



SECTION 1

The Market Revolution

MAIN IDEA

Technological changes created greater interaction and more economic diversity among the regions of the nation.

WHY IT MATTERS NOW

The linking of markets continues today, as new technologies are opening the United States to globalized trade.

Terms & Names

- Samuel F. B. Morse
- specialization
- market revolution
- capitalism
- entrepreneur
- telegraph
- John Deere
- Cyrus McCormick

One American's Story

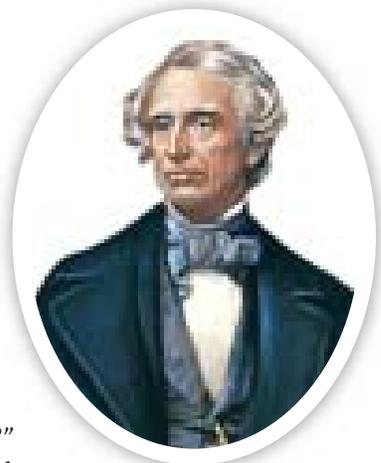
In 1837, painter and scientist **Samuel F. B. Morse**, with Leonard Gale, built an electromagnetic telegraph. Morse's first model could send signals ten miles through copper wire. Morse asked Congress to fund an experimental telegraphic communication that would travel for 100 miles.

A PERSONAL VOICE SAMUEL F. B. MORSE

“This mode of instantaneous communication must inevitably become an instrument of immense power, to be wielded for good or for evil. . . . Let the sole right of using the Telegraph belong, in the first place, to the Government, who should grant . . . the right to lay down a communication between any two points for the purpose of transmitting intelligence.”

—quoted in *Samuel F. B. Morse: His Letters and Journals*

Congress granted Morse \$30,000 to build a 40-mile telegraph line between Baltimore and Washington, D.C. In 1844, Morse tapped out in code the words “What hath God wrought?” The message sped from Washington, D.C., over a metal wire in less than a second. As new communication links began to put people into instant communication with one another, new transportation links carried goods and people across vast regions.

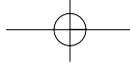


▲ Samuel Morse was a painter before he became famous as an inventor.

U.S. Markets Expand

In the early 19th century, rural American workers produced their own goods or traded with neighbors to meet almost all of their needs. Farm families were self-sufficient—they grew crops and raised animals for food and made their own clothing, candles, and soap. At local markets, farmers sold wood, eggs, or butter for cash, which they used to purchase the coffee, tea, sugar, or horseshoes they couldn't produce themselves.

By midcentury, however, the United States had become more industrialized, especially in the Northeast, where the rise of textile mills and the factory system changed the lives of workers and consumers. Now, workers spent their earnings



on goods produced by other workers. Farmers began to shift from self-sufficiency to **specialization**, raising one or two cash crops that they could sell at home or abroad.

These developments led to a **market revolution**, in which people bought and sold goods rather than making them for their own use. The market revolution created a striking change in the U.S. economy and in the daily lives of Americans. In these decades, goods and services multiplied while incomes rose. In fact, in the 1840s, the national economy grew more than it had in the previous 40 years.

THE ENTREPRENEURIAL SPIRIT The quickening pace of U.S. economic growth depended on **capitalism**, the economic system in which private businesses and individuals control the means of production—such as factories, machines, and land—and use them to earn profits. For example, in 1813, Francis Cabot Lowell and other Boston merchants had put up \$400,000 to form the Boston Manufacturing Company, which produced textiles. Other businesspeople supplied their own funds to create capital—the money, property, machines, and factories that fueled America’s expanding economy.

These investors, called **entrepreneurs** from a French word that means “to undertake,” risked their own money in new industries. They risked losing their investment, but they also stood to earn huge profits if they succeeded. Alexander Mackay, a Scottish journalist who lived in Canada and traveled in the United States, applauded the entrepreneurs’ competitive spirit. **A**

MAIN IDEA

Analyzing Causes

A What led to the rise of capitalism?

A PERSONAL VOICE ALEXANDER MACKAY

“America is a country in which fortunes have yet to be made. . . . All cannot be made wealthy, but all have a chance of securing a prize. This stimulates to the race, and hence the eagerness of the competition.”

—quoted in *The Western World*

NEW INVENTIONS Inventor-entrepreneurs began to develop goods to make life more comfortable for more people. For example, Charles Goodyear developed vulcanized rubber in 1839. Unlike untreated India rubber, the new product didn’t freeze in cold weather or melt in hot weather. People first used the product to protect their boots, but, in the early 1900s, it became indispensable in the manufacturing of automobile tires.

