

# Transport Revolution – Railways

## Definition of railways

What we call a 'railway' combines two totally different ideas. Loads had been hauled on rails (or tramways) since the 17th century, when it was realised that horses could pull far more on a smooth surface than on a road. In the late 18th century the hauling was done by a stationary steam engine and a cable. Not till the early 19th century were rails coupled with steam locomotives to do the pulling.



*Puffing Billy Steam Engine*

## Richard Trevithick (1771-1833)

A Cornish engineer, in 1802 he patented a high-pressure engine light enough to be carried on wheels. He then saw that the engine could turn the wheels. In 1804 he was the first to put a self-driven steam engine on rails and attach a 'train' of goods wagons and passenger coaches. The inventor and pioneer of the steam locomotive, he got no credit for his achievements and died penniless.

## George Stephenson (1781-1848)

After spending twenty years repairing, improving and building steam locomotives, he was appointed engineer to a new railway linking Stockton & Darlington. He was responsible for the decision to haul the coal wagons by steam locomotives instead of horses. This was the first public locomotive railway but locomotives still had to prove themselves.

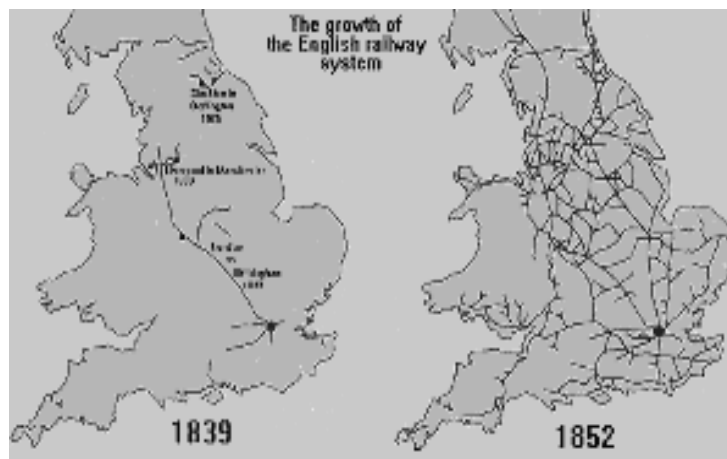
In 1824 a group of Lancashire merchants resolved to undercut the expensive Bridgewater canal with a railway from Manchester to Liverpool. The resulting company appointed Stephenson as engineer of the line. But it was sabotaged by turnpike trusts, canal owners and early 19th century conservationists, while landowners ordered their gamekeepers to beat up railway surveyors. They objected that locomotives would terrify country yokels out of their wits, sour cows' milk, strop hens laying and allow the urban masses to invade the countryside. At 15 m.p.h. engines would explode and human beings disintegrate. But the company played down the need for steam locomotives (Stephenson was the only one convinced of their necessity) and in 1826 Parliament authorised it to compulsorily purchase the necessary land. In 1829 it staged the Rainhill Trials to decide whether to use locomotive or stationary power. The issue was decided by the easy victory of Stephenson's locomotive, the 'Rocket'. The Railway Age had begun.

## Robert Stephenson (1803-59)

The success of the Manchester-Liverpool railway ensured many imitators. Three days after its opening Robert and his father George Stephenson were appointed to build a railway from London to Birmingham. 20,000 navvies took four years to build its 112 miles and Robert master-minded cuttings, tunnels, viaducts and embankments. Euston Station was built as the London terminus and the line opened in 1825 at a total cost of £5,500,000 - £275,000,000 in today's money.

## Isambard Brunel (1806-59)

Chief Engineer of the Great Western Railway from London to Bristol, he built the line from 1825 to 1841. It was a masterpiece of surveying and construction but he lost the 'battle of the gauges', Parliament deciding against his 7 feet width between the rails and prescribing Stephenson's 4 feet 8 inch gauge for all future lines.



## Impact of railways

By 1852 over 7000 miles of track had been built and the modern railway system was in place. This was achieved without modern excavating equipment and without much government intervention. Apart from authorising compulsory purchase of the land required and imposing minimum safety regulations, Parliament left railway development to private capital. The resulting free-for-all produced much duplication. Desire for quick profits fuelled railway mania and people rushed to invest in newly promoted companies, many of them half-baked or fraudulent. By 1844 there were 104 different railway companies, plus three separate lines from Liverpool to Manchester in competition with one another. Yet the impact of railways was incalculable - along the same lines as turnpikes and canals but far more profound.

1. Creation of a huge new industry, employing millions of people and consuming vast quantities of coal, iron and steel
2. Massive boost to other industries - cheaper transport and wider markets, as well as demand for coal, iron and steel
3. Beginning of travel for ordinary people - start of seaside excursions
4. Disappearance of local variations between different parts of the country (Previously clocks in different areas showed different times but now there was one 'railway time'. National newspapers could be sent swiftly all over the country, so all read the same stories. The same raw materials, manufactured goods and agricultural produce were now available everywhere. National trade unions and political parties could be set up. Regional accents began to disappear or became less exaggerated.)
5. Growth of new suburbs once city workers were able to commute from them, as well as new railway towns like Crewe and Swindon
6. End of coaches and canals - until their acquisition of Heritage status!