THE NORTH'S ECONOMY

1. What are the factors of production? (p.387)
2. Define *land* as a factor of production. (p.387)
3. Define *labor* as a factor of production. (p.387)
4. Define *capital* as a factor of production. (p.387)
5. What did canals connect? (p.387)
6. Who invented a reliable steamboat? (p.387)
7. Name 3 cities that grew because of steamboats. (p. 387)
8. What were clipper ships, and why were they important? (p.387)
9. Describe the difference between railroads in the 1840s and 1860s. (p.388)
10. What areas were most of the railroads located in, and what areas did they unite? (p.388,389)
11. What was the telegraph? (p.389)
12. What is Morse Code? (p.389)
13. What 2 inventions revolutionized farming? (p.390)

SECTION 1

The North's Economy

Guide to Reading

Main Idea
During the 1800s, advances in technology and transportation shaped the North's economy.

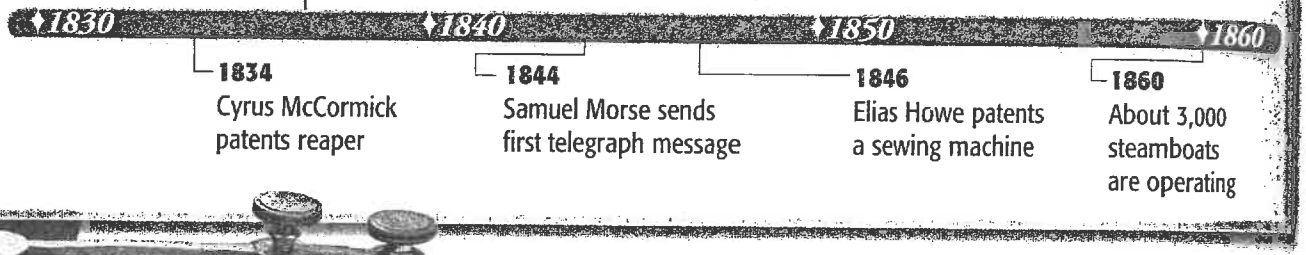
Key Terms
clipper ship, telegraph, Morse code

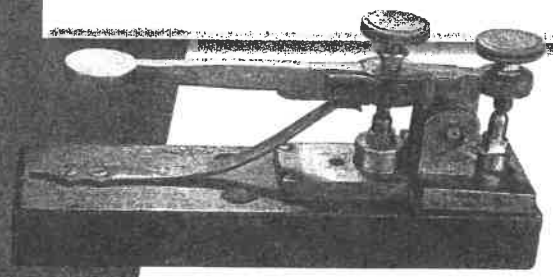
Reading Strategy
Organizing Information As you read the section, re-create the diagram below and list examples of advances in transportation and technology.

Read to Learn
- how advances in technology shaped the economy of the North.
- how new kinds of transportation and communication spurred economic growth.

Section Theme
Economic Factors Advances in technology and transportation shaped the North's economy.

Preview of Events





Samuel Morse's telegraph key

AN American Story

In the 1840s, telegraph wires and railroads began to cross the nation. But traveling by rail had its discomforts, as writer Charles Dickens describes: "[T]here is a great deal of jolting, a great deal of noise, a great deal of wall, not much window, a locomotive engine, a shriek, and a bell. . . . In the center of the carriage there is usually a stove . . . which is for the most part red-hot. It is insufferably close; and you see the hot air fluttering between yourself and any other object you may happen to look at, like the ghost of smoke. . . ."

Technology and Industry

In 1800 most Americans worked on farms. Items that could not be made at home were manufactured—by hand, one at a time—by local blacksmiths, shoemakers, and tailors. By the early 1800s, changes took place in the Northern states. Power-driven machinery performed many tasks that were once done by hand. Industrialization and technology were changing the way Americans worked, traveled, and communicated.

Productive Resources

New methods in technology and business allowed the country to tap its rich supply of natural resources, increase its production, and raise the money needed for growth. The United States had the resources needed for a growing economy. Among these resources are productive resources often called the factors of production. These are land, labor, and capital. The first factor of production, **land,** means not just the land itself but all natural resources. The United States held a variety of natural resources that were useful for industrial production.

The second production factor is **labor**. Large numbers of workers were needed to turn raw materials into goods. The third production factor, **capital,** is the equipment—buildings, machinery, and tools—used in production. Land and labor are needed to produce capital goods. These goods, in turn, are essential for the production of consumer goods.

