

This Day in History... August 28, 1830

Tom Thumb Proves the Power of Steam

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By 1830, railroads were already beginning to take hold in England, where steam engines were pulling heavy loads across long distances. American businessmen and engineers were paying close attention. In Baltimore, a group of merchants had founded the Baltimore and Ohio Railroad (B&O), the first major railroad in the United States, chartered in 1827. The goal was to connect Baltimore with the Ohio River, providing a faster and cheaper route for goods to reach the West. At first, however, the B&O used horse-drawn cars on its tracks. Many investors and directors doubted whether steam locomotives could handle the rough American terrain, which was hillier and less predictable than England's flat, well-built lines.

Convinced that the proposed Baltimore and Ohio Railroad would increase land prices in Maryland, Peter Cooper, an inventor and businessman from New York, purchased 3,000 acres and began developing them. When the railroad experienced technical issues, Cooper saw his investment was in danger. He decided to develop his own locomotive to help get the railroad back on track. Cooper hoped to convince the owners of the B&O Railroad to use steam engines.

Though he had little experience in locomotive design, Cooper built a small prototype engine in 1830 using improvised parts, including the use of rifle barrels for boiler tubes. Nicknamed *Tom Thumb* because of its tiny size, the locomotive weighed less than a ton and had a simple vertical boiler about the size of a large barrel. Steam from the boiler powered pistons, which in turn drove the wheels through a system of gears and belts. A blower fan helped keep the fire burning hot by pushing air into the furnace. Though the machine looked more like a workshop experiment than a train engine, it was an ingenious design that could reach speeds of 10 to 15 miles per hour—faster than any horse-drawn car. It was the first American steam locomotive to be used on a common-carrier railroad and pulled one of the very first passenger trains.

Cooper offered to demonstrate his creation on the B&O Railroad to prove that steam was the future. The demonstration began on August 28, 1830, on a section of track between Baltimore and Ellicott's Mills (today's Ellicott City, Maryland). At first, the little engine amazed onlookers as it pulled a passenger car filled with B&O directors. The train sped along smoothly, proving that a machine could indeed replace horses. However, not everyone was convinced. To make the test more dramatic, someone suggested a race between *Tom Thumb* and a traditional horse-drawn car on a parallel track. The idea quickly took hold, and soon the race was on.

The contest drew widespread attention, with workers and curious spectators lining the tracks to watch the showdown. At the start, *Tom Thumb* leapt ahead, its steam hissing and wheels clattering. The horse and car tried to keep pace, but the engine steadily pulled away, reaching speeds close to 15 miles per hour—a thrilling sight at the time. For much of the race, the locomotive held a clear lead, demonstrating the raw power of steam.

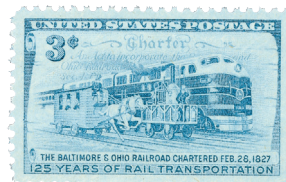
But then fate intervened. The *Tom Thumb* suffered a mechanical failure when the belt driving its blower slipped off. Without the blower feeding air into the firebox, the fire cooled, steam pressure dropped, and the locomotive began to slow. The horse-drawn car, steady and reliable, passed the struggling machine and reached the finish first. To onlookers, it seemed as though the horse had triumphed. Yet the directors of the B&O Railroad were not fooled. They had seen what the little locomotive could do when it was running properly, and they realized that steam power was vastly superior in the long run. One breakdown did not erase the promise of the technology.

The demonstration convinced the B&O Railroad to invest in steam locomotives, and soon larger, more reliable engines were imported from England and built in America. Within a few years, horse-drawn cars disappeared from major rail lines, replaced by powerful locomotives capable of pulling heavy loads at higher speeds.

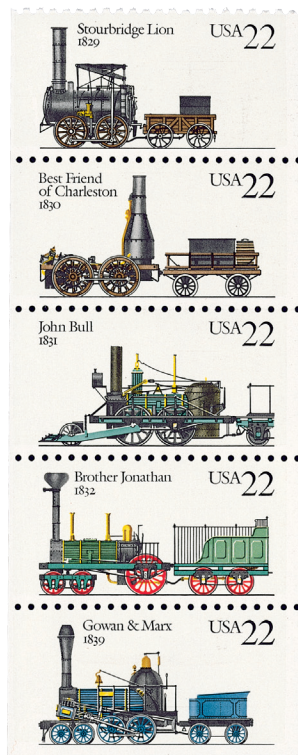
Railroads expanded rapidly across the United States, transforming commerce, settlement, and travel.

Peter Cooper himself went on to become a successful industrialist and philanthropist, though he did not pursue locomotive design further. He later became famous for founding Cooper Union, a college in New York City dedicated to providing free education in the arts and sciences. But his role in building the *Tom Thumb* secured his place in American history as a pioneer of steam railroading.

The *Tom Thumb* itself did not survive long, as it was only an experimental machine and was never intended for long service. Though it was later disassembled, Cooper wrote down a detailed description of the train, which allowed for the creation of replicas in later years.



Stamp issued for the 125th anniversary of the B&O Railroad charter. It pictures the Tom Thumb race as well as a streamlined diesel train.



Stamps picture five historic steam locomotives.

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