

Richard Trevithick Biography

Richard Trevithick

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Biography

Contrary to the beliefs of the time, Richard Trevithick proved that pressures higher than the atmosphere's could be safely used to power machinery.

Trevithick was born in Cornwall, England, on April 13, 1771. His father managed a coal mine near there, and Richard had an early exposure to the steam engines made by James Watt. When Watt's patents expired in 1800 Trevithick built a double-acting engine, which was used in sugar mills, corn mills, ironworks, and pumping stations throughout South Wales. With pressures above 145 pounds per square inch, Trevithick's high-pressure engines could safely use a smaller cylinder to produce more power. Additional power was tapped by releasing waste steam into the smoke stack to increase the fire's draft and temperature.

Trevithick applied many of the same principles towards building a locomotive, which, on Christmas Eve 1801, carried passengers a short distance over a poor road. This demonstration proved that smooth metal wheels meeting a smooth metal track could indeed create enough friction to move weight. An 1804 model, the *New Castle*, was tested on an existing horse-tram route with cast-iron rails. Unfortunately, this locomotive broke the rails. Many of Trevithick's discoveries and principles were used by George Stephenson and Robert Stephenson, who eventually were called the "parents" of steam-powered railway transportation.

In his later years, Trevithick spent time designing dredging and threshing machines. He attempted to dig a tunnel under the Thames River using a dredger he created, but was unsuccessful, and the venture bankrupted him. Trevithick left for Peru and Costa Rica in 1816 where he planned to introduce his improvements to the steam engine, and his plan for linking the Atlantic and Pacific Oceans by rails. He was again unsuccessful in this venture and after borrowing money from Robert Stephenson, who was now rich from profits gained through railways that relied on many of Trevithick's ideas, returned to England. He died in poverty in 1833, and was buried in an unmarked grave only after the men in his workshop contributed enough money for his funeral.