The terms "capital" is also used to mean money for investment. Huge amounts of money were needed to finance industrial growth. One source of money was the selling of stock by corporations. Another was corporate savings, or businesses investing a portion of their earnings in better equipment.

Improved Transportation

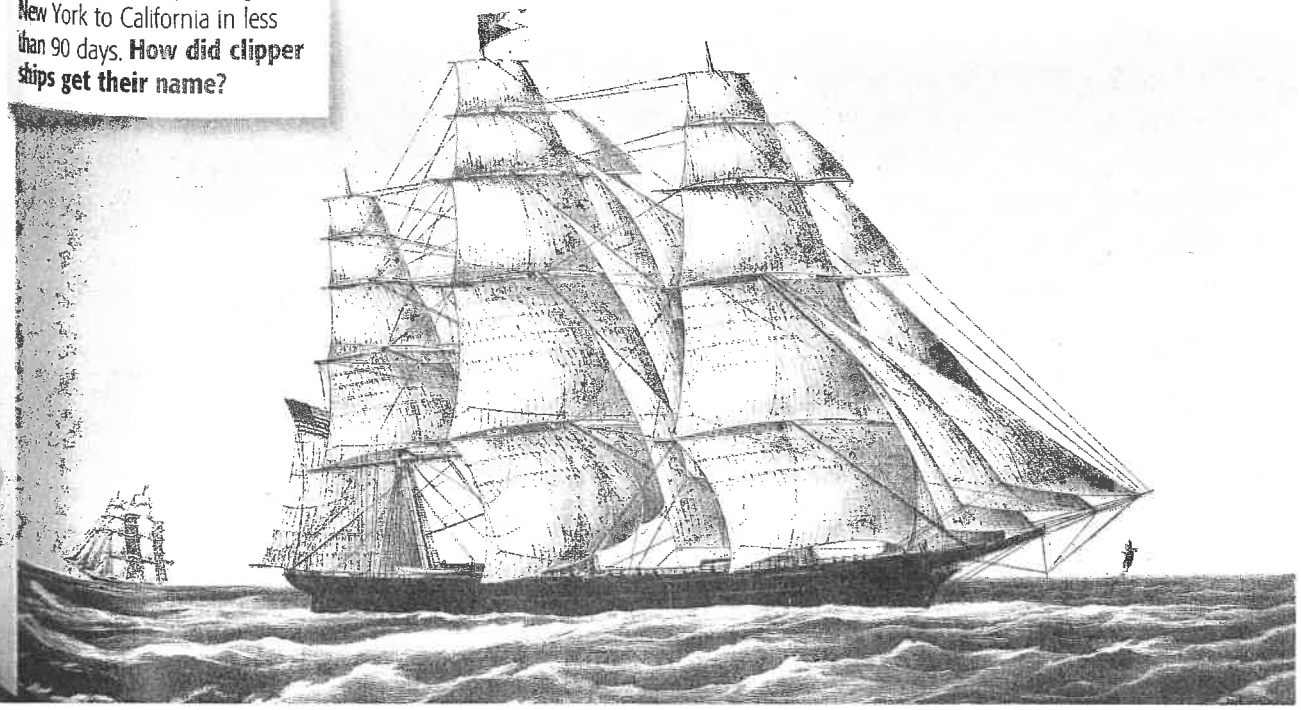
Improvements in transportation contributed to the success of many of America's new industries. Between 1800 and 1850, construction crews built thousands of miles of roads and canals. The canals opened new shipping routes by connecting many lakes and rivers. The growth of the railroads in the 1840s and 1850s also helped to speed the flow of goods. Inventor **Robert Fulton** demonstrated a reliable steamboat in 1807. Steamboats carried goods and passengers more cheaply and quickly along inland waterways than could flatboats or sail-powered vessels.

