A rail revolution: Dan Snow on the meteoric rise of British railways

Why did the railway revolution come to Britain first?
Coal was a massive reason for this. Because of the nascent industrial revolution in the 18th century and because there were no big indigenous forests left in the country, Britain, and London in particular, needed energy from coal.

London had a voracious appetite, so the coal trade was absolutely booming in a way that it wasn’t elsewhere in the world. That coal was arriving by ship from Newcastle down the east coast, and in order to take the coal to Newcastle there was a huge network of trackways right across north-east England. Trackways – used initially by horses and carts – created much less friction than travelling over the rough ground.

It was only a matter of time before people started experimenting with steam engines on these trackways. Britain had already done a lot of the early running in the development of steam power, using it to pump out deep mineshafts in particular. By the late 18th century people started thinking about using steam engines to pull these carts up and down the tracks.

So the industrial revolution created the railways, not vice versa?
Yes, absolutely. Particularly, as I say, this need to move large volumes of heavy coal. The engineer George Stephenson began working in the collieries and the British standard rail gauge began as the gauge of a trackway in the north-east of England. Of course the railways did themselves give an enormous boost to the industrial revolution.

Was the development of the railways a collective process or more the result of geniuses such as the Stephensons?
It was a collective process. If you look at George Stephenson, he spent his early engineering career working in the coalmines of County Durham where people were experimenting enormously with transport. He was right in the middle of that and was then able to enlarge on what he’d seen to build the Stockton and Darlington railway. This was the first serious railway in history. It was built primarily to transport coal to Stockton-on-Tees, doing exactly what trackways had been doing for years but finally with a moving steam engine.

There was a massive hub of exciting developments going on in north-east England at the time. George Stephenson learned from them, perfected them, and added his little touch of genius as well but it didn’t burst fully formed out of Zeus’s head like Athena. He was building on what had gone before.
How much impact did the British landscape have on the development of railways?

Britain was the right country for railways to come to first. They were manageable propositions because all you had to do was transport things to the nearest water and, as an island nation, we’re never very far from that. It was different when they brought railways into Canada, for example, where they had to build over vast distances with titanic sums of venture capital being required.

The Stockton and Darlington railway was about 26 miles long and the subsequent Liverpool and Manchester line wasn’t a huge amount further. There weren’t bewilderingly large distances involved. Also, the landscape, while being challenging, wasn’t catastrophically difficult, which would be the case in other parts of the world.

Nineteenth-century Britain witnessed a railway fever. How was such rapid pace of growth achieved?

It was partly because an incredible virtuous circle was created. In the first 20 years of the railways’ existence, iron and coal production tripled thanks to the added efficiencies provided by this new form of transport. The appetite for iron increased enormously too because you needed it to make trains and tracks.

There was also a huge, unexpected, desire to ride on these trains. It was thought that early railways would be largely for coal and goods but instead they proved overwhelmingly popular with people, passengers. This meant they were fantastically successful and they made money.

Some later railways ended up losing a vast amount of money but early on there was simply a massive market for them. By 1840 there were 2,000 miles of tracks but by 1900 there were over 23,000 miles. It was extraordinary and it shows that there was a lot of money in Britain at the time. There was (without wishing to sound like a Marxist) a kind of under-taxed elite looking for opportunities to invest the surplus value that they’d earned from textile mills, coalmines, iron foundries and things like that. This money was being ploughed into railways, which were very attractive investment opportunities.

Britain was a country where this was all doable. You could join up Birmingham and London or Liverpool and Manchester. These industrial hubs were being gradually connected and it created its own momentum.

Did the growth of the railways attract any opposition?

There was hostility from romantic poets and lovers of the countryside – although frankly that was brushed aside. There was more problematic opposition from a class of landed aristocrat who did not want railways to infringe their property rights. The original plan for the Liverpool and Manchester railway was actually defeated at the committee stage in the House of Commons because MPs thought it was a harebrained scheme and landowners didn’t want members of the public crossing their land.

In addition there was the extreme hardship suffered by many of the navvies, who could be paid well but also had high mortality rates and extremely tough lives. These people were virtually enslaved to the building of the railways because their salary was often
used up buying food and alcohol and they ended up permanently indebted to the companies they were working for.

