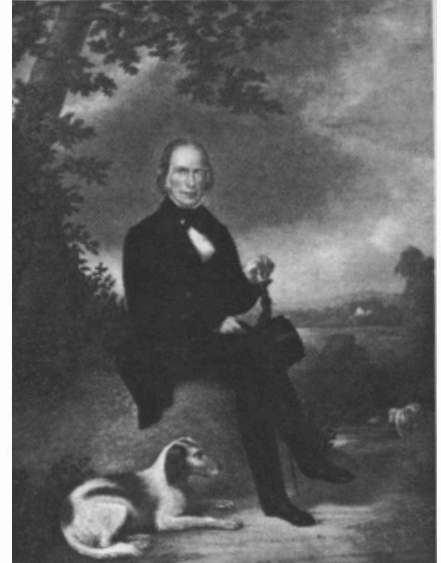


# THE IMPACT OF TECHNOLOGY AND INFRASTRUCTURE

## HENRY CLAY'S AMERICAN SYSTEM

Clay supported several measures he thought were crucial to improving the nation's economy.

1. **Protective tariff** (a tax on imports): The American System called for a tariff to help US manufacturing continue to grow and compete with other nations. During the War of 1812, US manufacturing grew and improved because the US could not trade with Great Britain and other European powers. Once the war ended, however, US manufacturers once again had to compete against foreign producers.
2. **Internal improvements**: Clay called for better canals, roadways, and railways. He believed construction should be funded by the federal government's tariff revenue. By improving transportation, different US regions could engage in trade with one another much easier. Clay argued it would unite the country, increase a sense of nationalism (pride in one's country), and lessen the United States' dependence on foreign countries.
3. **A Strong National Bank**: Alexander Hamilton's first national bank no longer existed because its charter (document giving it the legal right to exist) had expired. Without a national bank, states issued their own money. This made it very difficult for states to trade. People traveling from one state to another often found themselves with money they could not easily use. Clay believed a national bank was necessary to make sure everyone used the same kind of paper money, making interstate commerce easier, and strengthening the economy.



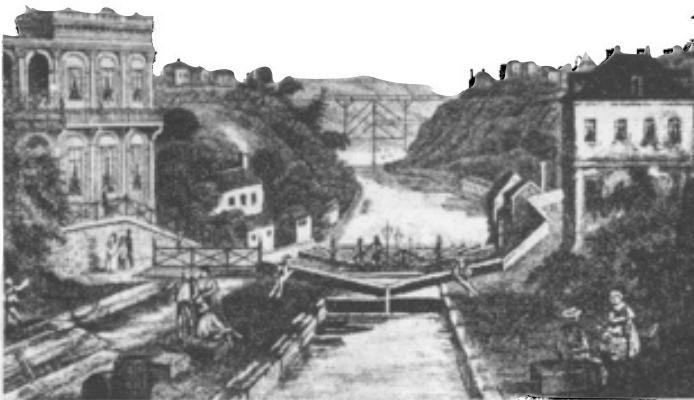
Henry Clay

Clay, however, underestimated the nation's growing **sectionalism**. Sectionalism refers to the differences that divide people by region. Southerners tended to believe that the federal government should restrict itself to powers specifically stated in the Constitution. They favored more power for the states. Many southern leaders believed that they could refuse to enforce federal laws they saw as unconstitutional or harmful. Northerners were more prone to support a strong central government. Southerners opposed tariffs like those proposed by Clay because they raised the price on manufactured imports and invited other countries to impose tariffs of their own. Such actions hurt the South's ability to sell cotton and other agricultural products overseas. Northerners, however, supported tariffs because they made imports more expensive. The more expensive imports, the more attractive US products were to consumers. Clay's national bank had problems also. Many small landowners distrusted the bank. They blamed it for economic problems that faced small farmers.

## CUMBERLAND ROAD AND THE ERIE CANAL



**The Cumberland Road**



**The Erie Canal**

As white Americans moved west, the need to improve infrastructure increased. **Infrastructure** is what provides the framework and connections for holding something together. For instance, in a country like the United States, infrastructure includes roads, rail lines, canals (canals are man-made waterways meant to make travel faster and easier), and so forth. In 1811, the federal government began construction on the **Cumberland Road**. The road began at

Cumberland, Maryland, and by 1819 extended through Virginia to the Ohio River. Construction continued with the intent to run the road all the way to St. Louis, Missouri. When funding ran out, however, the Cumberland Road (also called the National Road) stopped in Illinois. The road helped make travel much easier and opened the way for more people to travel west.

The government completed another major project in 1825. The **Erie Canal** provided a new shipping route from Lake Erie to the Hudson River. Because it connected New York City to the Great Lakes, the canal expanded New York's markets and made the city a major commercial center. It also allowed people to travel much cheaper, carrying their household goods with them. Whole families could move west easier than before. Along with Robert Fulton's invention of the **steamboat** (boat powered by steam), the Erie Canal boosted the economy of New York City and the northeastern United States.



