North East Derbyshire Industrial Archaeology Society



## NEDIAS Newsletter No. 87 – August 2022 Price: £3.00



# Waterpower in the Derwent Valley:Learning from the pastIan Jackson

n the second year of his PhD, Ian is looking at the historic development and use of waterpower in the Derbyshire Derwent Valley, learning from past challenges and solutions to unlock the Renewable Energy potential for the future.

## Initial research findings

England's industrial revolution started in locations such as the Derwent Valley Mills World Heritage Site (DVMWHS) due to the availability of waterpower to drive the new 'mass manufacturing' textile factories. Hydroelectric Power (HEP) development today is complex, with conflicting interests and, whilst there is ongoing research into today's issues, there is a gap in our understanding of how the early factory masters of the 18th and 19th centuries managed to increase the quantity of waterpower harnessed, whilst accommodating competing interests, such as maintaining fisheries and water abstraction for the canals.

Year one of my research was the building of a waterpower site gazetteer for the Derbyshire Derwent catchment, utilising the historic OS Maps on the Digimap system through the University of Nottingham, and existing mill lists (e.g. Gifford's Corn Mills) and references (e.g. the Derbyshire HER system and the DAS gazetteers of sites).

Whilst tracing waterways (online and physically) and reviewing existing gazetteers, it also became apparent that there are locations with the potential to generate HEP in the future, which weren't originally built for that purpose, such as mine drainage soughs, weirs built for transport (Longbridge weir, Derby), flood (the Derby Riverlands) or gauging weirs/sluices, garden features (Chatsworth emperor fountain) and water storage and distribution networks (now operated by Severn Trent).

To date, the gazetteer contains 195 sites, all identifiable on historic OS maps (1880s-1950s). I have created a timeline for each site, using existing reference materials, to gain a better understanding of the use and development of waterpower and the challenges watermills have faced. Several sites had different functions over time, as, once the power of the water was harnessed and infrastructures in place, it was available for a wide range of uses. The range of industries utilising waterpower in the Derwent Valley tells its own story:

- Flour and Corn Mills (68)
- Cotton Mills (18)
- Saw Mills (13)



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- Paint/Colour Mills (10)
- Lead Works (8)
- Silk Mills (6)

And many other applications including Tape Mills, Bleaching Works, Paper Mills, Wire Works, Bobbin Mills.

There is a general understanding that, within the Derbyshire Derwent catchment, we have a small number of large historic mill sites using waterpower to generate Hydroelectric Power (HEP) today. One of the most significant findings from the research to date, is the high number of sites that converted their water wheel or turbine transmission to generate their own, locally used, HEP between 1890 and 1920, including most of the mills harnessing the power of the larger River Derwent.

Government policies during the 20th century, such as the building of the Derwent Valley reservoirs, the development of a nationalised coal-fired power station national grid and the introduction of renewable energy subsidies, impacted on HEP generation, negatively and positively.

Following a significant reduction in HEP by the 1980s, with only a few sites, such as the English Sewing Cotton Company sites at Masson Mills, Belper and Milford, still operating their HEP, there was a period of reinstatements as a result of the 1983 Electricity Act, which enabled small generators to connect to the grid. This was boosted with Renewable Energy subsidies introduced in 1990.



Unfortunately, whilst more projects were planned in the Valley, including a community owned HEP project at Ambergate, they were put on hold in 2018 as environmental and planning regulation became more challenging, and government financial subsidies for renewable energy were withdrawn.

Today we have around 18 sites generating HEP in the Derbyshire Derwent Valley, including the Masson Mill, Belper and Milford sites in the DVMWHS, with a new wheel and turbine planned for Cromford Mills.

Figure 1: Map of Derbyshire showing the 195 waterpower sites in the Derwent catchment between 1870 and 2021.

The 18 green sites are generating hydroelectric power today.

The 27 red sites are not generating hydroelectric power today but have done in the past.