A natural place for the growth of industrialization was in producing clothing, a process greatly aided by the invention of the sewing machine. Patented by Elias Howe in 1846, the sewing machine found its first use in shoe factories. Homemakers appreciated I. M. Singer’s addition of the foot treadle, which drastically reduced the time it took to sew garments. More importantly,

ECONOMIC BACKGROUND

GOODYEAR AS ENTREPRENEUR

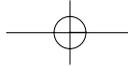
One entrepreneur who developed an industry still vital today was Charles Goodyear (1800–1860). Goodyear took a big risk that paid off for the American public—but left him penniless.

While he was exploring the problem of how to keep rubber elastic and waterproof under extreme temperatures, Goodyear purchased the rights of an inventor who had mixed rubber with sulfur. In 1839, Goodyear discovered that when heated, the mixture toughened into a durable elastic. In 1844, he received a patent for the process, named vulcanization after Vulcan, the mythological god of fire.

Unfortunately, Goodyear earned only scant monetary reward for his discovery, which others stole and used. The inventor was deep in debt when he died in 1860.

I. M. Singer’s foot-treadle sewing machine was patented in 1851 and soon dominated the industry.





the foot-treadle sewing machine led to the factory production of clothing. When clothing prices tumbled by more than 75 percent, increasing numbers of working people could afford to buy store-bought clothes.

IMPACT ON HOUSEHOLD ECONOMY While entrepreneurial activity boosted America’s industrial output, American agriculture continued to flourish. Workers in industrial cities needed food. To meet this demand, American farmers began to use mechanized farm equipment produced in factories. Farmers, therefore, made significant contributions to the American industrial machine and became important consumers of manufactured items.

Manufactured items grew less expensive as technology advances lowered expenses. For example, a clock that had cost \$50 to craft by hand in 1800 could be turned out by machine for half a dollar by midcentury. Falling prices meant that many workers became regular consumers. They purchased new products not only for work, but for comfort as well. **B**

MAIN IDEA

Analyzing Effects

B Describe the impact of the market revolution on potential customers.

The Economic Revolution

NOW & THEN

FROM TELEGRAPH TO INTERNET

What do the telegraph and the Internet have in common? They are both tools for instant communication. The telegraph relied on a network of wires that spanned the country. The Internet—an international network of smaller computer networks—allows any computer user to communicate instantly with any other computer user in the world.

These new inventions, many developed in the United States, contributed immensely to changes in American life. Some inventions simply made life more enjoyable. Other inventions fueled the economic revolution of the midcentury, and transformed manufacturing, transportation and communication.

IMPACT ON COMMUNICATION Improving on a device developed by Joseph Henry, Samuel F. B. Morse, a New England artist, created the **telegraph** in 1837 to carry messages, tapped in code, across copper wire. Within ten years, telegraph lines connected the larger cities on the East Coast.

Businesses used the new communication device to transmit orders and to relay up-to-date information on

MORSE CODE In 1837 Samuel Morse patents the telegraph, the first instant electronic communicator. Morse taps on a key to send bursts of electricity down a wire to the receiver, where an operator “translates” the coded bursts into understandable language within seconds.



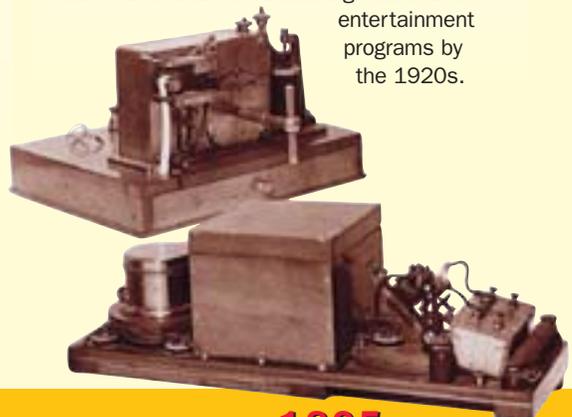
1837

TELEPHONE In 1876 Alexander Graham Bell invents the telephone, which relies on a steady stream of electricity, rather than electrical bursts, to transmit sounds. By 1900, there are over one million telephones in the United States.

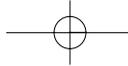


1876

MARCONI RADIO In 1895, Guglielmo Marconi, an Italian inventor, sends telegraph code through the air as electromagnetic waves. By the early 1900s, “the wireless” makes voice transmissions possible. Commercial radio stations are broadcasting music and entertainment programs by the 1920s.



1895



prices and sales. The telegraph was a huge success. The new railroads employed the telegraph to keep trains moving regularly and to warn engineers of safety hazards. By 1854, 23,000 miles of telegraph wire crossed the country.

