North East Derbyshire Industrial Archaeology Society



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# The Stanton Moor Forestry Light Railway Martin Allen

tanton Moor lies four miles (6.5km) North West from the town of Buxton and this area of the moorlands was inhabited since Prehistoric times. The first human activities in the area go back at least to the early Neolithic age of around 4000 BC. Proof of later civilisations are the numerous burial cairns of which there are about seventy in the district. Dating from the early Bronze Age (circa 2500 BC onwards), there is also some evidence of at least three timber "long houses" in the form of surviving post holes and an area of ancient crop cultivation which confirms that there was a settlement here. By early 1820, the land was in the ownership of the local Thornhill family and a programme of tree planting then commenced. Large plantations of oak, chestnut, larch and fir trees were grown over an area of 600 acres (243 hectares) and the Ordnance Survey map of 1840 designates the whole area as being woodland. The Moor was amongst the very first sites to obtain legal protection in the UK as an Ancient Monument in 1882.

Timber was a vital resource for the Allies in World War One. Principally, the wartime demand for timber was in the form of planks and props for the construction and support of front line trenches in France and Belgium. Other urgent needs included duckboards,

crates, ammunition boxes, pit props for mining and railway sleepers, both for narrow and standard gauges. The initial assumption was that only Canada could provide sufficient quantities from their abundant forests, using the skills of their highly experienced lumberjacks. The intention was that the logs would then be placed in the holds of merchant ships, transported across the Atlantic and converted into sawn lumber upon arrival in the UK. Several problems occurred with the logistics of this plan, especially the shortage of ships, the high risk of German U-Boat submarine attacks, together with the lack of manpower and specialist sawmill plant available in the UK. A simpler solution was therefore proposed, in that the Canadian lumberjacks complete with all the machinery necessary, would be sent to the UK,



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https://en.wikipedia.org/wiki/Stanton\_Moor

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where local forests would be felled. The initial proposal came from the British government on 16th February 1916, addressed to the Governor General of Canada, calling for 1000 volunteers with experience of forestry work and especially skilled lumberjacks. This was extended with more requests in the following May and November for an additional 4000 men. Having raised the necessary numbers, the Canadian Forestry Corps was officially created on 14th November 1916.

For administrative purposes, there were eventually a network of six CFC forestry districts covering the whole of the mainland UK. These had headquarters in England at Southampton, Egham, South Sheen and Carlisle, with Scotland having Stirling and Inverness. Each district had numerous plantations to manage, with a total of 43 Companies of foresters, each nominally 150 men strong. Derbyshire was designated as part of district number 52, with their HQ located at Rickerby Hall in Carlisle, Cumbria which was occupied on 6th November 1916. Within this district, the 132nd Corps were initially engaged in tree felling at Cauldwell Wood, near Mansfield in Nottinghamshire. With the completion of this task, the 132nd were then sent to Rowsley in Derbyshire to work in the forests of Stanton Moor, the edge of which is only one mile south of the town. The first detachment of 150 men from the 132nd Company therefore arrived in Rowsley on 26th October 1918, bringing with them three steam traction engines and fifteen road trailers. Use was also made of a Ruston paraffin tractor of the new tracked "caterpillar" type, for dragging the felled logs. Work started immediately on felling the trees and building the new sawmill. The officers and men were initially billeted in the railway station at Rowsley, but as the Company grew additional accommodation had to be found locally. Furthermore, some local labour from the UK-based Woman's Forestry Corps were also now employed. By early November another 45 men had arrived from Mansfield and a new camp was now being built, which included a cook house, a mess room and a hut sponsored by the YMCA which was used by the troops, having a stage for visiting concert parties as well as a library for off-duty reading and writing. In addition, a road bridge built entirely of timber was constructed at Rowsley by the CFC to cross over the River Derwent. The gauge of the railway track was 1'-11<sup>1</sup>/<sub>2</sub>" (600mm) and the rails weighed 9lb per yard (4.1kg per. metre). This was the standard War Department specification for narrow gauge light railway equipment being sent to France and Belgium, hence such materials were readily available. It would be considered as the smallest viable rail size for a lightly loaded line which did not use heavy locomotives. This type of track would also be ideally suited to a forestry railway, which is likely to be moving its working area as the tree felling and loading work proceeded, with the track being easily relocated by manpower alone. Due to the weight limits imposed by the temporary nature of the tracks and especially the lightweight rails, the prime movers for forestry work were horses or mules. It is recorded that two of the latter working at Stanton Moor were named "Jenny" and "Drummer". At least one lightweight petrol trolley was known to have been used, but normally workers travelled on the railway by sitting on the loaded logs.

