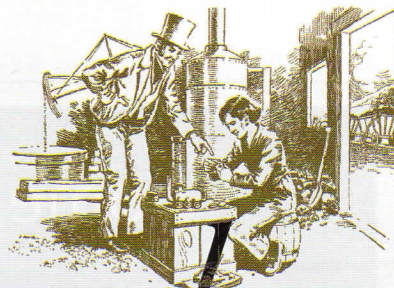


SUSSEX HISTORY

By Mark Broad



Changing track — the coming of the railways



"Thanks to my railway I can sit in the garden of an evening and read my paper"
Hilaire Belloc

IN 1765 JAMES WATT improved Newcomen's steam engine, making it much more powerful and efficient. It was a hugely significant step forward in technology that earned Watt recognition as a founding father of the Industrial Revolution. But the engine was a static device producing reciprocal motion (to and fro, to you and me) mostly used to pump water out of mines. French military engineer Nicolas-Joseph Cugnot is believed to have built the first self-propelled mechanical vehicle in 1770. His extraordinary-looking and famously unwieldy machine 'Fardier à vapeur' can be seen today at the Musée des Arts et Métiers in Paris.

English inventor James Pickard used a crank and flywheel to convert piston power from a Newcomen engine into rotary motion, in 1780. Rotational power was directly useful to processes in grinding, weaving and milling, but, thinking ahead, if a drive-wheel were to be placed in contact with the ground... hey presto, you have the potential for automotive power.

It doesn't appear that Watt was particularly concerned with the notion of automobile machinery, but in order to bypass Pickard's crank patent, he patented the 'sun and planet' gear, developed by his trusty employee William Murdoch. Murdoch has been somewhat overshadowed by his boss but

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there are reports of his experimenting with an automotive model steam-carriage and demonstrating it in 1784 to friends at his home in Redruth. If so, it would be the first instance in Britain of a machine moving under its own power.

It was William Murdoch's neighbour, Cornishman Richard Trevithick, who

continued with the idea of strapping a steam engine to a wagon, to see if he could make it go. His early attempts weren't very successful, but the concept had the makings of an earth-changing revolution, as any Top Gear fan will now attest.

New-fangled engines, though expensive and often temperamental, offered huge advantage to businesses relying on power-driven machinery, be it the horse-power employed in mines and quarries, the water-power driving bellows and hammers or the wind-power turning millstones. The use of an engine, as an alternative source of energy, could free at least some aspects of an enterprise from the whims of nature. Engines gave man extra power and a much greater sense of control.

So these were yet early days: a steam engine was not, to begin with, a locomotive, nor initially was a 'railway' a means of ferrying passengers. The earliest railways were tracks laid in mines and quarries, along which wagons were horse-drawn.

George Stephenson (1781-1848) was engine-wright at Killingworth colliery, working with fixed engines that hauled loads by cable. He secured the approval and assistance of his manager in building several locomotive engines for the company, the first of which, named Blucher, ran in 1814.

Stephenson then oversaw the building of The Stockton and Darlington Railway which opened in 1825. Its function was as a freight system, although it did carry the first purpose-built passenger car, called 'Experiment', much to the consternation of scaremongers who insisted that high-speed travel would cause disintegration of the human body.

It was the success of the Liverpool and Manchester Railway, which came

"The 1840s saw 'railway mania': by 1851 6,800 miles of track had been laid. Soon it was possible to travel from London to Bristol in hours rather than days at speeds of around 60 mph."

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into service in 1830, that sparked the national boom in railway building amid a fever of financial speculation, political



debate and controversy. A competition was held for the best locomotive engine and the Stephensons (George and son Robert) won with their famous 'Rocket'. It established their reputation as steam-railway experts and George was offered chief-engineer responsibilities with many of the railway companies that started to spring up everywhere.

With the railways began greater mobility of people, goods and ideas; the ready transportation of fresh produce

and all kinds of materials opened new trading and building opportunities; faster communications by mail and newspaper led to greater political awareness and involvement; clocks right across the country were synchronised for the first time in history – aspects of life in areas previously remote were changed forever.

Next month: **Route and branch**
How railway lines were opened - and closed - in **Magnet** country

