

“Believed to be the oldest railway lines in the world”!

So was a claim I came across whilst thumbing through a book about my home county of Derbyshire. The claim obviously caught my attention and I read on. With hindsight, it would have been more accurate if the writer had written: ‘Believed to be the oldest railway lines *still in situ*’, nevertheless, on coming across this claim I knew I just had to investigate further and soon afterwards my wife and I took a ride out to what is known as High Peak Junction which can be found beside the Cromford Canal, near Matlock. Since looking further into this subject, I perhaps ought to point out that the railway lines concerned are more likely the second oldest lines in the world, but nevertheless are extremely

interesting to anyone with an interest in the historical development of railways in Britain.

Picture if you will, a very tranquil canal-side location surrounded by greenery, wild flowers and wildlife and you are some way to envisaging what we discovered once we had



parked the car. Just a short walk from the car park you cross a foot bridge over the single track railway line from Matlock to Derby followed by another foot bridge across the Cromford Canal and before you stands High Peak Junction, a selection of classic railway buildings and signage. Today, in the 21st Century, the only sound to be heard is the passing traffic on the nearby A6 road which is just beyond the large dwelling which can be seen in the above photograph, a property which was at one time the home of the Superintendent of the junction. In point of fact, this is one of the few places in the country where all four means of transport run parallel with one another giving a graphic illustration of how transportation has developed over the years – the river (Derwent), the road, the canal and the railway, even if today the canal has long since ceased to be used and the High Peak Junction of what was once the Cromford and High Peak Railway Company has also long since lost the sound of men at work.

To try and explain fully the significance of this junction and the canal beside it is quite an involved exercise which is why many books have already been written on the subject, and there is a

temptation to simply refer the reader to these and the many on-line articles, to which I have had to make reference to try and get my own facts straight. I should point out that I have come across subtle differences between accounts and therefore some of what follows may well have certain historical inaccuracies – I make no claim that it is a definitive work, but on the other hand most of my sources appear particularly knowledgeable on the subject even if in several cases who the actual authors are, is not particularly apparent. At the end of the article you will find most of my sources listed and I would encourage anyone who finds this article interesting to read further as there is a good deal more to the overall story than I have been able to incorporate.

It should also be pointed out that you cannot explain the story of the ‘oldest railway lines’, without first telling the story of the canal which existed well before the lines ever did and so you have to go back to August 1789 when in this year an Act of Parliament enabled the Cromford Canal Company to be formed for the purpose of creating a canal which would ultimately connect with the Erewash Canal near Long Eaton, Derbyshire, from which access to the Trent and Mersey Canal could then be achieved. When connected, it would give large parts of Derbyshire much easier access to the vast coalfields of the East Midlands, in particular Nottinghamshire and vice versa as well as opening up huge possibilities for prospective mining companies quarrying Derbyshire limestone for use in the rapidly expanding iron smelting industry.

Prior to the creation of canals, a horse could move about a ton of coal on the level, but a single horse and narrowboat could move considerably more so the construction of a canal made a great deal of commercial sense. At the northern end of the proposed Cromford Canal, Richard Arkwright already had his cotton spinning mill in operation, powered by water from the River Derwent, so the prospect of being able to get cotton supplies in and goods out in a much more cost efficient manner would inevitably make him very interested in the project and indeed he would become the first President of the newly formed Cromford Canal Company, although he would in fact die in 1792 and not see the completion of the canal. Whilst there was much enthusiasm for the canal, it was not however without some opposition chiefly from mill owner’s further down-stream of the River Derwent who understandably feared water taken out of the river to maintain the canal would render their mills inoperable during times of low water in the summer months and so over a year was spent by William Jessop, the company’s chief engineer, assisted by Benjamin Outram (who had been involved with the earlier construction of the Peak Forrest Canal at Whaley Bridge), taking measurements and planning ways to overcome this eventuality and appease the objectors, even before the canal company began its construction. Jessop had also already proved his abilities in the field of canal construction when in 1753 he had overseen the building of the Grand Canal in Ireland with its immensely challenging crossing of the great ‘Bog of Allen’ as it was known, achieved by constructing a large raised embankment across the bog. The collating of water level figures was however a simple affair compared with some of the constructional challenges which lay ahead for both men.