IMPACT ON TRANSPORTATION Better and faster transportation became essential to the expansion of agriculture and industry. Farmers and manufacturers alike sought more direct ways to ship their goods to market. In 1807, Pennsylvanian Robert Fulton had ushered in the steamboat era when his boat, the *Clermont*, made the 150-mile trip up the Hudson River from New York City to Albany, New York, in 32 hours. Ships that had previously only been able to drift southward down the Mississippi with the current could now turn around to make the return trip because they were powered by steam engines. By 1830, 200 steamboats traveled the nation's western rivers, thus slashing freight rates as well as voyage times.

Water transport was particularly important in moving heavy machinery and such raw materials as lead and copper. Where waterways didn't exist, workers excavated them. In 1816, America had a mere 100 miles of canals. Twenty-five years later, the country boasted more than 3,300 miles of canals.

The Erie Canal was the nation's first major canal, and it was used heavily. Shipping charges fell to about a tenth of the cost of sending goods over land. Before the first shovel broke ground on the Erie Canal in 1817, for example, freight charges between Buffalo, New York, and New York City averaged 19 cents a ton per mile. By 1830, that average had fallen to less than 2 cents.

The Erie Canal's success led to dozens of other canal projects. Farmers in Ohio no longer depended on Mississippi River passage to New Orleans. They could now ship their grain via canal and river to New York City, the nation's major port. The canals also opened the heartland of America to world markets by connecting the Northeast to the Midwest.

EMERGENCE OF RAILROADS The heyday of the canals lasted only until the 1860s, due to the rapid emergence of railroads. Although shipping by rail cost significantly more in the 1840s than did shipping by canal, railroads offered the advantage of speed. In addition, trains could operate in the winter, and they brought goods to people who lived inland.

TELEVISION In the late 1800s, scientists begin to experiment with transmitting pictures as well as words through the air. In 1923, Vladimir Zworykin, a Russian-born American scientist, files a patent for the iconoscope, the first television camera tube suitable for broadcasting. In 1924 he files a patent for the kinescope, the picture tube used in receiving television signals. In 1929, Zworykin demonstrated his new television.



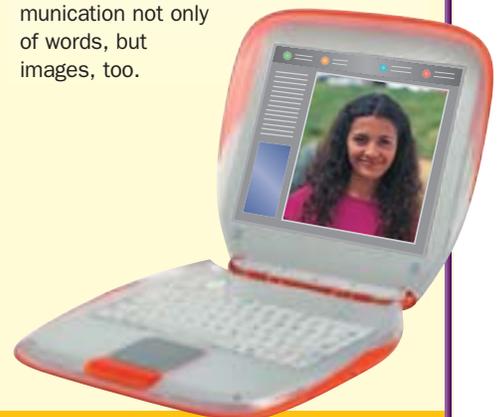
1929

COMPUTERS Scientists develop electronically powered computers during the 1940s. In 1951, UNIVAC I (UNIVersal Automatic Computer) becomes the first commercially available computer. In 1964, IBM initiates System/360, a family of mutually compatible computers that allow several terminals to be attached to one computer system.



1964

INTERNET Today, on the Internet, through e-mail (electronic mail) or online conversation, any two people can have instant dialogue. The Internet becomes the modern tool for instant global communication not only of words, but images, too.





By the 1840s, steam engines pulled freight at ten miles an hour—more than four times faster than canal boats traveled. Passengers found such speeds exciting, although early train travel was far from comfortable, as Samuel Breck, a Philadelphia merchant, complained.

A PERSONAL VOICE SAMUEL BRECK

“If one could stop when one wanted, and if one were not locked up in a box with 50 or 60 tobacco-chewers; and the engine and fire did not burn holes in one’s clothes . . . and the smell of the smoke, of the oil, and of the chimney did not poison one . . . and [one] were not in danger of being blown sky-high or knocked off the rails—it would be the perfection of travelling.”

—quoted in *American Railroads*

Eventually, railroads grew to be both safe and reliable, and the cost of rail freight gradually came down. By 1850, almost 10,000 miles of track had been laid, and by 1859, railroads carried 2 billion tons of freight a year. **C**

MAIN IDEA

Analyzing Effects

C How did new products, communications methods, and transportation methods help the U.S. economy?

New Markets Link Regions

By the 1840s, improved transportation and communication made America’s regions interdependent. Arteries like the National Road, whose construction began in 1811, had also opened up western travel. By 1818, the road extended from Cumberland, Maryland, west to Wheeling, Virginia; by 1838, it reached as far west as Springfield, Illinois.

Growing links between America’s regions contributed to the development of regional specialties. The South exported its cotton to England as well as to New England. The West’s grain and livestock fed hungry factory workers in eastern cities and in Europe. The East manufactured textiles and machinery.

