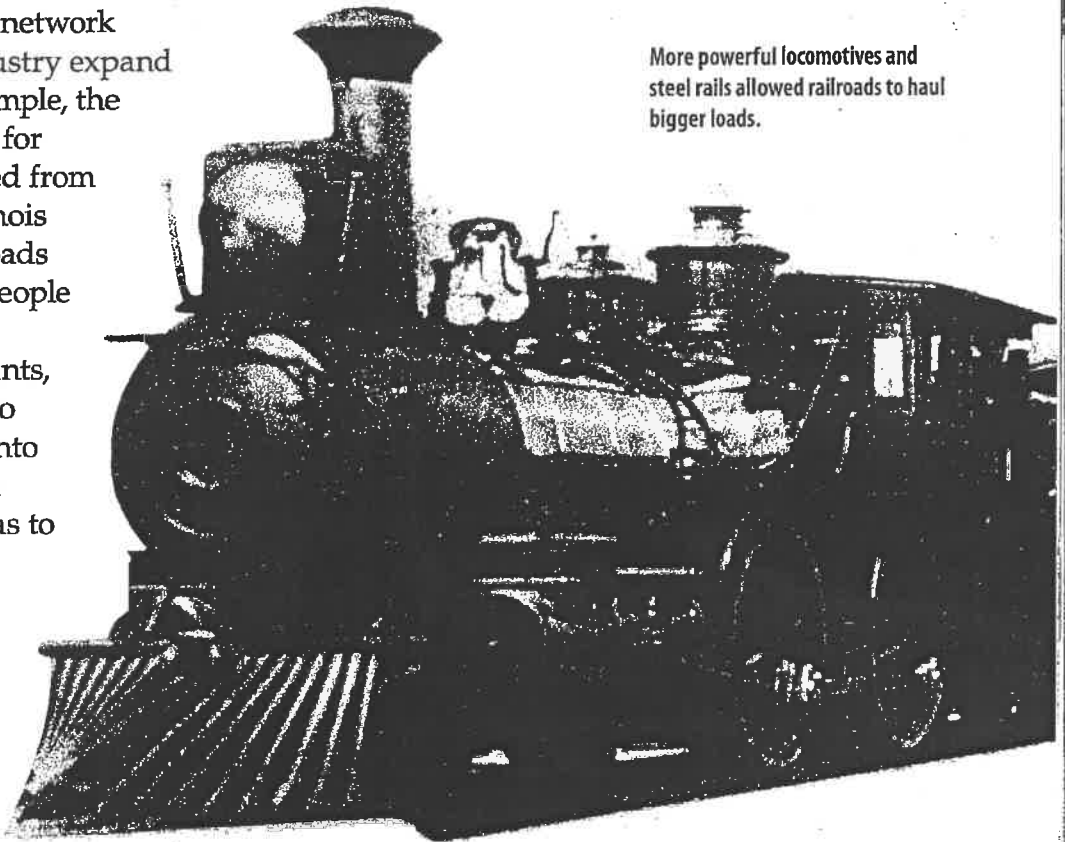
The railroad barons also made secret agreements with one another to form **pools**. The companies in a pool divided up business among themselves and set identical rates. This eliminated competition that might drive rates down. Higher rates meant higher profits. There were some laws to regulate the railroads, but they did little to stop the barons.

Railroads Change America

The growing railroad network helped American industry expand into the West. For example, the manufacturing center for farm equipment moved from New York State to Illinois and Wisconsin. Railroads also changed where people lived. Trains brought homesteaders, merchants, and mine workers onto the Great Plains and into the West. They moved people from rural areas to cities as well.

PROGRESS CHECK

Describing What were some new technologies that improved railroad travel in the late 1800s?



More powerful locomotives and steel rails allowed railroads to haul bigger loads.

LESSON 1 REVIEW

Review Vocabulary

- Examine the two terms below. Then write a sentence explaining what the terms have in common.
 - consolidation
 - railroad baron
- Write a sentence about railroads that uses the following terms.
 - pool
 - rebate

Answer the Guiding Questions

- Analyzing** In what ways did railroads help the nation's economy grow?
- Explaining** How did railroads affect where people settled in the United States?
- NARRATIVE WRITING** Write a description of a long train trip in the late 1800s that illustrates how the change to standard-gauge track has improved travel in that era.