**Robert Fulton**

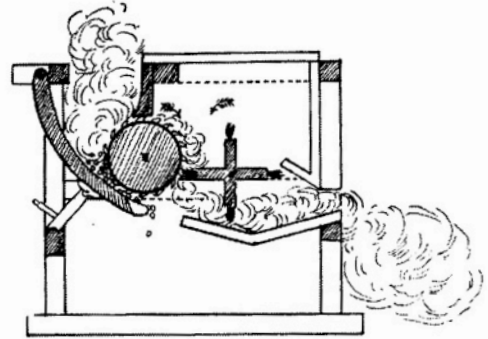
# IMPORTANT TECHNOLOGY

## THE COTTON GIN



Eli Whitney

Important new technology accompanied the nation's expansion. One of the earliest to have impact was Eli Whitney's **cotton gin**. Whitney's machine allowed people to process harvested cotton much faster and



The Cotton Gin

made the South a "cotton kingdom" (economically dependent on cotton). Many southern plantation owners got rich as people in both the US and overseas demanded more cotton. As the cotton gin led to a boom in cotton plantations, the South became very dependent on slave labor. The invention also encouraged western migration. People moved west in hopes of raising cotton and earning their fortune. The cotton gin and other agricultural inventions helped fuel support for slavery in new US territories in the years after the War of 1812.

## THE STEEL AND MECHANICAL PLOW

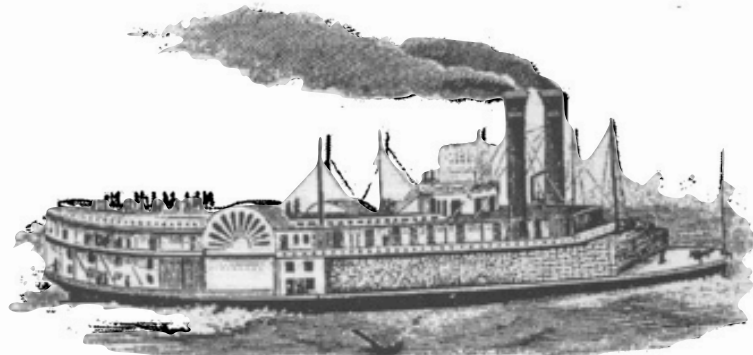
The terrain of the Great Plains and the Midwest proved to be much harder than that of the eastern United States. Farmers could not rely on the same old equipment and methods to grow crops. Without new inventions, agriculture would have been difficult, and people could not have migrated west in great numbers. John Deere introduced his **steel plow** in the 1830s. The steel plow allowed farmers to cut through the tough prairie sod of the Midwest and plant seed in the fertile ground beneath. Later, **mechanical plows** allowed farmers to plow more territory faster. Thanks to such inventions, the Midwest eventually became known as the "Breadbasket of America." Today, it supplies a large portion of the United States' agricultural supply and much of the farm produce that feeds the rest of the world.