The nearby public railway stations of Rowsley and Darley Dale (the latter now part of the Peak Railway preserved line) were also transshipment points for much of the cut timber. This was dispatched by the main line railways to designated storage yards mostly in the London area, especially at the Bricklayers Arms freight depot and the Stewarts Lane locomotive works, both belonging to South Eastern & Chatham Railway. Obtaining temporary storage facilities for the sawn timber in transit quickly became a serious problem. Some unlikely locations were chosen in the interim, such as the courtyard of the National Art Gallery located at Trafalgar Square in the centre of London. Similarly, space for the storage of mechanical plant, tools, ironmongery etc. was established at a bus garage belonging to the London General Omnibus Company in Catford, Kent.

In the monthly progress report from the 132nd Company dated 8th November 1918, it was stated that the tasks at Stanton Moor were drawing to a close. It was recorded that a total of 22,389 tons of sawn timber and 2,404 tons of logs had now been shipped to France. In addition, felling of trees in the nearby Haddon Estate of the Duke of Rutland and the Chatsworth Estate of the Duke of Devonshire which were both to commence on 15th January 1919. To help with the additional forestry work, a new draft of 24 "other ranks" arrived the same day. The former Orderly hut at Mansfield was dismantled and re-erected at Stanton Moor on 23rd February 1919. The final projects for the 132nd Company were thus completed and they were disbanded on 31st May 1919, having a short working period of only seven months. The Official Regimental History of the Canadian Forestry Corps was published in a booklet in 1919. This describes the activities of the CFC also survives and a sample from January 1918 to July 1919 inclusive has now been made available for research.

Enemy hostilities eventually ceased on 11th November 1918, at which time the total strength of the CFC's officers and men (including local labourers, displaced foreign nationals and prisoners of war), was 31,447. By

this time, about 84,000 tons (85,000 tonnes) of round timber, 260 million board feet (80 million metres) of sawn lumber and over 200,000 tons (204,000 tonnes) of waste wood fuel had been produced. In total, this equates to approximately 450,000 acres (182,109 hectares) of woodland. It is estimated that the CFC supplied 70% of all the timber requirements for the Allied forces in WW1. After the war, the forestry work continued in order to completely fell any remaining trees in the acquired areas and to process the sawn lumber. The formal World War One peace treaty of Versailles was not signed until 28th June 1919 and this officially brought the war to a close. By the month end, there were still 361 officers and 3,587 other ranks in the CFC. The felling of trees continued, as there was now a pressing need for timber to be used in the UK for post-war infrastructure repairs, especially for the construction of domestic housing. There were still some stocks of sawn timber to hand and a government Timber Disposal Board was established to sell off the surplus. This process was finally completed by the summer of 1922. After the war, gritstone quarrying was reintroduced at Stanton Moor and it may be assumed that the abandoned light railway track was dismantled for reuse at a quarry elsewhere in the area. The last two gritstone quarries at Endcliffe and at Lees Cross were still in production up until 2003 when they became worked-out. The Environmental Agency then determined in 2005 that they were dormant and all gritstone excavation on this area of the moor has since ceased.

In 1986, a team of archaeologists from the Historical Monuments Commission conducted an extensive survey of the Stanton Moor area. During their excavations, the archaeologists found at least two fishplates from the original tracks, which confirmed the existence of this long-forgotten railway. This unexpected find instigated a more detailed site survey and an investigation into the activities during World War One. The survey of the railway identified the routes of at least two railway tracks, together with a short fragment of another. These were mapped from the evidence of linear strips of hand dug earth and sand, which sufficed as the original track ballast. This soil was dug locally from adjacent circular "borrow pits", which themselves are also still prominent along the alignment of the railway. These ballast strips are about 4'-9" (1.5m) wide and between 8" to 12" (200mm to 300mm) high. It is a matter of conjecture if both tracks coexisted simultaneously and perhaps one line was used for loaded wagons and the other for returning empties. Otherwise, perhaps the first line was made redundant by the advancement of the tree felling and subsequently taken up, to be reassembled at another location, so as to be convenient for the work then in progress. Firstly, the longest continuous route lies at the North portion of the plantation and is approximately 875 yards (800m) long. The second route is slightly to the South and the confirmed length is approximately 547 yards (500m), but erosion at both ends of the alignment may be responsible for some loss. At the extremities, the two main routes appear to converge together in the form of a flat oval. Unfortunately, with the passage of time and weathering, it cannot be determined with certainty if they were physically connected to each other. The short fragment of track referred to earlier is only 99 yards (90m) long and might be consistent with either a temporary realignment of the main Northern route, or it could be an unfinished branch line extension. The Ordnance Survey map of 1919 is silent on the subject, as such maps do not normally identify temporary railways of this nature. This edition of the map does however confirm to us that the forest had completely gone by that time. Interestingly, some of the chosen route for the railway appears to follow the same direction as the 18th Century "hollow ways", which were walking and horse riding routes through the forest. These hollow ways are shown on the 1897 OS map.

