

Fresh Light on the Kilsby Tunnel

Through the generosity of others, I sometimes receive unexpected gifts of old documents – faded photographs, postcards, a letter or legal document, a cutting from a long-defunct local newspaper, they take many forms. The common thread is that they all contain precious scraps of information about Kilsby in former times – and I am always very grateful to receive them. They usually provide me with some pleasant research, and the reward is often greater than might have been expected, as new light is shed on a forgotten aspect of our local history.

One such recent gift was presented to me by a neighbour, to whom it had been sent by a correspondent "because it shows Kilsby, so it ought to be kept in Kilsby"; what a kind and thoughtful gift. It is a framed print, measuring 10" x 7", entitled "Pumps for draining the Kilsby Tunnel". As you can see from the image reproduced here, it shows a complex arrangement of mechanised pumps and cranks, with a group of engine-houses in the distance, plus various horse-operated lifting units (these are not pumps, but ingenious horse-powered winders for lifting and lowering).



John Cooke Bourne

There is no signature, and no other information on the picture. However, a half-hour's research on the Internet provided further information. I located an identical copy of the print on the website of the National Museum of Wales, described as a "photomechanical print on paper" by John Cooke Bourne (1814-1896). Armed with this knowledge, I was able to trace the details of the artist ...

John Cooke Bourne (1814–1896) was an artist and engraver, best known for his lithographs showing the construction of the London and Birmingham Railway and the Great Western Railway, which were mostly made in the 1830s when he was a young

man in his twenties. Each collection of prints was published in book form, and these became classic representations of the construction of the early railways. The prints were often hand coloured, as this one is.

Now I knew who had drawn and painted the sketch; and it can be precisely dated, because the water was pumped out from under Kilsby Hill during 1836/37:

"Difficulties of an unusual character presented themselves during the completion of this tunnel. These arose from the existence of an extensive quicksand in the line of the tunnel. Extra shafts were sunk, and four powerful pumping engines erected, which continued to pump from the quicksand for six months, with scarcely a day's intermission, at the rate of 1800 gallons per minute, till at length the difficulty of tunnelling in the sand was reduced, though the operation was still one of extreme difficulty and danger."

(William Whellan's Gazetteer, 1849)

The original contractors (J. Nowell and Sons) gave up in despair and resigned their contract on 12th March 1836. Stephenson was working to a strict timescale and to a budget, and these were both severely upset by the delay and cost of the pumping work. The directors of the railway company were very concerned, and sent an observer – Captain Moorsom – to investigate on the spot. He suggested that Stephenson should call in assistance, but Stephenson would have none of it, and felt he could overcome the quicksand. Though Moorsom was impressed by Stephenson's optimism and efficiency and put in a favourable report, the directors were unconvinced; and when the pumping yielded no visible results after 13 months, they gave Stephenson an ultimatum – either to solve the problem within a further 6 months or have the project cancelled. Stephenson persevered, by now using 13 pumping engines and 12 steam engines; and if his pumps had not providentially begun to run dry at the very end of the additional six-month period, there is little doubt that the work would have been suspended.

The sketch shows details that I have never seen on any other pictures of the work on Kilsby Tunnel, most of which concentrate on the ventilator shafts and the cutting but ignore the details of the machinery. This picture, however, concentrates on the top of the hill and the pumping machinery that was erected there, including a huge group of engine houses and boiler houses, apparently constructed of brick, with two tall brick chimneys.

I found the following text description among the memoirs of Charles Bracebridge – written around 1886, but recalling the 1830s when Charles as a boy paid regular extended visits to his Cowley relatives in Kilsby, and frequently wandered around the railway workings:

"Powerful pumps were erected, worked by steam power, and a large wood spout on wood stays, which worked backwards and forwards and forced the water along the spout with a great force. Channels were cut to carry the water off towards the saller beds ["settling" beds?], the noise it made you could hear at a great distance. It was said they pumped out an hogshead [50 gallons / 227 litres] per minute, and if my memory does not fail me I believe for 8 months they were nearly constantly at work, and then only lowered it from 2-½ to 3 inches per day."

What can be deduced?

The above description may be compared with the details shown in the sketch – and it is possible to join up the two sources of data to provide a clear overall picture:

The foreground of the picture shows a long wooden shaft, driven by a crank at the engine house. The shaft rocks to and fro, supported on iron trestles that pivot on

the ground, and drives two eccentric shafts on solid brick-and-concrete foundations. These transfer the to-and-fro motion of the wooden shaft into an up-and-down motion, which passes underground down twin vertical steel rods, to drive two pumps that must lie down below. We thus see that Bracebridge's memory was slightly faulty – writing his memoirs almost 50 years later, he confused the wooden rocker shaft powering the pumps with the outflow pipe that carried away the water (the outflow pipe is not shown in the picture).

The buildings in the picture appear to extend over a considerable area, and there are two chimneys; this indicates that there were two boiler-houses, each driving a separate steam engine. Since the nearer engine-house drives a shaft that powers two underground pumps, we may assume that the farther engine-house probably powered a second shaft driving two more great underground pumps, out of our sight at the back of the picture. This tallies exactly with the report of "four powerful pumping engines" in the extract from Whellan's 1849 Gazetteer above, which appears to confirm the assumption.

Besides the pumps, there are two horse-driven lifting wheels in the picture. Each is worked by two horses, and powers two bucket-hoists – one descending whilst the other rises, to speed the work and at the same time reduce the overall load on the horses. As a further means of balancing loads and reducing the effort required from the horses, it is likely that bricks (for lining the tunnel) were carried down in one bucket whilst spoil from the diggings was raised in the other. The buckets rise and descend in relatively narrow shafts – undoubtedly the small chimneyed shafts that are still visible today in the fields. There are ten of these small shafts, in addition to the two large ventilation shafts, all spaced across the fields at roughly equal intervals along the length of the tunnel; the horse-driven lifting-wheel rigs would have been moved gradually across the hilltop as the work proceeded, being dismantled from one pair of shafts and re-erected at the next pair of shafts as the tunnel was gradually hewn out.

Where were the buildings?

Historical aerial photographs by the RAF in 1945 show that the engine- and boiler-houses were not erected south of the A5 to Weedon, because there were still clear signs in 1945 of medieval ridge-and-furrow across the fields all along the course of the tunnel until the line re-emerges south of Kilsby Hill. The buildings were on the north side of the hill, between the tunnel mouth and the bridle road to Crick – and this is evident in the picture, in which the Ashlawn Ridge is clearly visible in the distance at centre right.

I would like to go on – for the sketch holds further clues – but once again time and space have combined to curtail this account. Nevertheless, I hope it will provide you with some food for thought, next time you wander up the bridle road.

Gren Hatton,
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