#### Lessons we can learn from the past from the Derwent Valley Mills World Heritage Site

**Innovation** – The growth of the textile industry in the late 18th century depended on finding greater sources of power. The traditional narrative suggests that this only came from the development of steam power, but engineers of the day also continued to innovate and optimise the harnessing of the power from the river. In Britton & Brayley's Beauties of England and Wales, (1802), they talk about Belper West Mill's new wheels: *'The two [wooden] water-wheels are remarkable as well for their magnitude, as for their singularity of construction; one of them being upwards of forty feet long, and eighteen feet in diameter; and the other forty eight long, and twelve feet in diameter'. Just a few years later a pair of 21<sup>1</sup>/<sub>2</sub> foot diameter by 15 feet wide Iron Suspension wheels with water control apparatus, were built by Thomas C Hewes, based on William Strutt's ideas, replaced one of the large wooden wheels. Iron suspension wheels made a significant improvement to the potential power output and led to wheel and infrastructure changes (including weirs being increased in height) in mills across the country in the early 1800s, optimising the power stored and generated with the resources (water) available.* 

#### Using all resources available (including Sough water)

One of the most fascinating aspects of the first textile mill at Cromford was its original power source; water from the Cromford Sough. Drainage water from mines had been used for a long time, both to pump out water from deeper rakes and to power smaller watermills. Ultimately, the Cromford Mill site activities moved to Masson Mill following the driving of the Merebrook Sough, which effectively drained the Cromford Sough, significantly reducing the power available to the Cromford Mill site. With only the power of the Bonsall Brook available the site closed in 1846. The question is, why hasn't the Merebrook Sough, which has flowed for 176 years, generated HEP, despite there being enough volume of water for the Ilkeston & Heanor Water Board to build a water treatment works (1920s) at the tail?

**Storage** – One of today's greatest challenges is the storage of intermittent renewable energy generation so that it could be used to meet the electricity peak demands (4pm to 7pm). Watermill owners coped with this problem for hundreds of years by utilising dams, mill ponds and sluices. One of the earliest functions of

steam at textile mills was pumping, to return tailrace waters to the mill pond, as per Arkwright's mill in Wirksworth in the 1780s. Possibly the best example of learning the lessons from the past was Samuel Unwin's c.1784 Mill in Sutton-in-Ashfield which used wind power, on the top of the mill, to return used water to the mill pond.

This practise has been expanded into technology now called Pumped Hydroelectric Energy Storage (PHES) and is a small but important part of the UK's energy system, with sites like the 1963 Ffestiniog Power Station (360 MW), the first PHES site in the UK's national grid. What potential does the Derwent Valley have with many water storage reservoirs and large mill ponds in the catchment, ideally using innovative renewable energy, such as batteries charged with floating solar PV or wind turbines, to return water to the higher reservoirs overnight, ready to generate more HEP during peak demand?

**Energy Mix** – The English Sewing Cotton Company acknowledged the value of the new Hydro turbines at Milford Mills, installed in 1907, in their decision to maintain and invest in the Belper Mill and Masson Mill complexes, with major expansion on both sites in the 1910s. This investment included the introduction of electricity and the use of a small number of large motors (30 in Belper) to power the drive shafts. To meet this additional demand for power both sites made significant investment in steam, but importantly both sites also ensured their Hydro turbines were updated to harness the full amount of baseload waterpower available.

In the *Trouble at T'Mill* articles by Fred Copeland (Model Engineer, 1991) he explains how 6 mornings per week a team of engineers would start up the steam turbines and the 10 Hydroelectric turbines, based on the number of spindles required, coal availability and the volume and flow of water in the Derwent.



Merebrook Sough tail. Photo: Ian Jackson June 2021



Image: The Belper Mill complex 1921.

The eleven Iron water wheels have been replaced by 4 vertical Hercules turbines (@ 152 HP = 110 kW) in the South Mill (1901-6) and 3 pairs of horizontal Achilles turbines (@ 218 HP = 160 kW) in the West Mill (1912). Source: photograph restored and supplied by Adrian Farmer.

**Resolving Water use conflict** – Looking at the evidence given in the development of the 1789 Cromford Canal Act, there was conflict between watermill owners and the canal promoters for the use of water, but a compromise was achieved, with Cromford Canal top up only being allowed between 8pm on Saturday and 8pm on Sunday, and not abstracting more than 5% of the water available. Could we take another look at the way abstraction licences are managed today for Mill HEP sites, which return all of the water used to the river, and possibly vary reservoir compensation flows to support peak HEP generation at times of peak demand?

