

George Stephenson, “The Father of Railways”

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While high-speed rail development continues around the world, let's take a minute to consider the achievements of George Stephenson (1781–1848) – “the father of railways” and inventor of the first commercial locomotive and other significant achievements.

Born in England in 1781 near Newcastle, to illiterate parents and the son of a coal miner, there was no money available for formal schooling. So Stephenson did farm work, including cow-herding. Soon, at age 10, he's driving the horses that carry the coal carriages on the tramway going past his family's one room cottage. Everything in the area revolves around the local pit and the rapidly expanding coal industry. One of George's next jobs is picking stones out of the coal.

He then went on to working on the mining machines that lift miners up and down into the mine. After finding work as an engine man, at 17, Stephenson paid for his own night school education. At 18, he can now read, write and do arithmetic. Married at age 19, the couple lives in a one room cottage, and a year later, his first son is born. For extra income George does cobbling and repairs clocks along with his regular job. Sadly they have a daughter, who at three weeks old dies, followed just months later by Stephenson's wife.

Now looking for work, Stephenson is forced to leave his son and go to Scotland, but he returns to care for his father when he's blinded in a mining accident. When Stephenson figures out how to repair a broken pumping engine, he's put in charge of all the mine equipment. He then proceeds to breaking down and reassembling machines and engines whenever possible, and develops an intricate understanding of steam-driven machinery. In 1814, Stephenson combines the tramways and the steam engines to make the first commercially viable

locomotive. ‘Blucher’ is built to haul coal and is named after the Prussian General who speed-marched his troops to help defeat Napoleon at Waterloo. The top speed of the Blucher is 4 mph. This may be slower than a horse can travel but the trains' eight wagons carry far more coal, thus hastening the end of horsepower.

But the Blucher is prone to repeatedly breaking down, and its power and weight chew up the tracks. However each break-down spurs Stephenson onto another solution. In 1819 he creates an eight mile railway in Sunderland — *the first railway to be solely machined powered*. He patents his own cast iron rails and two years later he's appointed engineer for the construction of the Stockton and Darlington railway. When Stephenson finds another man has invented better rails, he acknowledges that sometimes the best idea is somebody else's; he scraps his own invention and despite the cost uses the improved version. Stephenson, now remarried, opens his railway in 1825. It's the first public railway in the world. The first locomotive on it is the aptly named “Locomotion.” The company, set up with his son Robert, is the first in the world to build locomotives.

Significantly, Stephenson sets the width (or gauge in train-speak) between the rails at four feet eight and a half inches. Stephenson's measurement will become the standard width first throughout Britain, and then the world.

Stephenson and Brunel would clash many times over their different visions for rail as their Northern and Western Lines come perilously close to each other. In 1829, railway owners staged a competition to find the best locomotive. Mindful of destroying the rails, only machines under six tons could compete. Ten locomotives apply. Five fail to make race day. Two further fail because of mechanical problems. Thousands of spectators witness Stephenson's ‘Rocket’ achieve a record 36 mph and take the prize. With that, Americans flock to him, desperate to take his trains and techniques back with them to the U.S.

In 1830, the Prime Minister and hero of Waterloo, the Duke of Wellington, is just one of the VIPs to attend the opening of the Liverpool and Manchester railway in 1830. Stephenson now receives more work and more money than he can handle. Excavations for his railways discover coal-fields that make him rich enough to buy land and a large house. He tours England talking about how rail took him from rags to riches.

On August 12, 1848, Stephenson died in Chesterfield, Derbyshire. The inventions he leaves behind accelerate the industrial revolution and help make the modern world. 