At the western edge of the moor, opposite to the Birchover Road, there was a transshipment siding and a layby where reloading of the sawn timber onto road transport took place. Here the railway is on a steep 1:8 gradient, where rope winching of the wagons was necessary. This is confirmed today by evidence of steel rope rubbing marks on stone blocks placed along the centreline of the track alignment. These blocks were accurately placed to prevent the sleepers from being damaged. No evidence of the base for a fixed winch has been found on the ground, but it has been suggested from knowledge of CFC railways elsewhere in England that a steam traction engine fitted with a winch could have been used to control the wagons at this point. Near a stone monolith known locally as "The Cork", the trace of the railway extends in a north easterly direction, passing close to the Earl Grey or Reform Tower, a Grade 2 Listed structure since 1967. This is a prominent landmark on the eastern edge of the moor, which is a stone-built folly erected by William Pole Thornhill, the landowner and dedicated to the Reform Act of 1832. Elsewhere, fragments of the railway are still discernible in the sloping terrain, where the natural ground has been terraced in places, due to the gradients. There is further evidence from fragments of a stone-built loading platform and also the raised stone foundations of the sawmill at the west end of the route, which can still be identified as a rectangular outline measuring approximately 19'-6" x 13'-0" (6m x 4m). The sawmill buildings typically had raised floors to equal the height of the rail wagons, for ease of handling the logs. The space under the floor was filled with compacted sawdust, as an aid to insulation as well as a way of disposing of the large quantities of sawdust being produced. Unfortunately, all the rails and sleepers themselves are now long gone, with only fragments of the track imprints remaining.

For those of us looking today for any physical remnants of this most intriguing railway, it is still possible to find some interesting evidence. If excuses are needed, it is also a place well known locally for family picnics, wild berry picking and dog walking. For the summer solstice every year, modern day Druids can often be seen at their devotions around the Nine Ladies standing stones, which is a Stone Age circle or "henge" dating from about 3000 BC. A flock of Swaledale sheep now grazes regularly on the moors. They earn their keep by eating the bracken to keep it short, which also encourages the heather to grow. In places, the land has now reverted to woodland once again and the former quarries have been backfilled with stone waste from elsewhere. Eventually they will be covered in topsoil and returned to nature. Since 1995, the moorland is a Scheduled Monument and now an integral part of the Peak District National Park which was created in 1951. It is hoped that one day a public "storyboard" can be erected nearby to record the incredible history of this long-lost railway and its connections with Canada, 100 years ago.

# WHAT'S ON?

### **NEDIAS Lecture Programme**

our Committee deeply regret that we have taken the difficult decision to cancel all remaining meetings for the remainder of the 2020 season. This is - as you will understand - because of the ongoing COVID-19 situation and how this affects our need to observe strict requirements for social distancing etc.

With coronavirus laws currently prohibiting public gatherings and no certainty about what the future holds with the potential for further lockdown measures to be reinstated this autumn and winter, the Committee has reluctantly come to this decision.

## NOTTINGHAM'S HIGHWAY TO THE SEA – PART 3 Drawing on the account of the early work of the Trent Navigation Committee by W. A. Appleton Derek Grindell

he hundred year old Holme Lock, of inadequate depth and defective construction, has been replaced by a new lock intended to serve the purpose both of the existing, and also the flood lock. Between Holme Lock and Fiskerton, a total length of fourteen and a half miles, the river is for the most part shallow, and in some places very swift; the vertical fall in the water level being no less than twenty-one feet, equivalent to seventeen inches per mile. It is this length which has caused the greatest trouble to the navigation of the river, cutting in two as it does for superior lengths of navigation below and above.

On this awkward length three additional locks and weirs have been constructed. These are situated at Stoke Bardolph, Gunthorpe, and Hazleford, places beloved of the holiday-maker and the fisherman, and lower down the river there is a new lock which replaces the old Newark Nether Lock.

All these locks have been made of the same dimensions as that at Cromwell, the object being to pass a tug and train of boats at one time, and so to save the serious delay which results when boats have to be penned separately. Under modern conditions of inland navigation the propulsion is mainly by tugs, towing trains of boats. Four vessels can be passed at one time through these locks, equivalent to a tug and three boats, carrying in all about three hundred tons of cargo. One great advantage characterises these locks; if at any time it should be found that any carrying firm could more economically carry in larger boats than have hitherto been deemed suitable, these locks could accommodate them.



The method of construction found to be successful at Cromwell has been followed throughout, that is, by the use of concrete which, in the mass, can be economically made from the ballast excavated from the cuttings. Where this has been unsuitable, dredgings from the immediate locality have been satisfactorily used. Those interested in engineering detail will be interested to learn that 9,700 tons of cement and 50,000 tons of gravel have been used in making concrete for the locks. From the river bed 700,000 tons have already been dredged. This material has been used for raising land for industrial purposes in Nottingham; land reclamation and bank repairs; filling up old Trent Pool to render its area fit for recreation purposes; constructing an embankment to form an approach to a new bridge at Gunthorpe; constructional purposes in locks and weirs; land raising a new works and gravel sold for concrete manufacturing processes.

In constructing these Trent works, wherever there has been any variation of the river's natural levels, precautions have been taken to safeguard the outflows of sewage effluents and to strengthen banks against any additional possibility of flooding.

