

George Stephenson (1781-1848) He Started Britain's Railways

The man whose name is connected with the first railway is George Stephenson. He is often called «The Father of Railways».

George Stephenson was the son of a poor English worker who lived eight miles from Newcastle. Stephenson's father worked twelve hours a day for twelve shillings a week, and on that very low wage he had to support six children. The Stephensons lived in one room of an old house. They were too poor to pay for their children to go to school, and very often they could not even buy clothing for them. So George and his brothers and sisters grew up illiterate and went about cold and barefooted. But in spite of their poverty, they were a united family. George always helped his mother, who worked very hard. He looked after his younger brothers and sisters at home. He was kept busy all the time watching the children, because the road in front of the house was very dangerous: coal was transported along it by horses. And every day at midday George took his father's dinner along to the mine to him.

He had to work to help his parents and his first job was that of cowherd. Of course, he was not satisfied with it and wanted to work with his father who looked after a small steam-engine which pumped water out of a mine.

When Stephenson was eight he began to work in a mine, but he was not allowed to work with his father on the engine until he was fifteen. At first he had to drive horses. Then his job was to put coal on the fires under the boilers from which the engine got the steam that gave it power.

For two years he worked in this way. He learnt everything he could by watching the older men and asking them questions. They saw he wanted to learn and helped him.

George Stephenson began to dream of becoming a great engineer, like James Watt. But he felt his lack of education and realized that he could never be really successful until he could read and write. He knew that he must study the theoretical, as well as practical, side of engineering, and that the best way he could do this was to read about the inventions and experiences of such engineers as Watt. So he decided, when he was seventeen, to learn to read and to spend part of his weekly wage and all his spare time on educating himself.

Three evenings a week, after a tiring twelve-hour shift at the pit, George walked a long distance to a young teacher to be taught the alphabet, and how to spell simple words. On his eighteenth birthday he managed to write his own name for the first time.

As soon as George could write a few sentences he decided to extend his knowledge by learning arithmetic, a most important subject for an engineer. At the end of each evening his teacher wrote a few sums for George to work out during his dinner hours and to bring back for correction at his next lesson. Stephenson devoted so much time to his lessons that he had little time for anything else. He even trained a dog to bring him his dinner to save time.

But he learned as much in the work-shop as he learned at school, because he studied every part of the engine and boiler until he knew exactly how they worked. Whenever anything went wrong with the engine, the other engineers always sent for Stephenson. When he was twenty, he was considered the best-trained and most experienced man not only in the engine-room but in the district. He handled an important machine used for hauling the coal from the mine.

In his work as engine-wright Stephenson, besides being responsible for the pit engines, had also to supervise the transport of the coal from the pits. It was this duty that started him thinking about movable engines.

During this period (known as the First Industrial Revolution in English history) machinery was taking the place of human labour and factories were being built all over England. The new factories needed coal for driving their machines, therefore the demand for coal was becoming so great that a quicker and cheaper method of transport was becoming an urgent need.

Several attempts had already been made to design a steam locomotive, based upon Watt's stationary engines. None of the attempts had been successful.

Stephenson had followed these earlier experiments with great interest, and he became convinced that he could design a locomotive. So he decided to try to build an engine with two vertical cylinders and a boiler, eight feet long and three feet in diameter. He then laid, instead of the wooden rails used by the horse wagons, smooth metal rails for his engine to run on. This innovation made his experiment successful. On July 25, 1814, his locomotive was tested. It hauled eight loaded wagons weighing more than thirty tons at a speed of four miles an hour.

No engine had done such a thing before, but Stephenson considered this engine only a beginning. When he heard that there were plans to build a railway of about thirty-six miles to carry both goods and passengers between Stockton and Darlington (the railway was intended for horse-drawn wagons), Stephenson asked to be given the task of building the railway.

World Famous Scientists

He said that he would use metal instead of wooden rails, and steam-engines instead of horses. Stephenson felt that so much might result from this that he decided to establish his own locomotive factory in Newcastle to build locomotives for the Stockton – Darlington railway.

When the new railway was opened on September 27, 1825, several thousand people came to watch the ceremony. The train consisted of six wagons loaded with coal and flour and twenty-two trucks had benches for the use of any members of the public who wished to ride. Stephenson himself drove the engine. By the time the train reached Stockton, it was carrying more than six hundred passengers.

The building of the Stockton – Darlington railway for a steam locomotive won Stephenson such a good reputation that he was soon invited to build a still larger railway, this time between Liverpool and Manchester to serve the expanding cotton industry.

While this work was going on, the promoters of the railway offered a prize to the engineer who would build the best engine for it. There were five competitors, but the prize was won by George Stephenson with his new engine the *Rocket*. This engine had a boiler with twenty-five fire-tubes in it which improved steam generation.

Stephenson made his famous *Rocket* at a time when few people understood the great importance of his invention. When people heard that Stephenson had made an engine which could run at a speed of ten miles an hour, some said that the boilers would blow up if the engine went at such a speed. Others were afraid that such engines would be very dangerous; they said they would never feel safe travelling behind them.

On September 15, 1830, when the railway between Liverpool and Manchester was opened, thousands came to see the new engine. Many people began to see the usefulness of the new invention, and they hoped that the engine would do what Stephenson said it could do.

The *Rocket* did not blow up and no one died of fear. It not only ran at a speed of ten miles an hour, but for a while made as much as thirty miles an hour, and it was as safe as a stage-coach.

It was not long before Stephenson was asked to make engines and to build railways for other parts of England. It was clear that engines would make travelling not only faster, but safer.

Father and Son Work Together

In the history of railways the name of George Stephenson is great. Yet it is probably true to say that without his son Robert he would have stopped short of many of the successes. Robert was a perfect partner for his father and an outstanding inventor himself.

George Stephenson won world-wide acclaim with his *Rocket* but he said that much of the credit belonged to his son Robert. Robert supervised the building of the *Rocket*, and later improved some parts in its construction.

Father and son were always very friendly. Robert was born in 1803, and his mother died before he was three years old. This brought the boy nearer to his father.

One thought above all others was in George Stephenson's mind: at all costs Robert should have some schooling. He worked long and hard to send the boy first to a village school, then to a school in Newcastle. Robert wore clothes made by his father and went to school on a donkey, because there was no money to buy a horse.

Robert's first period of schooling ended when he was twelve, but during his few years of schooling he was teacher as well as pupil, because what he learned by day he taught his father in the evening.

In 1815 George Stephenson invented a miner's lamp – the *Geordie lamp*, as it is still called, for use in the mines. For this invention he was given a large sum of money and so he could send Robert to Edinburgh University for a six-month course. From that time on, for many years father and son worked closely together.

In 1821, when George Stephenson was asked to make a survey for the Stockton to Darlington Railway, his chief assistant was Robert.

They worked closely together again when they built the Liverpool to Manchester Railway. Then, as George Stephenson grew older and could not work much, he watched with pride as Robert gained achievements on his own, without his father's help.

Robert Stephenson built, for example, the Birmingham to London Railway, the first line to the British capital. For many years he built railways all over the world. Yet he is perhaps better remembered as a bridge-builder. He built bridges in Britain, in Canada and on the Nile.

A monument to father and son was erected in Westminster Abbey.

Questions

1. What can you say about George's childhood?
2. What dream had George in his childhood?
3. What did Stephenson decide to establish in Newcastle and for what?
4. How can you describe his famous engine the «Rocket»?
5. Who was a perfect partner of George Stephenson?
6. What did George Stephenson invent in 1815?
7. What is Robert Stephenson famous for?
8. Say what grammar tenses are mostly used in the text.