**Maintaining the fisheries** – One of the most important findings of the research relates to a key challenge for HEP today; the impact of its weirs/barriers to fish movement and river ecology. The current narrative is about the weirs built in the Industrial revolution, by entrepreneurs like Strutt and Arkwright, being the primary cause of fish such as Salmon no longer migrating up the River Derwent.



See the difference from the Yorkshire Bridge flow monitor for 1942-3, immediately after the Ladybower Reservoir compensation flow became operational in March 1943. To this day, this reduced rate continues 24/7/365.

Key: Red and blue envelopes represent lowest and highest flows on each day over the period of record.

Underlying data supplied by the Environment Agency

Acknowledgement: Data from the UK National River Flow Archive However, several reports, looking at the reintroduction of Salmon to the Trent and the Derwent, clearly show the main demise of the Salmon taking place in the 1880s (Derbyshire County Angling Club, 1986, Cowx & O'Grady, 1995 Brailsford (EA), 2016). Strutt, Arkwright and similar mill owners had built their weirs (often on existing weir sites) around 100 years earlier, suggesting that for around 100 years the mill owners were somehow enabling fish passage, despite the weirs being in place.

This idea is supported by Farey's, 1817 description of 'a very complete pass for the Salmon in going up the Derwent to spawn, which prevents the necessity of their leaping the Weir, and a trap for taking them as they come down again, after spawning: and the same at their works at Milford'. How this was done remains unclear, partial opening of sluices on a Sunday or during migration, or under weir tunnels/channels, are possibilities. Understanding how they achieved this could be the greatest opportunity for both unlocking HEP potential, often hampered by the impact and cost of having to build fish passage, and improving river ecology.

My research is ongoing and any additional information that increases our understanding of the lessons we could learn to help unlock the hydropower potential of the Derbyshire Derwent, would be greatly appreciated. <u>ian.jackson@nottingham.ac.uk</u>

Ian is a 2nd year postgraduate researcher at the School of Geography, University of Nottingham and also a member of the Derwent Valley Mills World Heritage Site research group and strategic board.

# **Dates for your diary**

## NEDIAS Lecture Programme

eetings are held at: St Thomas' Centre, Chatsworth Road, Brampton (opposite Vauxhall/Bristol St Motors) S40 3AW. There's plenty of parking in their own car park, including disabled spaces, as well as on-road parking in front of the Church. All meetings commence at 7:30pm.

Monday 12 September 2022	"What did the Strutts do for us?" by Peter Dunkerley
Monday 10 October 2022	"The Ashover Light Railway" by Richard Booth
Monday 14 November 2022	"The Ecclesbourne Valley Railway - a remarkable story" by Eric Boulton
Monday 14 December 2022	Our seasonal meeting with mince pies – and a light hearted look at "How come the Arkwrights became so rich?" from Cliff Lea

## **NEDIAS Outside Visits**

Saturday 24 September 2022 10:30am–12:30pm	Winster Lead. Guided walk across lead mining territory around Winster. Tony Wood will lead us across the area, to describe and recount the history of mineral mining in the area. Gather in front of at the Miners Standard. Come dressed for weather and rough footpaths. Names on sheet at our September meeting, or via Brian Dick.
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# Major step forward for plans to open railway stations in Killamarsh, Eckington, Staveley and Whittington

The bid to re-open railway stations in Killamarsh, Eckington, Staveley and Whittington has received a major boost recently, with the Government announcing that the Barrow Hill line will move forward to the next stage of funding and development.

A high-level proposal to re-open the Barrow Hill line was first submitted last year by a consortium of local

councils and Lee Rowley MP, as the parliamentary sponsor.

Lee Rowley said: "After much campaigning, our local area will now have the opportunity to progress to the next stage and develop these ideas in more detail – with the hope that, in time, we might be able to open the stations once again."

"This is brilliant news for North Derbyshire," said the MP, who has campaigned over the last year, including meeting the Minister for Rail a few months ago, on the matter.

"Bringing back passenger services to places like Killamarsh, Eckington and Staveley would be another brilliant example of levelling up in action in places like ours – real infrastructure improvements which will bring real benefits to communities up and down the line."