To construct the canal, a tunnel had to be dug of over 2,900yds in length at Butterley, Ripley, which would run beneath the Butterley iron works and had to be ‘legged’ by the boatmen. This tunnel enabled finished products to be lowered direct from the foundry onto the waiting boats in the tunnel or coal and materials in to be hoisted straight out of the boats in especially constructed wagons (very early forms of containers) straight into the works. He also had two aqueducts to construct, both of which crossing the River Derwent; one at Ambergate and the other at what would become Cromford Wharf/Junction. Unfortunately for Jessop both of these aqueducts failed him with

serious movement and cracking of the brick and stone work. There are differing theories for why both structures encounter the same problems, one being that lime used in the mortar and which came from nearby Critch had proved 'too pure' and had not set as it would have been expected to and the other being that quite simply the side-walls of the aqueducts were not built substantially enough and could not cope with the weight loadings of the water being carried across them. William Jessop appears to have been a very honourable and conscientious man and rather than lay blame on someone else he oversaw the reinforcement of the structures with iron bracing and met the extra cost himself. At the Cromford aqueduct you can still see some of the settlement in the wavy side walls.



In this photograph you are looking across the Cromford aqueduct towards the Leawood Pump House. The distortion in the side walls of the structure is clearly apparent.

By the 1780's Jessop had also proved himself in the field of tram lines and rails. In 1789 he brought together flanged wheels and edged rails on a line at Loughborough and by 1803 he would oversee the construction of the world's first public railway in South London where horses provided the motive power.

Work on the Cromford canal commenced at the Erewash end of the route but even by 1793, with the project far from finished, the canal was beginning to show a profit despite spiralling construction costs which ultimately doubled on the original estimate, a figure put at something in the order of £4.2m at today's prices. By 1797 a regular passenger service from Cromford to Nottingham proved so popular it was now running twice a week and the canal continued very successfully for the next

50 years but by 1844 a serious water supply issue had manifested itself after water had begun to be drained from nearby lead mines - below the level of the canal.

From 1841 water from these mine workings was being released into the River Derwent via a sough or drain located downstream of the Cromford Canal Wharf and as the underground water table became affected, so water levels in the canal began to be affected and could fall causing boats to bottom. The problem was so serious that by 1844 the canal company accepted something had to be done. They initially brought in a hired pump which took water direct out of the Derwent, upstream of the mining sough referred to. The pump was effective and was eventually purchased by the company but a more permanent solution was required and as a result in January 1845 the company commissioned Graham and Company of the Milton Iron Works, Elsecar, just north of Sheffield to build a huge 70 horsepower beam engine. It was anticipated it should be built by July of the same year but looking at the engine today it is hard to imagine how such a massive and involved machine could possibly have been produced within just six months and as events unfolded it was not, causing considerable friction between the Cromford Canal Company and Graham & Co.

To accommodate this giant stationary engine and pump, it was hoped a Pump House could be built on land beside the canal owned by a Mr. William Nightingale, father to the British heroin, Florence Nightingale but he did not prove accommodating to the idea and so the building was located on the opposite side of the canal and due to protracted delays in the construction of the engine and pump – the exact nature of which are not particularly clear, it would not actually be complete, installed and working until 1850, five years after first being commissioned and is today known as Leawood Pump.



The Leawood Pump House. Note the white fencing. This stands over the point at which water was let into the canal. The water concerned was taken from the River Derwent (directly behind the pump house), and pumped out and into the canal at this point.



In this photograph, taken on one of the pump house running days, you can see the pumped water flowing out into the canal.