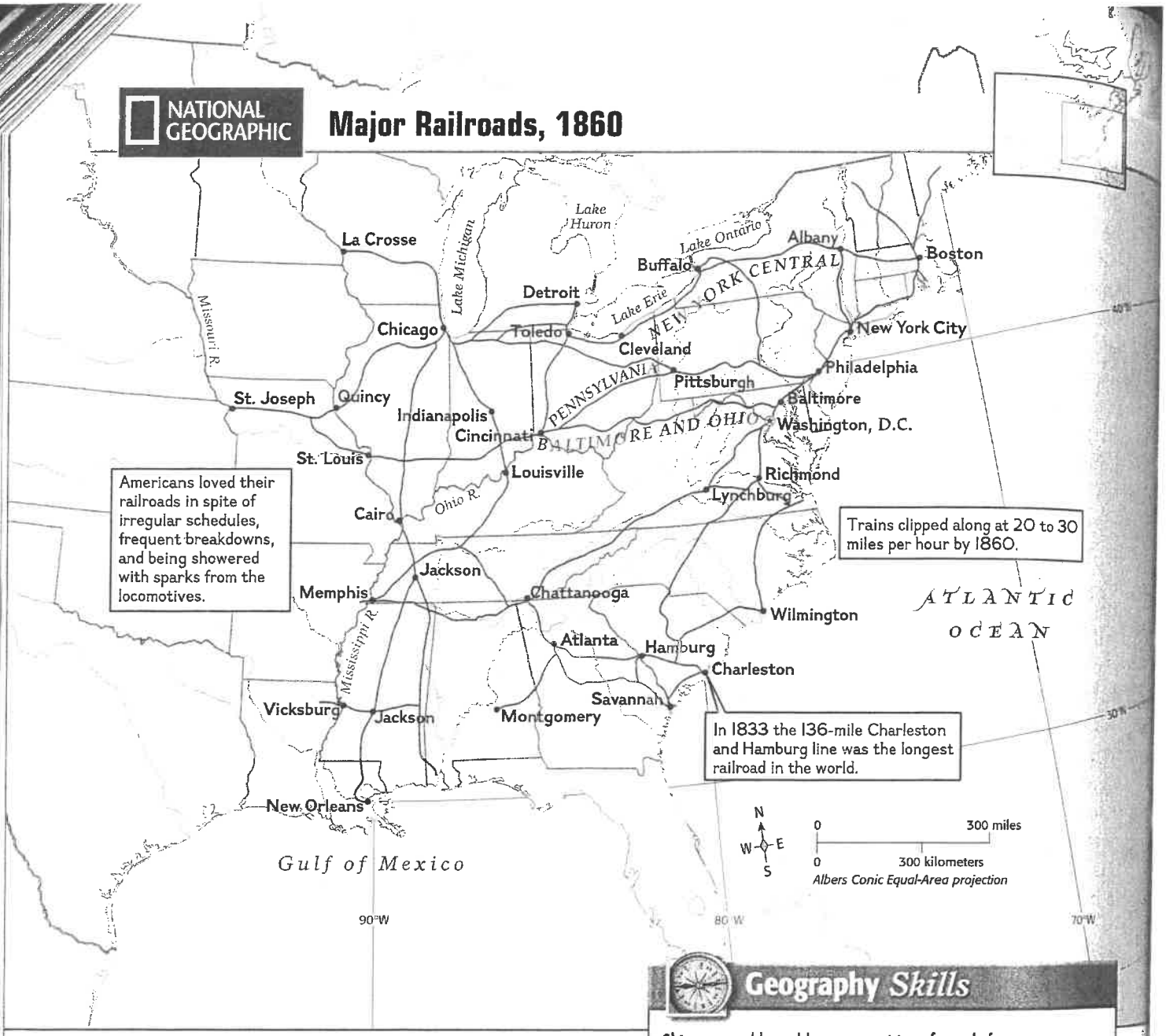
In the 1840s canal builders began to widen and deepen canals to accommodate steamboats. By 1860 about 3,000 steamboats traveled the major rivers and canals of the country as well as the Great Lakes. Steamboats spurred the growth of cities such as Cincinnati, Buffalo, and Chicago.

In the 1840s sailing ships were improved. The clipper ships—with sleek hulls and tall sails—were the pride of the open seas. They could sail 300 miles per day, as fast as most steamships of the day. The ships got their name because they "clipped" time from long journeys. Before the clippers, the voyage from New York to Great Britain took about 21 to 28 days. A clipper ship could usually make that trip in half the time.

***Picturing* History**

A clipper ship, the *Flying Cloud,* set a new record by sailing from New York to California in less than 90 days. **How did clipper ships get their name?**





Geography Skills

Shippers could send large quantities of goods faster over railroads than they could over earlier canal, river, and wagon routes.

1. **Location** To what westernmost city did the railroads extend by 1860?
2. **Location** What cities might a train traveler pass through on a trip from Chicago to New Orleans?

Locomotives

The development of railroads in the United States began with short stretches of tracks that connected mines with nearby rivers. Early trains were pulled by horses rather than by locomotives. The first steam-powered passenger locomotive, the *Rocket,* began operating in Britain in 1829.