Then of course there were the slums that were cleared. People in north London were turfed out of their houses as the line from Birmingham came into the city, with virtually no compensation. Charles Dickens writes about this memorably. It was felt that these people couldn’t be allowed to get in the way of modernity and so they were left with nowhere to go.

Aside from the industrial and transport revolutions, how else did railways affect Britain?

They affected the country in virtually every way imaginable. What I find fascinating is simply the scale of it. This was one of the biggest building projects in history, more significant than the Great Wall of China, the Roman road system or the pyramids. One of the reasons it was so amazing was that unlike those previous projects it was built with private investors’ money. It was the first democratic infrastructure boom and that is crucially important.

Not a penny of the funding for the early railways came from the public purse. It all came from private individuals, from the very rich right down to people giving a tiny part of their meagre paycheck because they wanted to become investors.

There was virtually no part of public life that remained unaltered. Railways changed the way people lived and worked, what they ate and even what they read. Penguin Books famously originated on a railway platform and WHSmith developed through railways. They give birth to the consumer revolution. Thomas Cook was born on the railways. His first expedition was a temperance excursion and he went on to make vast amounts of money taking people to the seaside on trains.

However, the railways were also the enfant terrible of the 19th century because no one really knew where it would end. The railway mania eventually brought about the legendary financial collapse of 1866. It brought the British banking system to its knees. Not even Napoleon managed that.

As someone who has studied the navy and maritime history I am also conscious of the way railways inverted our understanding of how the world works. Before the 19th century, human beings were largely a littoral species. We lived along coastlines and rivers. The great cities of the world like London, Paris, Beijing and New York were dependent on waterborne transport for their trade. The sea was a bridge linking one place to another and it was actually the land that was hostile. The Pennines were virtually impassable, but if you were in Newcastle you could sail to London no problem.

Yet within a generation the railways carved links to the landscape that forever changed the way we thought about our place in the world. Suddenly we saw the sea as slow and hostile and the land became the bridge. Entire countries and empires were carved out of this. It’s not an exaggeration to say that modern Russia, the USA and Germany were created by railways. Without them, they wouldn’t have been able to bind these vast, sprawling places into one state.
In the end the railways actually undermined the legitimacy of the British empire. There was a new focus on land communication and so it became illegitimate for Britain to own these territorial possessions on the other side of the world, linked by water. America is just as much an empire as the British empire was but because it’s joined and you can travel over it by land there are far fewer questions about its legitimacy. These huge continental-sized nation states were developed – and Britain, in the end, simply could not compete.

**Did the railways also create a new mentality in Britain?**

They created a national mentality in many ways. Railways bind people together, enabling them to organise themselves nationally, quickly. Trade union activism and Chartism, for example, would have been impossible without the railways. Newspapers could travel around the country almost instantaneously and there was a huge movement of goods and people, which brought about a nation state where one had not existed previously.

Railways also introduced a national time. Various towns around Britain once had their own time zones, which was fine then, but when you have train timetables you need to have a national timetable. The time in London became the time everywhere else.

**What did the railways mean for Britain as a military power?**

They had a huge impact, starting with the Crimean War. They were vital in the First World War, where millions of tonnes of supplies were carried to the battlefield on rail. The early tanks, for example, couldn’t possibly go overland all the way between battlefields so they were all carried on the backs of trains. Most of the men who were taken to France arrived at ports like Folkestone and Southampton by railway.

However, in the longer term a situation developed that, because landed transport became so much easier, Britain’s naval domination mattered less. In the First World War Germany was able to get materiel and supplies from the whole of Europe by rail in a way that Napoleon, for example, couldn't have done. Whereas France had been strangled by Britain’s blockade, Germany had access to lots of the natural resources of Eurasia that could be moved using the railways. Britain’s naval blockade did bite in the end but it took quite a long time for this to happen.

**When did the railway age come to an end and why?**

It was partly because of under-investment during the Second World War and state ownership afterwards, and partly because of a fashionable obsession with the new motor car. There wasn’t the rapid electrification of trains that would have reduced journey times and put up more of a fight against the encroaching of the car.

In many ways, of course, the railway age hasn’t ended. There are still a vast number of journeys being made each year on Britain’s railways and there’s talk now of high-speed rail, which could give it a new lease of life. What’s also interesting is the fact that the first motor cars were just trackless steam engines, so in a way I always see a smooth transition from the train to the motor car.