In respect of the ultimate goal of making a far swifter connection to Manchester and Liverpool by somehow linking the Cromford Canal with the Peak Forrest Canal at Whaley Bridge, some 30 miles to the north and west, the biggest problem was the terrain in between the two canals. It would require crossing the rugged uplands of the Peak District and as far back as 1820, it was already apparent that it would prove quite impractical to do this with some of the terrain at 1000' above sea level where on much of the high ground a reliable water supply would proved very doubtful. As a result, the possibilities of some form of tram or railway were already being explored by Josias Jessop, son of the Cromford Canal's Chief Engineer, William. Josias was by now a notable engineer in his own right and in May 1825 with a practical solution laid before it, an Act of Parliament gave full authority for a railway from Cromford to Whaley Bridge and Josias Jessop was engaged as the railway companies consulting engineer. Initially he projected a total cost of approximately £155,000 to construct a line between Cromford and Whaley Bridge, but as events unfolded that estimate was distinctly optimistic as it would finally cost well over double that estimate. The responsibility for the budget would however suddenly be taken from him with his untimely death just 12 months later in 1826 aged just 45yrs. The role of Chief Engineer was then handed to a Thomas Woodhouse and much of the cost would be met by the Butterley Iron Works, the chief creditor. Whilst a railway line was a much cheaper option than a canal system, unfortunately this railway venture would actually prove to be a financial failure from the outset, and even by 1862 the company Chairman, Francis Wright was acknowledging the financial weakness of the whole enterprise.

If a canal were to be constructed to connect Cromford with Whaley Bridge, each rise would be achieved by numerous locks, but as indicated, this was completely unfeasible due to inadequate water supplies. For a railway, the terrain was every bit as challenging, so how do you raise the line up such significant gradients? The problem was overcome by a series of nine separate inclines and with these in place the new Cromford and High Peak 'railway line' opened in 1831 with the first in the series of inclines rising straight up out of the Cromford Wharf/Junction with a gradient of 1 in 8.5 for 1,320 yards. It was known as 'Sheep Pastures'. Once the line opened, business up and down the Cromford Canal dramatically grew and continued to do so for some time.



View of the Steep Pastures incline, both tracks curving around the 'Catch Pit'.



Photograph taken around the turn of the century showing the points which directed runaway wagons into the Catch-Pit.



The head of the incline with the winding house in view.



The foot of the incline with the 'Catch Pit' just beyond the tunnel.

At the head of eight of the nine inclines, a steam powered stationary engine controlled a horizontal winding wheel guiding what originally was a continuous chain. In respect of the ninth incline down into Whaley Bridge, control of this incline was via what was known as a 'horse mill' or 'horse-gin' whereby a tethered horse was walked around the drive shaft of the winding gear. The chains of the inclines ran from the head winding wheel down to a second horizontal wheel at the foot of the incline and back up again in a continuous loop. Wagons were shunted to the foot and head of the incline, attached to the chain and then sent up and down the incline on a gravity/balance principle

whereby wagons heading down the incline compensated the weight of the wagons being taken up, leaving the winding engine at the top with little more to do but control the speed of the rise and fall of the wagons. The chains were carefully and regularly checked for any sign of breakage and changed accordingly. In time they would be replaced by rope and eventually wire



In the Catch Pit, the rusting remains of the last accident on the incline in the 1960's.

cables. Accidents, whereby wagons broke free, did occur and were factored into the construction of an incline by the construction of what were known as 'Crash or Catch-Pits'.

Initially horses were used to haul the wagons on the level sections between gradients but in 1841 the first steam powered locomotive arrived. It was named PEAK and was built by Robert Stephenson & Co.

In 1853 the Railway was successfully extended south to the already existing and named High Peak Junction and prospects improved for the C&HPR as it connected with the rest of the main line system giving access to Derby, Nottingham and beyond, however, not sufficiently so to make it resounding financial success. A passenger service was eventually introduced but this too failed to prove viable in the long run, no doubt severely hindered by passengers being expected to alight and walk up or down the inclines! In 1887 the first locomotive capable of coping with the 1 in 14 incline at Hopton was brought into service and overnight the stationary winding engine at the head of this incline became redundant.

By 1892 the London and North Western Railway (LNWR) were in charge of the line, having formerly leased it since 1862 and they caused a two mile branch line to be constructed from Harpur Hill, to

nearby Buxton and at this point the northern section of the original C&HPR line and its inclines also became largely redundant.