Peter Cooper designed and built the first American steam locomotive in 1830. Called the *Tom Thumb,* it got off to a bad start. In a race against a horse-drawn train in **Baltimore,** the *Tom Thumb*'s engine failed. Engineers soon improved the engine, and within 10 years steam locomotives were pulling trains in the United States.

A Railway Network

In 1840 the United States had almost 3,000 miles of railroad track. By 1860 it had almost 31,000 miles, mostly in the North and the **Midwest.** One railway linked New York City and Buffalo. Another connected Philadelphia and Pittsburgh. Yet another linked Baltimore with Wheeling, Virginia (now West Virginia).

Railway builders connected these eastern lines to lines being built farther west in Ohio, Indiana, and Illinois. By 1860 a network of railroad track united the Midwest and the East.

Moving Goods and People

Along with canals, the railways transformed trade in the nation's interior. The changes began with the opening of the Erie Canal in 1825 and the first railroads of the 1830s. Before this time agricultural goods were carried down the Mississippi River to New Orleans and then shipped to other countries or to the East Coast of the United States.

The development of the east-west canal and the rail network allowed grain, livestock, and dairy products to move directly from the Midwest to the East. Because goods now traveled faster and more cheaply, manufacturers in the East could offer them at lower prices.

The railroads also played an important role in the settlement and industrialization of the Midwest. Fast, affordable train travel brought people into Ohio, Indiana, and Illinois. As the populations of these states grew, new towns and industries developed.

Picturing **History**

The defeat of the train *Tom Thumb* in 1830 did not mean the end of the steam engine. The first successful use of a steam locomotive in the United States took place in South Carolina in 1831. **In 1860 which regions of the United States had the most miles of railroad track?**

Faster Communication

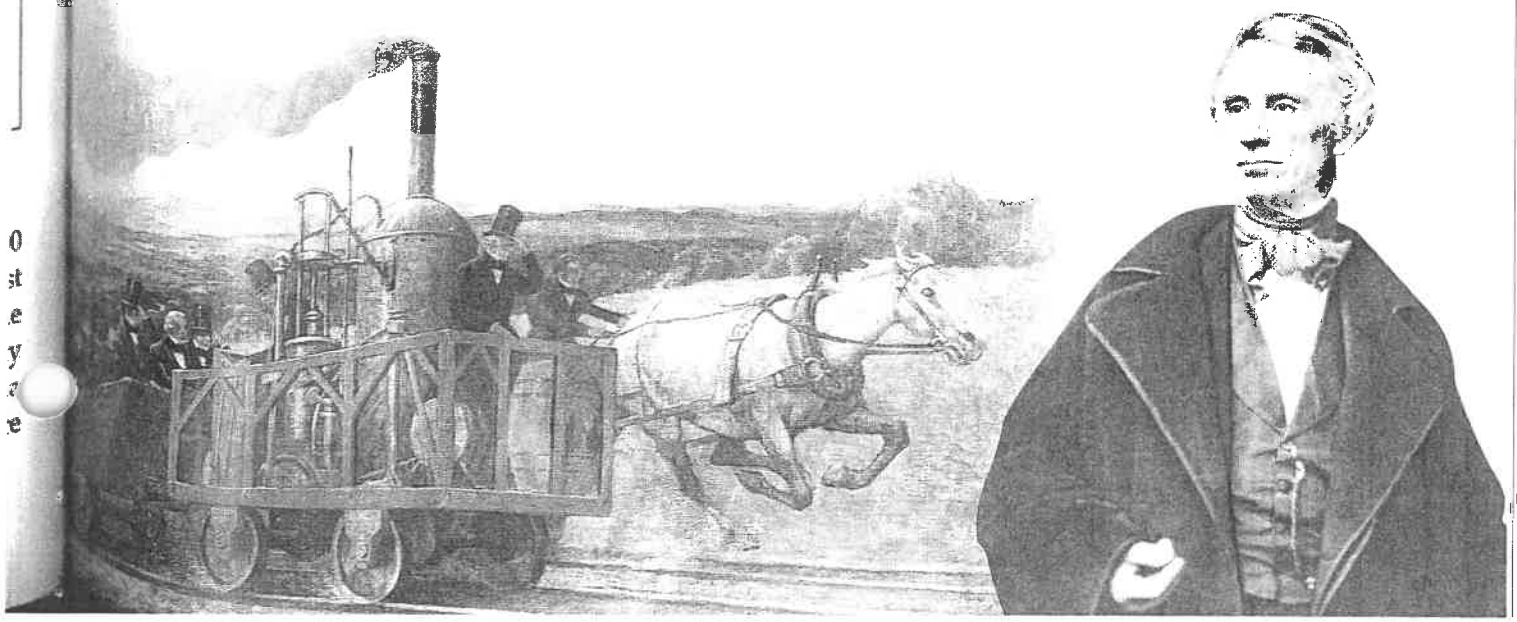
The growth of industry and the new pace of travel created a need for faster methods of communication. The telegraph—an apparatus that used electric signals to transmit messages—filled that need.