During the actual processes of construction the Committee under Mr. Atkey's chairmanship, and the Engineer, Mr. Frank Rayner, D.S.O., have been anxious, not only to find employment for ex-service men but to make the conditions of employment as good as possible. Fair wage clauses have operated, and men actually employed on the works, many of whom had no previous experience with pick and shovel other than that gained in the trenches, have received over £223,000 in wages. Both Committee and Engineer rejoice over this result because they feel that, in addition to affording many ex-service men remunerative employment, they have helped these men to maintain their independence and dignity, and at the same time, they have been returning value to the community for the thought and money it has expended. Satisfaction is felt too, over the subsequent success of some of the employees who having made good use of their experiences, have been able to accept, elsewhere, responsible positions in respect of similar constructions and maintenances.

For those who remain in charge of the works, or who are to operate the locks, there has also been consideration, and there are few people who will not feel some little longing when they see the picture of the lock-keepers cottage, designed by Mr. T. C. Howitt, A.R.I.B.A. Especially so when they see that the reality is better than the representation; that the cottage itself is even more charming than the photograph. One who beheld it during a semi-official visit was heard to murmur with pensive regretfulness:-

### "If I had but a thousand a year, love, A thousand a year, and thee !"

Many questions present themselves to those who are interested in, or who are responsible for the development of this waterway. Two are of outstanding importance. Will the development of navigation destroy the amenities of the river? Will the enterprise give returns on capital invested?

These are questions which may justifiably be asked. It may at once be said that the amenities of the river have not been destroyed. The works themselves have been designed to retain these amenities, and there are still "miles of beautiful wood covered banks and stretches of low country rich in tradition and accomplishment." The Corporation of Nottingham, which has always shown itself averse to any outraging of the canons of beauty, and which has, indeed, a commercial incentive to develop beautiful conceptions, and to express these in the City's staple trades, may be trusted to watch with care the riverside developments.

Will the enterprise return a profit on the expenditures incurred? The actuaries, considering the matter from their necessarily restricted point of view, declare that it will. Profit, however, in such an enterprise cannot be measured in terms such as those which go to make up the ordinary balance sheet. The health, the convenience, and the constantly developing but often unadvertised well-being of a constantly developing but often unadvertised well-being of a considerable community, must be taken into final account.

Old inhabitants of Nottingham, and those who study the flood marks on Trent Bridge, will be under no misapprehensions. In some, memory will recall tragedies, others losses, and others illnesses, directly traceable to floods. Many there are who can remember the roadways in Arkwright Street and Queen's Walk, and the Midland Railway lines with twelve to twenty four inches of water flowing over them. They can recall also the sorrows of householders and small traders whose furniture and goods were periodically damaged. The improvement of the Trent has mitigated these happenings even where it has not removed them. The money spent on improvement will not be needed for the repair of damage, and if, from the financial point of view, the worst happens, the philosophic folk of Nottingham will say that it is better to pay a small rate for prevention than a heavy charge for reparation.



LOCK HOUSE, STOKE BARDOLPH LOCK

Indirect advantages are not so easily seen, nor are they always advertised. The Port of London and the Manchester Ship Canal afford illuminating examples of the indirect benefits accruing from public elaboration of natural opportunities, or of ideals originally held by the private trader, but too big for his individual realisation. Even the commercial advantage of such a scheme as that which improves transport between Nottingham and Hull cannot be measured by the net revenue derived from tolls and freight charges. Every man and woman in the areas served by the enterprise stands to gain by the trade introduced. The Manchester Ship Canal, in which £16 million sterling was invested, paid no direct return for twenty one years, but the indirect returns are perfectly clear. They can be seen in the increase of the population; the well-being of the people; in the rise in the rateable value of property, and in the amount of the bankers' clearings, which are said to be many times greater than they were before the Canal was constructed.



Looking at the map of the country through which the Trent flows on its way to the Humber, one senses the possibility of commercial return. The town and villages on or adjacent to the river are well, and in some instances densely, populated, while important brickworks, coalfields and iron works have, or can be given, easy access. Many may be expected to take advantage of alternative and quite possibly cheaper, methods of transport. Slower sometimes, but not always, and cheaper at least to the extent that they reduce the number of handlings. Where coal or goods can be carried by boat or barge straight to the ship, which consumes them or carries them direct to the overseas market. economies must be effected. It should remembered that the Trent works are only part of the great scheme which aims at linking up the whole of the country's waterways. Traffic may be expected from various directions, and those who

have laboured in connection with the section between Nottingham and Newark have justification for anticipating with confidence the social and economic future of "Nottingham's Highway to the Sea."

## COLONEL SIR VIVIAN DERING MAJENDIE ~ PART 1 Introduction, Explosions and Explosives Legislation John Hodson

### Introduction





ver his lifetime Colonel Majendie served as a soldier, worked on explosives at Woolwich Arsenal, became the first Chief Inspector of Explosives, revised the Explosives Act, carried out investigations into IED's (Improvised Explosive Devices) and render safe of IED's and was one of the first persons to apply science to forensic investigation.