"I'm delighted that the Government has allowed us to move to the next stage. It's still early days and there are no guarantees, but having the opportunity to develop these proposals further is fantastic – and will give us to the potential to bid for re-opening these stations in the future. Thank you to everyone involved – now back to work to see if we can do this!"

The Barrow Hill line is part of the Government's "Restoring your Railway" initiative which seeks to re-open closed passenger lines across the country. A Strategic Outline Business Case was submitted in mid 2021 for evaluation and, as part of the national announcement today, the proposals have been allowed to progress to the next stage of development.

The route, also known as the 'Old Road', was the original North Midland Railway line between Chesterfield and Rotherham.

In its heyday, thousands of passengers used the railway regularly, with stations open at Whittington, Barrow Hill, for Staveley, Renishaw, for Eckington, and Killamarsh.

However, it closed to passenger traffic more than 60 years ago, although the route remains in use for freight trains and some non-stop passenger trains.

But now plans are under way to build new stations and reopen the line to regular passenger services.

Huw Bowen, chief executive of Chesterfield Borough Council, said: "This is a fantastic step forward towards the reopening of the Barrow Hill Line for passenger trains. If completed this will create new and positive opportunities for our residents and businesses and aligns well with other significant investments currently being made by the council and our partners.

"Not only would this act as a catalyst for further private investment in the Staveley Works corridor, improved public transport links make a real difference to the everyday lives of local people – increasing the ability of residents to access jobs and education, and opening up new leisure opportunities for Staveley's communities.



Looking southbound along the Barrow Hill Line from Cavendish Place, Barrow Hill.

"Chesterfield borough will in time become an important regional transport hub. The £25.2 million Staveley Town Deal includes funding support for a new railway station at Barrow Hill and a new rail industry innovation and training centre at Barrow Hill Roundhouse which will further encourage the growth of the rail sector around Staveley. In Chesterfield town centre, our station master plan sets out the council's ambitions to transform a key gateway into our town centre.

"We will continue to work closely with our partners in Derbyshire and South Yorkshire to support the development of this 'Restoring your Railways' project through the next phases."

Cllr Steve Clough, Chairman of Killamarsh Parish Council added: "What a great day for Killamarsh! As a Parish, we have been very supportive of these proposals. There's obviously still a long way to go, and I know that we can't count any chickens, but having the ability to go to the next level of detail will be hugely welcomed in the village. I very much hope we might be successful in the future once these plans have been fleshed out."

Cllr Carolyn Renwick, Cabinet Member for Infrastructure and Environment at Derbyshire Council and Chair of Eckington Parish Council commented: "I'm hugely pleased that the proposals for the Barrow Hill line can move to the next stage of development.

"We've been working closely with partners on this for months and I'm looking forward to seeing if we can develop a detailed proposal which will allow the Government to green light the re-opening of this line after so many decades."

Derbyshire Times – Saturday, 18 Jun 2022

# **On Time at St. Pancras**

Martin Allen

If the struggle or simply through confidence and skill, the lone enthusiast wins through in the end. The world is thus enriched, and we can all be grateful for the successful outcome.

St. Pancras station was opened in 1868 by the Midland Railway as its principal passenger station in London and at the time, the arched "trainshed" was the largest single-span roof in the world. The interior was adorned by a clock specially made by Dent's of London, who had supplied luxury timepieces to the rich and famous, including the Duke of Wellington, Tsar Nicholas II and Winston Churchill. Dent was also responsible for some remarkable public clocks, for example Big Ben, Balmoral Castle and the Moscow Post Office. When Sir John Betjeman began his battle to save St Pancras station from demolition in 1962, he replied to the bureaucrats that it would be a criminal folly to destroy a building whose name conjured up wondrous images of architecture and beauty in the mind of every Londoner. The railway-loving Poet Laureate insisted that the neo-Gothic splendour of the hotel forming the station's frontage and the giant span of the arch designed by the Victorian railway engineer William Barlow as the terminus which had a place in the heart of anyone who lived in London. Betjeman, who was battling plans to redevelop the station as an office block, wrote: "What he sees in his mind's eye is that cluster of towers and pinnacles seen from Pentonville Hill and outlined against a foggy sunset and the great arc of Barlow's train shed gaping to devour incoming locomotives and the sudden burst of exuberant Gothic of the hotel seen from gloomy Judd Street". The poet's campaign saved one of London's grandest structures from the wrecking ball and this led to the station being listed as a Grade 1 monument, with the same level of protection as Canterbury Cathedral and Windsor Castle.