SOUTHERN AGRICULTURE Most of the South remained agricultural and relied on such crops as cotton, tobacco, and rice. Southerners who had seen the North’s “filthy, overcrowded, licentious factories” looked with disfavor on industrialization. Even if wealthy Southerners wanted to build factories, they usually lacked the capital to do so because their money was tied up in land and the slaves required to plant and harvest the crops.

Though the new transportation and communication lines were less advanced in the South, these improvements helped keep Americans from every region in touch with one another. Furthermore, they changed the economic relationships between the regions, creating new markets and interdependencies.

NORTHEAST SHIPPING AND MANUFACTURING Heavy investment in canals and railroads transformed the Northeast into the center of American commerce. After the opening of the Erie Canal in 1825, New York City became the central link between American agriculture and European markets. In fact, more cotton was exported through New York City than through any other American city.

The most striking development of the era, however, was the rise in manufacturing. Although most Americans still lived in rural areas and only 14 percent of workers had manufacturing jobs, these workers produced more and better goods at lower prices than had ever been produced before. **D**

MAIN IDEA

Analyzing Causes

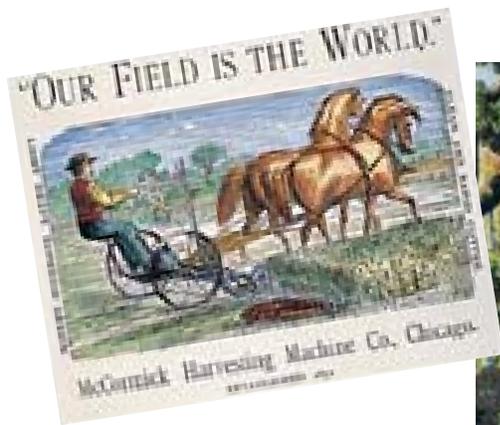
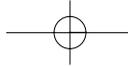
D How did the transportation revolution bind U.S. regions to one another and to the rest of the world?

WORLD STAGE

BRITAIN’S COTTON IMPORTS

By 1840, the American South, the world’s leading producer of cotton, was also the leading supplier of cotton to Great Britain. In all, Great Britain imported four-fifths of its cotton from the South. Cotton directly or indirectly provided work for one in eight people in Britain, then the world’s leading industrial power.

For its part, Britain relied so heavily on Southern cotton that some cotton growers incorrectly assumed that the British would actively support the South during the Civil War. “No power on earth dares make war upon [cotton],” a South Carolina senator boldly declared in 1858. “Cotton is king.”



MIDWEST FARMING

As the Northeast began to industrialize, many people moved to farm the fertile soil of the Midwest. First, however, they had to work very hard to make the land arable, or fit to cultivate. Many wooded areas had to be cleared before fields could be planted. Then two ingenious inventions allowed farmers to develop the farmland more efficiently and cheaply, and made farming more profitable. In 1837, blacksmith **John Deere** invented the first steel plow. It sliced through heavy soil much more easily than existing plows and therefore took less animal power to pull. Deere's steel plow enabled farmers to replace their oxen with horses.

Once harvest time arrived, the mechanical reaper, invented by **Cyrus McCormick**, permitted one farmer to do the work of five hired hands. The reaper was packed in parts and shipped to the farmer, along with a handbook of directions for assembling and operating. Armed with plows and reapers, ambitious farmers could shift from subsistence farming to growing such cash crops as wheat and corn.

Meanwhile, the rapid changes encouraged Southerners as well as Northerners to seek land in the seemingly limitless West.



▲ **Cyrus McCormick patented the first successful horse-drawn grain reaper (above left). The McCormick company grew into the huge International Harvester Company. Their ads helped persuade farmers to revolutionize farming.**



ASSESSMENT

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

- Samuel F. B. Morse
- market revolution
- entrepreneur
- John Deere
- specialization
- capitalism
- telegraph
- Cyrus McCormick

MAIN IDEA

2. TAKING NOTES

Create a time line like the one below, on which you label and date the important innovations in transportation, communication, and manufacturing during the early 19th century.



Which innovation do you think was most important, and why?

CRITICAL THINKING

3. COMPARING AND CONTRASTING

Compare economies of the different regions of the United States in the mid-1800s. Use details from the section to support your answer.

4. DRAWING CONCLUSIONS

Why were the reaper and the steel plow important?

5. ANALYZING EFFECTS

During the 1830s and 1840s, transportation and communication linked the country more than ever before. How did these advances affect ordinary Americans?

Think About:

- the new kinds of transportation
- specific changes in communications
- the new industries of the time period