### **Early Years**

The name Majendie has Huguenot origins. Majendie was born near Lichfield in 1836 and was first educated locally but at the age of 14 he was attending school at Woolwich. Soon afterwards he entered the Royal Military Academy and later he

joined the Royal Artillery at Woolwich and was promoted to Second Lieutenant in October 1854.

In 1863 he married Adelaide Grylls but sadly she died in 1866 and their daughter Anne died at the age of ten. His son Captain Henry Majendie was killed during the Boar War shortly after Majendie's own death.

### Military Career

Majendie served in Field Batteries in the Crimean War and in the Indian Mutiny campaign, taking part in the capture of Lucknow. His experiences in India are recorded in his book "Up among the Pandies".

Following his return to the UK Majendie was based at Woolwich Arsenal. At Woolwich he carried out work on a wide range of Arms, Ammunition (including projectiles, charges, fuses and rockets) and storage magazines. Most of his work was published, some in the open literature and some of it is available today.

### Accidents, Investigations and Explosives Legislation

During the period 1774 to 1862 166 people and five horses were killed by gunpowder mill explosions. Many accidents were at the centres of gunpowder production such as Fernilee, Dartford and Faversham.

In Birmingham, in 1859, 21 people were killed at Pursall's Ammunition and Percussion Cap Factory an unregulated enterprise and 53 people were killed at Ludlow's Ammunition Factory in 1870.

Even bigger explosions occurred. On the Regent's Canal, in 1874, a barge carrying six barrels of petroleum and five tons of gunpowder blew up, the crew were killed, a bridge was destroyed and cages at nearby London Zoo were damaged. The bridge was rebuilt and is now known as Blow Up Bridge. Again in 1874 an explosion at Erith, Kent killed over twelve people when two barges being loaded with gunpowder exploded. The blast was heard all over London and felt 50 miles away.



The Explosion at Regents Park

The Explosion at Erith Kent

As a result of the explosions already described and many more that occurred, Majendie was tasked with carrying out an investigation into the state of the explosives industry in the UK. His Initial Report to the Right Honourable the Secretary of State, Home Department, Whitehall stated that he had:

- Inspected a large number of gunpowder works, magazines, ammunition, fireworks and similar factories.
- Collected from various sources a mass of information with regard to the trade in gunpowder, ammunition, fireworks and explosives generally.

His main conclusions were:

- The Fireworks and Gunpowder Act [of 1860] is frequently, if not habitually infringed....
- Even if the Act were strictly observed, its provisions fall far short of what is required to afford adequate protection to workpeople and the public.
- That to secure the due observances of any act, and the adoption of suitable and sufficient regulations an experienced government officer be appointed to carry out inspections and generally ensure due observance of the Act.

### Some Dangerous Practices Found By Majendie

- Gun Powder kept in barrels in any way that seemed good to the owner.
- Common practice to use a hammer to strike the hoops off a barrel of gunpowder.
- Holes drilled in barrels with a steel bit.
- Intention to make a hole in a barrel of gunpowder with a red hot poker!! Fortunately this action was stopped.
- A young lad took a candle upstairs to a dark store room, no candle holder, so stood the candle in an open keg of gunpowder. The candle was removed without incident.



### Follow on from Majendie's Work

- Despite massive and predictable opposition from the explosives industry the new explosives act passed through parliament in one day. The act, which came into force in 1875, addressed many of the problems previously highlighted.
- In 1879 Majendie was appointed HM Chief Inspector of Explosives, for life; with responsibility for inspection of explosives establishments, accident investigation and to investigate IED's and bombs left for felonious purposes.
- An Explosives Inspectorate was set up.
- There was a very considerable reduction in the loss of life in the explosives industry following the new act.
- However accidents were to continue. For example, in 1916 108 people died following an explosion at a munitions factory at Uplees, near Faversham, Kent.

### Some Explosions in Derbyshire

Nearer home, a number of explosions occurred at the Fernilee Gunpowder Mills of J H Williamson & Co; Fernilee Mill was 4 miles from Chapel-en-le-Frith and 5 miles from Buxton. The mill closed in 1920.

- May 1836. A tremendous explosion occurred at the mill, the mill was said to contain 1½ tons of gunpowder at the time. George Heaps, a worker at the mill, was found dead as a result of serious burns and other injuries. His brother John Heaps was found severely burnt and died the next day.
- May 1848. James Sayer was burned to death as a result of an incident.
- August 1878. Three men engaged in repair work at the mill were severely burnt as a result of an explosion. Thomas Ryder, the most seriously burnt, died in Manchester Infirmary.
- March 1885. An explosion at the mill, although serious, did not result in any injury however damage was done to buildings in the area.
- March 1888. A man named Whitfield and two teenage sisters were engaged in making mining cartridges. All three were seriously burned and were taken to Stockport Infirmary where Mr Whitfield later died. It was noted at the time that had they not been wearing the special non-flammable clothing supplied, all three would have been burned to death. An inquest, attended by Major Cundill, HM Government Inspector of Explosives and the Coroner was held. The cause of the accident was attributed to a defective machine which should not have continued to be used.