In the 1970s, British Rail carried out some much-needed renovation work at St. Pancras station. They considered that the massive clock at the concourse end of the train shed was just too old fashioned and moreover, an American collector had offered BR £250,000 for it. The contractors moved in to take it down for shipment, but fate thought otherwise when they dropped it and it smashed into a thousand pieces. But this was not the end of the story. Employees of BR were able to take advantage of a scheme called a "staff

purchase order", whereby they could buy surplus or scrap materials for a very nominal sum, obtain a receipt and take their acquisition home. Typically, if you wanted to build a garden shed for example, you could legitimately acquire a chit for "firewood" which would give you sufficient timber for the job or better yet, (if you lacked the necessary carpentry skills) you could acquire the body of a goods van or a complete compartment from a passenger carriage. The minimum fee was £10, and you were only limited in your ingenuity and the means of transportation at your disposal! Enter Roland Hoggard, a train driver based at St. Pancras and looking for a hobby in his impending retirement. Roland was someone who liked a challenge, so he paid his staff purchase order for a bargain £25, scooped up the fragments of the clock with the aid of a wheelbarrow and over several train journeys, took the pieces home in the brake van.

When St. Pancras was undergoing its second restoration for Eurostar train services in 2009, someone remembered Roland Hoggard. Dent's were still in business and were commissioned to produce a replica clock, but the original design drawings had been lost. However, they discovered that Roland's restoration of the original clock had been completed





Roland Hoggard in his garden with the restored original clock. Roland was present at the grand opening of the refurbished St Pancras Station by the Queen in 2007 ; Smiths of Derby laid on transport and Ian Thompson (Roland's neighbour) provided a bow tie. Roland was now well over 90 years of age and found it 'rather a long day'. In 2013 Roland Hoggard died in his mid 90s and the surviving parts of the clock face , the hands and mechanism are now at nearby Upton Hall – the home of the British Horological Institute. (http:// thurgartonhistory.co.uk/2011/03/the-largest-clock-in-thecounty/)

to full working order and incorporated into the end wall of a barn on his property. Measurements and photographs were taken, even the numerals which were made from slate were microscopically studied to determine which quarry they originally came from, so that authentic copies could be made. The new 18-foot diameter dial is indistinguishable from the original and now the clock gazes down on the platforms, where it is admired by thousands of passengers every day, thanks to the foresight, skill and ingenuity of Roland. We railway enthusiasts should acknowledge the contributions that people like John Betjeman, Roland Hoggard and countless others who have made their mark in the cause of historic preservation.

LEFT: The handsome 18ft wide clock face once again dominates the station – but its only a copy.

# **Chesterfield's Own Dairy**

Graham Clarke Baldwin

## <u>Express Dairies (Northern) Ltd – Opened on Thursday 9 November 1951 by Alderman G W Heathcote</u> A Typical Day in the 1960s

It's 5 O'clock in the morning and all's quiet at the Sheffield Road end of Lockoford Lane, Stonegravels, that is until the gates open at the Express Dairy and the Transport fleet starts its daily work. The local residents must hate the sounds. Seven days a week for 365 days a year milk has to be taken out and also brought in by these vehicles. There are 10 "Commer" two-stroke diesel lorries which have a characteristic bark, or hum, depending on your opinion. These vehicles would have been loaded the previous afternoon, depending on the season and air temperature, in order to make early deliveries to retailers within a 10-mile, give or take a

mile or two, radius. Each load could have as many as three hundred crates or as few as had been ordered by the retailers, and each "run" would have between 10 to 15 "drops" to make. Some retailers would have only a couple of crates where-as others would have as many as 30 or 40 crates depending on the size of their business. Each steel wire crate carried 20 bottles ( $2\frac{1}{2}$  Gallons) and weighed in total 351b. The drops could be at a corner shop or, as many retailers worked from home, at a private house or a farm. Many farmers had now decided against retailing their own milk in favour of selling their milk to the dairy and having processed and bottled milk delivered for them to re-sell. At each drop full crates would be lifted off by hand, two or three at a time, and the crates with empty bottles lifted back on to the lorry. An average run would take between  $1\frac{1}{2}$  and 2 hours to complete. At 6 0'clock in the morning the dairy would then be open for other private retailers to collect their milk on their own transport in either vans or open backed pickup trucks, thus saving the delivery charges.