Farmer Using Steel Plow

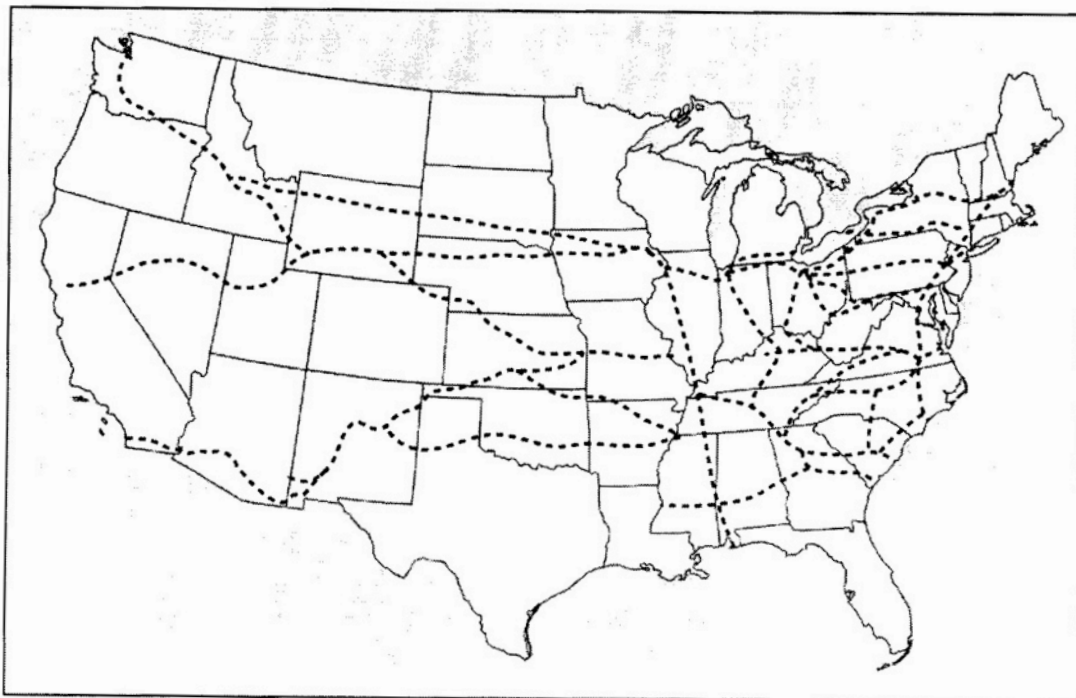
## THE STEAMBOAT

As mentioned earlier, the **steamboat** proved to be an important invention. Previously, boats had to be powered manually, or they relied on sails. People could only paddle so fast, and sails left crews and passengers at the mercy of the wind. Steamboats provided a much faster and more efficient means of traveling by water. Coupled with canals and available river routes, steamboats allowed interstate trade and commerce to increase and contributed to expansion by providing a more efficient means of transportation.



Steamboat

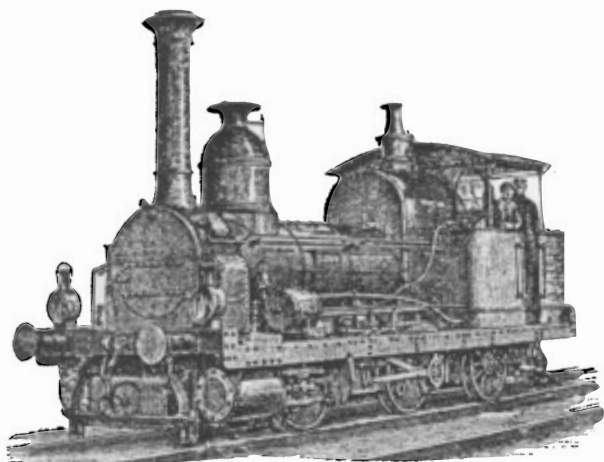
## RAILROADS



1800s Industrialized Railroad System

As the 1800s progressed, the US continued to expand and become more and more industrialized. **Railroads** played a major role in this industrial growth and expansion. Railroads contributed to the rise of the steel industry and big business. In the 1850s, a man named Henry Bessemer developed a new method for making steel, known as the Bessemer process. Using this process, manufacturers could make steel much cheaper. As a result, steel became more affordable, leading to faster expansion of railroads and more construction. Thanks to steel,

buildings could be constructed taller than ever before. By building taller buildings, cities like New York could hold more people and industry even though land was limited. Steel became very important to the nation's economy.



1800s Railroad Engine

Before railroads, most goods had to be transported by water. You couldn't load something like steel beams on wagons and transport them over land very easily. Even if you tried, you would not be able to haul very much. Water was the only way to transport large amounts of heavy products.

Unfortunately, shipping products by water meant that you had to follow the route of the river you were navigating. Goods could only reach certain areas and a limited number of people. Railroads changed this. Since railroads were much larger and faster than wagons, they

became a practical and economical way to ship large products over land. Because of their ability to carry goods and resources great distances, railroads became important to the growth of big business.



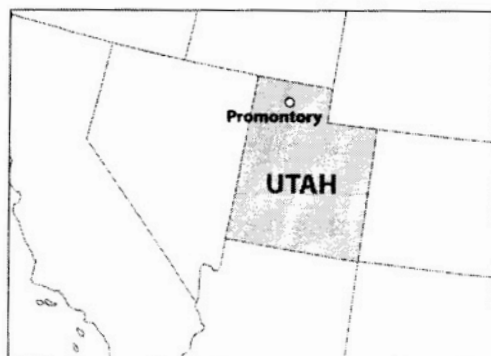
Western Cowboy

Railroads also made life in the West easier. They allowed farmers, ranchers, and other settlers access to eastern markets and resources. Railroads opened a way for farmers to import needed equipment from the East while shipping their own products to different parts of the country.

Meanwhile, western cattle ranchers could drive their cattle to "cowtowns." **Cowtowns** were western towns that formed mainly as a place where ranchers could load their cattle on trains and ship them east to market. Thanks to railroads, farmers and ranchers could settle in western territories without being totally isolated.

Railroads also made it easier for people to move west and populate territories at a rapid rate. In 1862, Congress coordinated an effort among the railroad companies to build a **Transcontinental Railroad**. Union Pacific (an eastern rail company) and Central Pacific (a rail company from Sacramento, California) joined their tracks at Promontory, Utah, in 1869. As a symbol of their union that linked the nation east to west, representatives drove a gold spike to join the tracks.

Railroads



Promontory, Utah