### Some Investigations Carried Out by Majendie as HM Inspector of Explosives

Two incidents at Robson's Ammunition Works on Greenwich Marsh, Kent:

• November 1882. Mary Mahoney died of burns following a series of explosions on her first day of work on a new process.

• June 1887. Anne Lake and Mary Masters died as a result of burns and Catherine Allman and Elizabeth Millman, although badly burnt, survived.

### Majendie's recommendations were:

- Workers handling dangerous substances should work alone.
- Special window glazing should be used to reduce heating from sunlight.
- Use only specially experienced and instructed workpeople.

..... To be continued

# THE DERWENT VALLEY AQUEDUCT *Doug Spencer*

This article has arisen as a result of my investigation into a request to Cliff from Joe Colls if he could help identify four stone constructions that he passed on a footpath below Curbar Edge whilst out on a walk. Well Cliff circulated NEDIAS members and received quite a few responses, all pointing towards The Derwent Valley Aqueduct. I believe that the definitive answer to Jo's question can be found at the end of this article.



The stone structures at Curbar, Joe Colls, with permission.

he Derwent Valley Aqueduct is one of Severn Trent Water's most important assets, forming part of its strategic water grid it supplies more than 590,000 people with 200 million litres of treated water per day. It consists of 180km of large diameter pipeline, 16km of single 1.9m diameter tunnel, 1,000 valves, 74 bridges and culverts, and 307 other structures and chambers.

The twin pipes of the aqueduct carry water direct from the Derwent and Howden reservoirs over Ladybower Reservoir to a treatment works at Bamford. From there the aqueduct continues down the Derwent Valley to Ambergate from where it is supplied to Nottingham and Derby.

From *The Engineer* of March 4, 1910 we learn that:

"The Derwent Valley Water Board was constituted by Act of Parliament in the year 1899 for the supply of water to Leicester, Derby, Sheffield, and Nottingham from the headwaters of the river Derwent in north Derbyshire.

Five reservoirs of a total capacity of 10,000 million gallons are to be constructed, three on the river Derwent north of Bamford Village, and two on the Ashop tributary which joins the Derwent at Ashopton two miles north of Bamford. The average daily yield it is estimated will be 50 million gallons, and allowing one-third of this for compensation, the available supply should be 33 million gallons per day. For the first instalment two masonry dams on the river Derwent – the "Howden" and "Derwent" dams – are under construction to supply 13 million gallons per day.

The main aqueduct extends from the Derwent Dam to the covered service reservoir at Ambergate – a length

of 28 miles – and consists of seven miles of cut and cover and four miles of tunnels, both 6ft. 3in. diameter, and 17 miles of three lines of 45in. cast iron pipes. Only one 45in. pipe is being laid for the first instalment; the cut and cover, and tunnels, and special works are, however, being built full size. The Sheffield supply branches off near Ashopton and at Bamford the Board are constructing roughing and sand filters.

South of Ambergate the water will be conveyed to the Derbyshire County boundaries at Langley Mill and Sawley-on-the-Trent, and to the Derby Corporation reservoirs at Little Eaton, in cast iron and steel pipes of various diameters, from 40in. to 18in., and of a total length of 24 miles. The Sheffield Corporation are now driving a tunnel over four miles in length to carry their supply from Ashopton to their Rivelin reservoirs, and the Leicester Corporation have in hand a bridge over the river Trent at Sawley and 14 miles of 33in. pipe line to convey their supply from Sawley to their service reservoirs at Hallgates in Charnwood Forest. The delivery of each of the three 45in. pipes – when fully incrusted – is calculated at 12 million gallons per day, for which a hydraulic gradient of 1 in 1500 is allowed, and that of the cut and cover and tunnels is estimated to be 35 million gallons per day at the gradient to which they are constructed of 1 in 4000, and when filled to a depth of 4ft. 9in. on completion of the third instalment."

As we know today the two proposed dams on the Ashop tributary were never constructed.

### The Route of the main aqueduct to Ambergate and the Rivelin Tunnel spur

The main aqueduct exits from the base of the east tower of the Derwent Dam; before the flooding of the Ladybower Reservoir it crossed the River Derwent close to Derwent Hall, then ran down the river's west side until, just north of Ashopton, it recrossed the river and continued south-east from some 4000 feet to a position some 700 feet south-west of the present Ladybower Viaduct. Here, the raw untreated water which forms the supply for Sheffield Corporation is abstracted from the main aqueduct and is delivered into the Rivelin Tunnel by a pipe 280 yards long and of a diameter, namely 36 inches, that is large enough to take the whole of that city's eventual supply. The tunnel is  $4\frac{1}{2}$  miles long and was constructed by Sheffield Corporation at its own expense, to convey the water to its reservoirs at Rivelin in the adjoining valley.