On returning to the dairy all of the crates, now containing empty and dirty bottles would be pulled off the lorry on to the "Front Dock" ready to be checked for foreign bodies, before being fed into the fully automatic bottle washer. This, up-to-the-minute, machine could rinse, wash, sterilize and dry 10,000 bottles per hour.

The driver then had to load the vehicle with empty milk churns for his second run. On some runs as many as 120 churns would be needed and on others less, again, depending on the season and size of the farm production.

In the fully operational canteen, the drivers had priority in order not to be held up as the collection and intake of milk was the most important. A cooked breakfast was taken before once again setting out to collect fresh milk from farms within the Chesterfield and outlying areas.

Milk was supposed to be ready at the farm for 8 O'clock AM. Most of it was, but occasionally there might have been a hold up for any number of reasons. To save time and trouble many farmers had constructed a "stand" nearer to the road from the farm on which they'd place the full churns, if there was no stand there was usually assistance. An empty galvanized steel 10-gallon churn weighed around 35lbs and milk weighed 8.6lbs per gallon so a full churn weighed in at over 1cwt. To lift a full milk churn from the ground up on to the lorry took strength and agility. As the full churns were loaded then the same number of empty ones would be left unless there was a request for more if there has been an increase in production due to new calves or the fact that the herd had been turned out to spring grass after a winter inside.

Each driver had his own run and got to know the farmers very well, some would offer a cup of tea, but some others wouldn't even pass the time of day. On returning to the dairy all of these churns had to be rolled on to the front dock with each "pick-up" being unloaded together. Each churn went through a machine that knocked up the tight fitting lids and the checker would then bend down and sniff the contents of each and



Photograph taken when the dairy opened in 1951.



Two 'Udec' YSS 16/8 filling and capping machines and 'Udec' ST/16P Soaker Hydro bottle washer installed at Chesterfield's new dairy. Two operatives loading full bottles into the empty crates by hand. In 1962 a manually controlled air operated re-crating machine was installed which lifted 20 bottles at a rime thus making lighter and quicker work of this task.

every one, any churn that didn't smell right or was seen to contain blood was immediately rejected along with the complete day's production from that farmer, it was delivered back to him the next day and probably fed to his pigs. Each churn would have a ticket on it with the producer's name, date and volume (gallons) and whether it was from the morning or evening milking. Down the side of the churn was a calibration and it was quite easy to assess how much milk was in it, how-ever some eager farmers would often get it wrong, usually to their own advantage, but the chance of getting it past the checker was remote. Samples were taken at random intervals and checked in the laboratory for quality, butter fats and water, it wasn't unheard of for some unscrupulous farmers to add a couple of gallons of water to their production to increase the amount of money received at the end of the month.

Two private haulage contractors, "H Pheasey" and "Shirley and Proctor", also brought milk into the dairy from around the Bakewell/Youlgreave area. They only brought in milk and were not involved with any deliveries.

After unloading these churns, the lorries were then driven round to the back dock to load crates of milk to take out that afternoon to the outlying retailers for the next day's early doorstep delivery. This afternoon delivery was fine in the cooler months and winter but in the summer when temperatures were higher a night shift was implemented to take this milk out so that it would remain fresh. On returning from this third run the empty crates were taken off as before and the lorry then reloaded for next morning's shift at 5 O'clock AM.

For deliveries to a cold store in Matlock and one in Alfreton a special three axle vehicle was designed to carry stacks of crates which were on metal stillages (special steel pallets) and moved to, and lowered to the ground on, a tailboard lift. This was not easy work for the driver as all of these pallets had to be pushed or pulled the length of the vehicle on a hand operated pallet truck and then allocated to various retailers who had access to, and use of, these cold stores.

For all of the drivers it was a very hard and strenuous 10-hour working day and a rolling seven day working week. After the seventh day we had a day off, this meant that every seven weeks we had Saturday and Sunday together – always looked forward to. There were nine regular drivers, but these were backed up by four others who covered, on a rota basis, for days off, illness/accident, holidays and for any driver who failed to turn up for work.