Photograph taken around 1900 on the Cromford Canal at Hartshay Wharf

In 1900, the Butterley Tunnel collapsed for the third time and was eventually declared beyond economic repair however the canal had for a good while been in increasing economic decline suffering as ever more goods were being moved by road and rail in preference to the canals and the canal would formerly close in 1937.

The railway line continued to serve a purpose but by 1955 things were radically beginning to change. With an ever improving road network, road haulage was by now well established as the more cost effective way of moving goods around the country and a strike called by ASLEF in May of that year achieved little but to bring the railways to a standstill for two weeks. The Conservative government gave in but the die was already cast as ever more business had deserted the trains in preference of the road haulage. In 1960 the nearby Middleton Top incline ceased operation and by 1967 amongst the numerous Dr. Beeching line closures, it was all over for the line between Cromford and Whaley Bridge.

Today, the route of the line is known as The High Peak Trail and is immensely popular with walkers and cyclists. The engine and pump house referred to and known as Leawood Pump and the High Peak Junction situated at Cromford Wharf bring it all very much back to life and despite the tranquillity of the area today it is not hard to imagine the noise and activity which will have gone on for so long at this particular location even though the Steep Pasture incline is today little more than a footpath. The work of Derbyshire County Council and those involved in preserving this historical

site which now has World Heritage status has to be highly commended as were it not for their efforts all trace of this highly significant chapter in the nation's industrial development would surely be gone by now, under some sort of 'new development'.



From the foot of 'Steep Pastures' incline looking up what is today part of the High Peak Trail



Looking down on the large horizontal winding wheel at the foot of the incline.

Recommended further reading:

Possible the most comprehensive account of the building of the Cromford Canal and remarkable photographs taken within the Butterley Tunnel – The Friends of the Cromford Canal

<http://www.cromfordcanal.info/about/butterley.htm>

Middleton and Steep Pastures Incline:

<http://www.forgottenrelics.co.uk/tunnels/middleton.html>

Josias Jessop – Wikipedia entry

http://en.wikipedia.org/wiki/Josias_Jessop

Cromford & High Peak Railway- Wikipedia entry:

http://en.wikipedia.org/wiki/Cromford_and_High_Peak_Railway

William Jessop – Wikipedia entry:

http://en.wikipedia.org/wiki/William_Jessop

Cromford Canal - Wikipedia entry:

http://en.wikipedia.org/wiki/Cromford_Canal

Cromford & High Peak Railway, Cromford to Whaley Bridge, Derbyshire:

<http://www.brocross.com/iwps/pages/chpr/chpr.htm>

Tom Bates History of Cromford Canal:

<http://www.abouterbyshire.co.uk/cms/9/the-history-of-the-cromfo.shtml>

The Middleton Top & Leawood Pump Group:

<http://www.middleton-leawood.org.uk/>

So where are the ‘oldest railway lines’? They can be found, *still in situ*, in the floor of the workshop at High Peak Junction.





One of the most pressing jobs in the early days will have been drilling holes in the stone sets on