The main aqueduct, however, now turns southwards and after a further two miles reaches the filter beds at Bamford. From there it continues in its journey to the covered storage reservoir at Ambergate, following along the east side of the River Derwent and passing through Hathersage, Curbar, Baslow, Chatsworth, Beeley and Matlock.

### Superficial manifestations of the aqueduct's subterranean route are:

- i. The masonry inlet and outlet houses at the ends of the siphons, and hose masonry buildings accommodating the manual and the automatic valves in the pipelines for cutting off the flow in case of burst pipes or for maintenance purposes.
- ii. The green metal domes, usually in adjacent pairs since most of the piped sections of the aqueduct were eventually duplicated, that cover the air valves in the apexes of the section of pipeline. These valves prevent air collecting inside the pipes and consequently restricting the flow, together with the risk of burst from shock that bodies of air in the pipes may set up. Over the northern-most few miles of pipe the domes are black.
- iii. The square-lidded discharge chambers situated at the troughs and ends of the sections of pipeline and near to, or with a pipe discharging into, a natural watercourse. Because the water is chlorinated at the filtration plant at Bamford, its discharge via these chambers is, like that of the sludge released when cleaning the pipes, now carefully controlled under guidelines established by the National Rivers Authority (now the Environment Agency).
- iv. The square-shaped access chambers on the cut-and-cover sections.
- v. The standard type of single black or green painted iron gates set on substantial stone gateposts, where the aqueduct passes beneath hedges, walls, fences, etc. An exception to these is the green painted oak gate that is built into a garden wall at the insistence of the garden's then owner as an alternative to the standard iron gate at Curbar.

### 

With grateful thanks to David Hays, Mark Dawson, Ian Thomason, Dave Dwelly, Anne and Rob Gibson, Basil Merry, (Les) Jamie Mather and Paul Smith for their suggestions.

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The Derwent Valley Water Board, a short Description of the Undertaking, undated publication.

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<sup>\*\*\*\*\*\*</sup> 

Walls across the valley (The building of the Howden and Derwent Dams), Brian Robinson, Scarthin Books 1993, ISBN 0 907758 57 6.

Derwent Valley Reservoirs, Severn Trent Water Authority, undated publication.

University of Nottingham (https://www.nottingham.ac.uk/manuscriptsandspecialcollections/collectionsindepth/water/derwentvalleywaterboard.aspx)



# 1917 Fowler Steam Tractor 'Lord Doverdale' 4nhp Engine No 14805 - Reg. No. UG 1496

Our Vice-Chairman, **Derek Grindell**, met this magnificent machine on a recent visit to Bakewell and thought that our members would be interested in seeing his photograph.

Supplied new to Olive & Partington, paper makers of Glossop in Derbyshire, where it worked through until 1960. However, during it's time there in 1930, it went back to Fowler Leeds works for a complete rebuild, including a new boiler and firebox, a new tender made from thicker plate and a new set of wheels with press-on rubber tyres appropriated from engine No. 14799. It was then re-registered with Leeds Reg. No. UG1496.

It was one of a fleet of four engines used by the firm to haul timber logs from the railway station to the works at Turn Lee Mill and taking paper and a substance called sulphur liquor on the return - a round trip of three miles. No. 14085 is the only one of four to survive and was acquired by the present owners in 1988 when a new boiler barrel, firebox, tube plate and smoke box were fitted. Further restoration work is carried out each winter.

In 1990 it returned to Glossop for the annual Victorian Fair when the Lord Mayor of the High Peak unveiled the name Lord Doverdale in 1917 – the same year the engine was purchased by this firm.

Owned by Dave Cope & family, Matlock, Derbyshire Named after Edward Partington, who became Lord Doverdale in 1917.

## **IA News and Notes**

### Journey's end: last of England's open-cast mines begins final push

Hartington Colliery can trace its roots in the mining industry back more than 140 years to when it first began producing coal for the Staveley Coal and Iron Company in 1875. Then, the company's 3,000 workers produced 1m tonnes of coal a year. Today, Hartington is a minnow within the fast-draining coal industry and aims to produce a total of 87,000 tonnes.

Government officials had expected Hartington to reach its modest target by the start of August, but delays caused by the coronavirus has meant the mine will be allowed to continue to eke out the last of its coal for the rest of the year.

By sheer chance Hartington will outlive England's far larger surface mines, including Bradley in County Durham which shut in August after extracting 340,000 of 500,000 tonnes of coal earmarked when it opened in 2018.

John Wilson, a local businessman, owns Hartington alongside interests in local hotels and a recycling company.



## Walton Works – Signs of progress

A short item in the *Derbyshire Times* (1 October) revealed the welcome news that there is some progress with the proposed redevelopment of the large site owned by Robinson PLC to the south of Chatsworth Road, which includes a former water-powered cotton mill of the 1790s, one of the very few surviving fire-resistant textile mills of that period. It is listed Grade II\* for that reason but has been empty and deteriorating for some years. At the other end of the site is the Grade II listed Cannon Mill, the only standing structure remaining from the Smith family's Griffin Ironworks, established about 1780. There are other buildings of interest elsewhere on the site.