Samuel Morse, an American inventor, had been seeking support for a system of telegraph lines. On May 24, 1844, Morse got the chance to demonstrate that he could send messages instantly along wires. As a crowd in the U.S. capital watched, Morse tapped in the words, "What hath God wrought!" A few moments later, the telegraph operator in Baltimore sent the same message back in reply. The telegraph worked! Soon telegraph messages were flashing back and forth between Washington and Baltimore.

Morse transmitted his message in Morse code, a series of dots and dashes representing the letters of the alphabet. A skilled Morse code operator could rapidly tap out words in the dot-and-dash alphabet. Americans adopted the telegraph eagerly. A British visitor marveled at the speed with which Americans formed telegraph companies and erected telegraph lines. Americans, he wrote, were driven to "annihilate [wipe out] distance" in their vast country. By 1852 the United States was operating about 23,000 miles of telegraph lines.

Reading Check **Explaining** How did canals and railways change transportation?

Samuel Morse



Agriculture

The railroads gave farmers access to new markets to sell their products. Advances in technology allowed farmers to greatly increase the size of the harvest they produced.

In the early 1800s, few farmers had ventured into the treeless **Great Plains** west of Missouri, Iowa, and Minnesota. Even areas of mixed forest and prairie west of Ohio and Kentucky seemed too difficult for farming. Settlers worried that their wooden plows could not break the prairie's matted sod and that the soil was not fertile.

Revolution in Agriculture

Two revolutionary inventions of the 1830s changed farming methods and encouraged settlers to cultivate larger areas of the West. One was the steel-tipped plow that **John Deere** invented in 1837. Far sturdier than the wooden plow, Deere's plow easily cut through the hard-packed sod of the prairies. Equally important was the mechanical reaper, which sped up the harvesting of wheat, and the thresher, which quickly separated the grain from the stalk.

McCormick's Reaper

Born on a Virginia farm, **Cyrus McCormick** became interested in machines that would ease the burden of farmwork. After years of tinkering, McCormick designed and constructed the mechanical reaper and made a fortune manufacturing and selling it.

For hundreds of years, farmers had harvested grain with handheld sickles. McCormick's reaper could harvest grain much faster than a hand-operated sickle. Because farmers could harvest wheat so quickly, they began planting more of it. Growing wheat became profitable.

McCormick's reaper ensured that raising wheat would remain the main economic activity in the Midwestern prairies. New machines and railroads helped farmers plant more acres in "cash" crops—crops planted strictly for sale. Midwestern farmers began growing more wheat and shipping it east by train and canal barge. Farmers in the Northeast and Middle Atlantic states increased their production of fruits and vegetables that grew well in Eastern soils.

Despite improvements in agriculture, however, the North turned away from farming and increasingly toward industry. It was difficult making a living farming the rocky soil of New England, but industry flourished in the area. The number of people who worked in factories continued to rise—and so did problems connected with factory labor.

Reading Check **Identifying** What innovation sped the harvesting of wheat?

SECTION ASSESSMENT

HISTORY Online **Study Central™** To review this section, go to tarvol1.glencoe.com and click on **Study Central**

Checking for Understanding

1. **Key Terms** Use each of these terms in a sentence that will help explain its meaning: clipper ship, telegraph, Morse code.
2. **Reviewing Facts** Identify and describe the three phases of industrialization in the North.

Reviewing Themes

3. **Economic Factors** How did improvements in transportation affect the price of goods?

Critical Thinking

4. **Determining Cause and Effect** How did the steel-tipped plow aid settlers on the Great Plains?
5. **Analyzing Consequences** How might failure to improve transportation have affected the economic and social development of the nation? Re-create the diagram below and list the possible effects.

Effects	
Social	Economic

Analyzing Visuals

6. **Geography Skills** Study the map on page 388, then answer this question: Through what two cities in Mississippi did major rail lines pass?

Interdisciplinary Activity

Math Research the number of acres of wheat harvested in the United States before and after McCormick introduced his reaper. Then create a chart or graph to illustrate your findings.