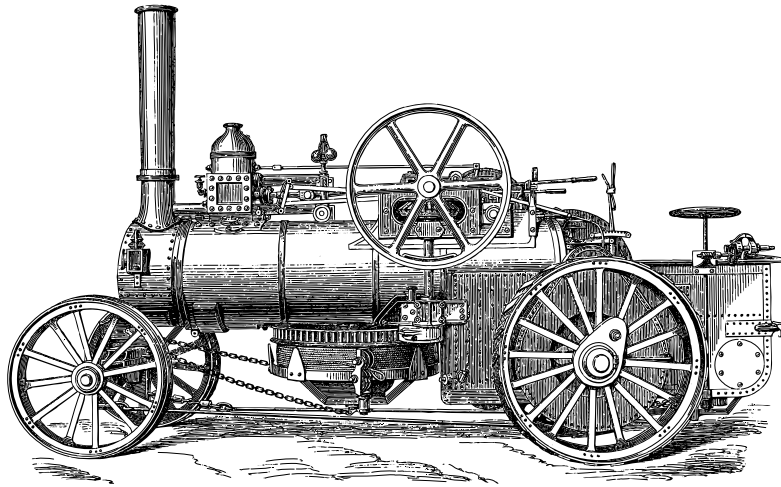


◆◆◆◆◆ THE HISTORY OF TRANSPORTATION IN ◆◆◆◆◆ NORTH CAROLINA (PART 3)

STEAM POWER AND RAILROADS AWAKEN THE RIP VAN WINKLE STATE

◆ **Learning Outcome:** Students can explain how the invention of the steam engine, the railroad, and the internal combustion engine changed North Carolina in the 1800s. ◆



Steam Engine

In the year 1800, it was not easy to travel across our state. However, transportation was about to become much easier in North Carolina and throughout the United States as the result of one very important invention: the **steam engine**. Steam is powerful. It can push the lid off a pot of boiling water, and it can power an engine to move a boat, a train, or a machine in a factory. Although people had been trying to invent a powerful and efficient steam-powered engine for hundreds of years, in 1776 (the same year that the United States declared

its independence) a Scottish inventor named James Watt built the first steam engine that could be used for transportation. In 1807, Robert Fulton invented the world's first working steam-powered riverboat, which turned rivers into two-way highways on the water. A steam-powered riverboat could travel against the current of a river, so people could now travel by riverboat in both directions ("**downriver**" in the direction of the current and "**upriver**" in the opposite direction).

On land, steam engines were not powerful enough to move a car along America's muddy roads (or even on a paved road, if any had existed at that time). However, inventors in England discovered that if they attached a pair of smooth metal rails to a long road made from wooden planks (creating a "rail-road"), a steam-powered engine would have enough power to pull a "train" of carriages over the rails for a long distance. This discovery led to the creation of the first **railroads** and steam-powered trains. Inventors also discovered that they could build steam-powered tools to make it easier to build railroads and other roads.

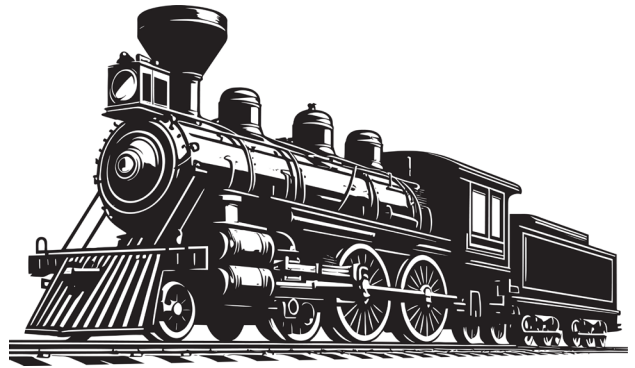
Once entrepreneurs built railroads across the state, it didn't matter as much that North Carolina didn't have many large seaports or big rivers flowing directly into the Atlantic Ocean. It was not easy to build a railroad, but it was not any more difficult to build one in North Carolina than in Virginia or South Carolina. North Carolina was no longer at a disadvantage when it came to transportation.

The first train in North Carolina was the Wilmington & Raleigh Railroad. It started service in 1840. By 1860, railroads linked

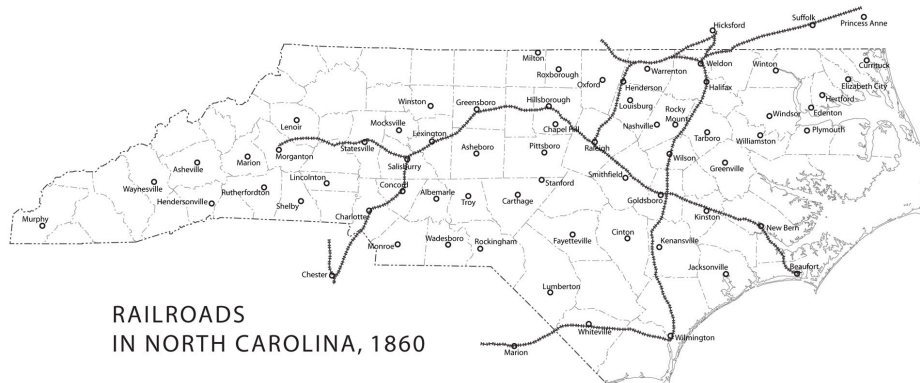
VOCABULARY WORDS

- ◆ Steam engine
- ◆ Downriver
- ◆ Upriver
- ◆ Railroads
- ◆ Charter
- ◆ Investors
- ◆ Profit
- ◆ North Carolina Railroad Company
- ◆ Internal combustion engine
- ◆ Petroleum
- ◆ U.S. Interstate Highway System

the port city of Wilmington to the inland cities of Raleigh, Greensboro, Salisbury, and Charlotte. Soon, North Carolina's railroads were connected to the railroad lines that were being built in South Carolina and Virginia, so people and cargo could easily travel to and from other states. As a result of steam-powered railroads, North Carolina's western mountains were also not as much of a barrier. By 1860, North Carolina's railroad system stretched all the way to Morganton (which is not far from Asheville or Boone). Eventually, a railroad line was built across the mountains into Tennessee and beyond.



Most railroads were organized as private companies. First, a railroad company had to get a **charter** (official permission) from the North Carolina General Assembly (the Legislative Branch of the North Carolina government). **Investors** (people who wanted to earn money from the success of the railroad) paid money to buy a "share" of the company. For example, if an investor bought a 10 percent share of a company, he or she would own 10 percent of the company for as long as it existed. When the company made a profit (profit is the money earned by a company after it pays all of its expenses), the investor would get a percentage of the profit. Sometimes the state of North Carolina also invested tax money in railroad companies with the hope of eventually earning money from the success of the railroad.



For example, in 1848, the North Carolina General Assembly gave a charter to the **North Carolina Railroad Company** to build a railroad that would connect towns in the middle of the state to the coast. The North Carolina government invested two

million dollars, and private investors (people investing their own money — not the government's money) invested an additional one million dollars. When it was finished, the railroad was 223 miles long, stretching from Goldsboro to Charlotte.

THE INTERNAL COMBUSTION ENGINE “REVS UP” NORTH CAROLINA

Later in the 1800s, inventors built an even better type of engine. In 1879, a German inventor named Karl Benz built the first reliable internal combustion engine. An **internal combustion engine** is powered by gasoline or some other fuel made from **petroleum** (a thick oil that easily catches fire and is found underground in some places). Internal combustion engines produce much more power than steam engines. When trains began using internal combustion engines, it became easy for them to travel, even in areas with many mountains.

The invention of the internal combustion engine made it possible for other inventors to build cars