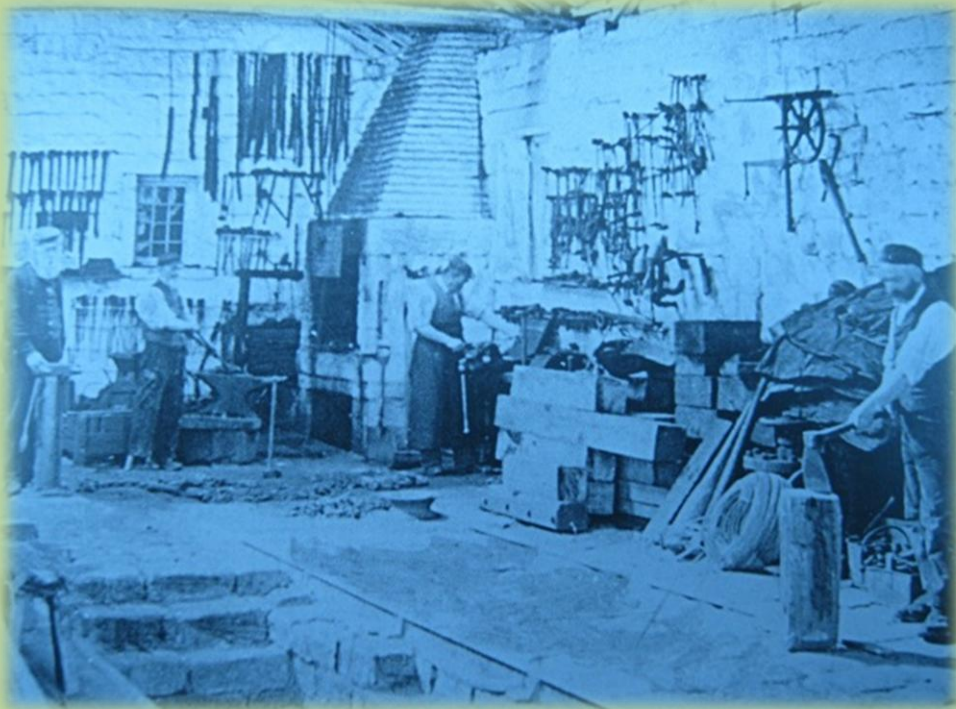
which the rail sections were stood and in another workshop you will find this tremendous hand turned vertical drill. In the background you might just be able to make out a glass fronted model railway display, I'll come onto this presently, but back in the main workshop there was so much to see, we must have been in there half an hour at least. The building still retains all of its original features, from the cast iron girder supports of the roof, the bellows and forge in the far corner, and the workbenches vices with tools a plenty.

Also stood to one side was a cast iron quadrant, one of four which would originally make up the huge horizontal pulleys around which the continuous cable (or originally chains) would have been carried. Also standing beside the quadrant is a large boiler, apparently brought into the workshop for repair or salvage at some point in time.

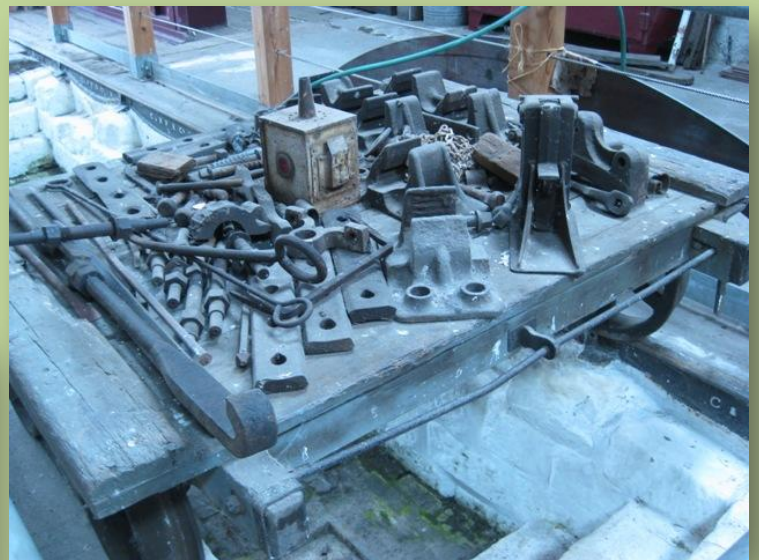
Whilst there seemed to be a number of visitors around the grounds as we arrived, the workshop was empty as I stood taking photographs and it was easy to imagine the sheer amount of toil which must have taken place in the building over the years.



Below is a photograph of the shed taken around 1850 with one of my own showing how unchanged it is except for the hand-railing, no doubt on account of Health & Safety Regulations.