## Former Mines Rescue Station – Infirmary Road

We have recently been contacted (via the NEDIAS Facebook page) by the new owner of the former Mines Rescue Station on Infirmary Road, who intends to convert it to residential use. Depending on the final design, this seems a very good idea, added to which the owner is interested in the history of the building.

The station was built (and presumably until 1947 maintained) by an ad-hoc committee of local coal owners, quite possibly orchestrated (as most things were at that date) by C. P. Markham of the Staveley Company. We assume it passed to the NCB at vesting. Do any of our NEDIAS members have any background knowledge of the DMRS? Have you any interesting history of the group, indeed do you know of anyone who was involved with their work. Family memories and reminiscences, living history is



always so important to record. Please let us know if you can help with more info about DMRS.

## **Chairman's Chat**



Your editor Doug and I hope that the very regular e-Newsletters you've been receiving have helped with the boredom of our Covid restrictions this year. At the moment Doug hopes to continue them on maybe a monthly basis until we can return to normal, this is great news **and many thanks Doug**.

Do we have enough material? It would be a great help if you have any photos, details of interesting visits, walks, short articles which you're happy to share with members. If so, do please send them off to <u>editor@nedias.co.uk</u>.

It's great that we can e-mail the extra Newsletters to most of the membership (I do just print a few for those who don't email) It means that we can keep costs down and this enables us to run our membership subs for this year right through to the end of 2021. So the good news is that you as an existing member have no need to pay subs for 2021.

On another note, in the Chesterfield and wider Derbyshire area we have a very rich and varied heritage, but often one group doesn't know what another is doing. How to know all that's going on? Maybe we can take a leaf out of Sheffield's book. Have you heard of **"Joined up Heritage Sheffield"** (JUHS)?

They are a charitable organisation supported by a large, diverse group of individuals and organisations united by a desire to champion the city's rich heritage. They give opportunity for everyone in Sheffield to take an interest in the city's diverse and fascinating heritage, understand their city's past, and shape future use of heritage resources. Indeed, to produce a "Heritage Strategy", but grass-roots based, and said to be the first grass-roots and community led local heritage strategy in the UK. Most (about 40) local heritage groups are members.

Maybe a bit like a Civic Society but with very much wider brief – after all, Sheffield already has its own Sheffield Civic Trust. They don't want to replicate or substitute for existing organisations but to provide a forum where they can come together and share interest, cross-fertilise knowledge. Interesting concept and you can learn much more on their web-site. It's interesting to see the listing of all the groups and societies which are members here: <u>https://www.joinedupheritagesheffield.org.uk/groups/</u>

Stay safe and see you again soon.

## And finally .... .... The Navvies of the Ribblehead Viaduct



a recent break in north Yorkshire, since I'd never in all my many decades walked up those three magnificent Yorkshire peaks Whernside, Ingleborough and Pen-y-Ghent, I at last managed to get to the top of two of them for those spectacular views.

The route up Whernside takes you right alongside and under the Ribblehead Viaduct. Built in 1869/74 on the Settle and Carlisle line by the MR, it's said to be the last main railway to be built largely by manual labour, with up to 2,300 navvies.

Having walked by I can tell you it's enormous. I can certainly attest to the fact that it's constructed in a really challenging environment, 440 yards long, over 100ft above the valley floor, with 24 arches. No wonder that over 100 died during construction. Goodness knows how harsh it was living in the three settlements (remains are still visible), up on the moors during the harsh Yorkshire winters. I bet it was a freezing existence.

It was a day or so later when I was in Hawes visiting the Dales Countryside Museum that I learned that knitting had been one of the major occupations in the area for some centuries – and I learned that the navvies on the Ribblehead had been taught knitting in their spare time. Sounds useful to knit hats, gloves and sweaters in such a freezing environment, did the navvies on the equally tough Dore and Chinley line do the same?





The southern portal to Blea Moor Tunnel was seen right on my path - it's the longest tunnel on the Settle-Carlisle Railway

Ribblehead Viaduct with Whernside, my destination, in the background [Ribblehead Tours – Settle Online Website – Chamber of Trade (https.www.settle.org.ukribblehead-tours)]

Contributions, no matter how short (maybe about a visit you have made), and preferably by email to editor@nedias.co.uk, for inclusion in future editions of this newsletter are most welcome.

### **COPY DEADLINE FOR THE NEXT EDITION: 5th January 2021**

### **NEDIAS Committee:**

**Chairman** – Cliff Lea; **Vice-Chairman** – Derek Grindell; **Secretary** – Patricia Pick; **Treasurer** – Pamela Alton; **Membership Secretary** – Jean Heathcote; **Lecture Meetings and Visits Co-ordinator** – Brian Dick; **Committee Members** – Diana Allen, David Hart, David Palmer.

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