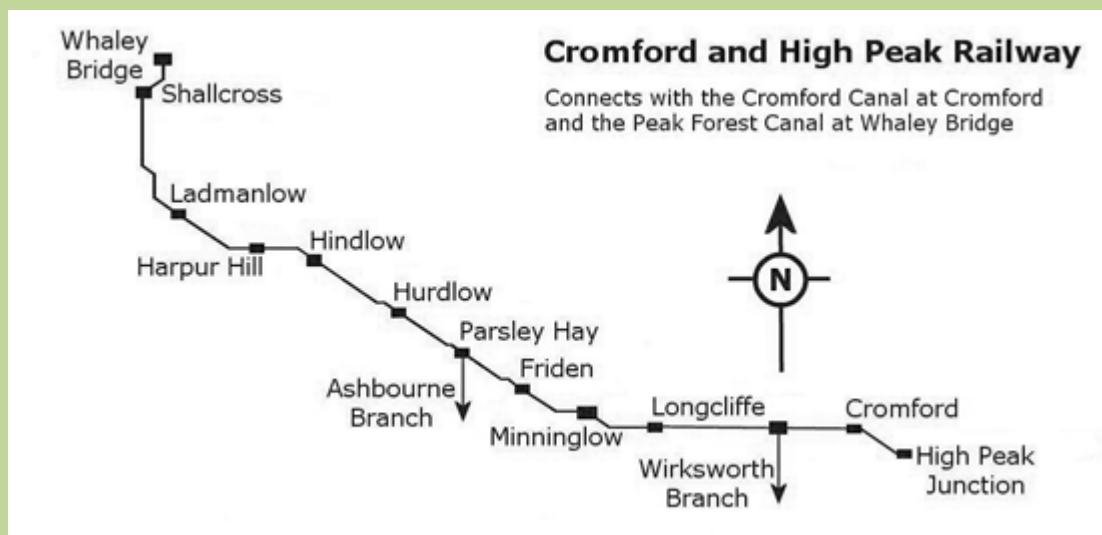
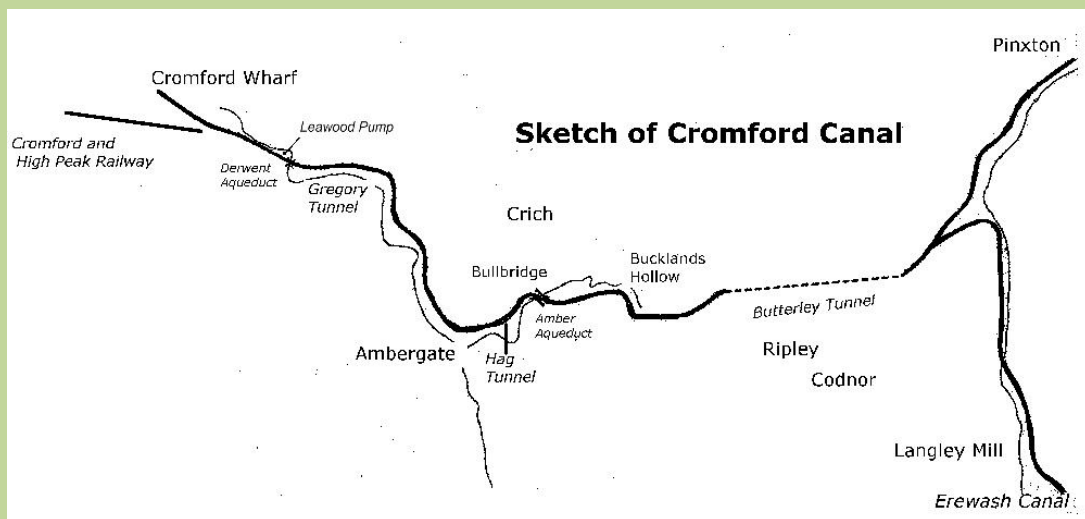
More photographs from my own visit to the site. In the workshop:





Views of the model railway.





And finally; one more curiosity.

Amongst the collection of former railway buildings to be found at High Peak Junction, is one particular shed with a curious feature at one end. The building stands beside a substantial stone wall into which is let an unusual recess. The recess is barely 6' high and goes back into the wall about 18". According to information supplied as part of the guided audio tour, it is believed that this site not only has some of the oldest railway lines in the world but quite possibly the oldest railway toilet facility in the world?! See photograph below, and you decide!

David Upton