In summer the job was quite straight forward but in winter when there was ice and snow to contend with it was much more difficult. Snow ploughs and gritters didn't seem to appear until the streets were aired and only then in the built-up areas leaving access to the roads and lanes in the outskirts tricky to say the least.

The transport fleet was serviced and maintained by three commercial vehicle fitters whilst the dairy operation was looked after by three specialised and trained dairy engineers.

This was a very busy dairy employing up to 100 people and with a capacity to pasteurize 1,500 gallons of

milk every hour and bottle up to 80,000 pints per day in three grades of milk in pint bottles. Full fat (silver foil Caps), semi-skimmed (red foil caps) and Channel Island (gold foil caps). Homogenised milk was introduced around 1963 but for a long time was not very popular with the public. Production of ½ pint units ended in 1962. Orange juice was produced at the Express Dairy facility in Spen Valley near to Dewsbury and brought over as and when required and cream was brought in from the Express Dairy at Broadfield Road, Sheffield. Another aspect was "school milk" which was put into bottles which held ⅓ of a pint and taken out to a firm called Websters during the school week for them to deliver to schools in the area. The refrigerated cold room could store 65,000 bottles and had to be organised so that the milk was used in order of production. Another little-known fact was that as the word "Express" contained seven letters, the day of production was shown by a dimple pressed into each foil cap over a different letter each day, so on Sunday the dimple was over the 'E' and was moved along until Saturday when it was over the final 'S'. Not many customers knew that!

In 1962 the dairy general manager was Mr McArthur who on retirement in 1963 was succeeded by Mr Jim Rooker, both were superb bosses who knew how to manage the staff with courtesy and understanding. On the retirement of Mr Rooker, a Mr Fisher took over as dairy manager until the closure of the branch. The daily operation of the running and production of the dairy was under the leadership of dairy foreman Ken Moore.

In the office section of the main building there was a laboratory, a wages dept., a sales/order dept., and a transport planning dept. The Express Dairy retail side was, although in the same complex, a totally separate business and run from their own office which was across the yard. They had a fleet of electric milk floats which were charged up overnight and made doorstep deliveries in the Chesterfield area.

At this point in time milk was also available from The Co-operative Wholesale Society, "Co-op", their depot was on Wheatbridge Road, Lower Brampton, no processing was done there, and their bottled milk was brought in from Derby on a daily basis. To have milk from the Co-op tokens had to be bought from a Co-op shop and for every token left out for the delivery man a bottle would be left. Different coloured tokens defined which grade of milk was left on the doorstep, this took the pressure off of the driver in that there was no cash to be handled or collected at the end of the week. But he had to reconcile the number of tokens collected with the amount of milk which he had taken out. A few individual farmers were still producing, bottling and retailing their own milk but not many survived.



For whatever reason around 1968 the dairy closed down and production and delivery was concentrated on the Broadfield Road, Sheffield, branch. All of the milk collection was now in the hands of The Milk Marketing Board who then used part of the Lockoford Lane site as a transport depot. This depot was eventually transferred to a purpose-built unit on Pottery Lane from where as many as thirty-five vehicles then operated. The collection of milk in churns was now being phased out and insulated bulk tankers were now used to collect the milk.

## END OF AN ERA!!!!!

These are some of my memories of working as a driver in a very happy atmosphere with strong comradeship and lasting friendships. I'm now retired and live in France and my thoughts often go back to this part of my life. Happy Days!

Graham Clarke Baldwin. (g.baldwin@orange.fr) 30 January 2017

ABOVE: This picture was taken around 1960 when a troupe of elephants were walking from Chesterfield Railway Station to the Stand Road Park to perform in the circus along with many other exotic animals. Two of the Commer lorries and a private contractor can be seen on the front dock.

# England's Heritage Open Days 2022



The annual programme of Heritage Open Days, which is billed as "England's largest festival of history and culture" provides opportunities to visit sites and buildings that are not normally open to the public. This year it is celebrating 'inventions, innovations and discoveries', so promises to include many places associated with industry and technology. It runs 9-18 September.

Online Heritage Open Days Programme: https://www.heritageopendays.org.uk/

Early Rope Haulage Railways (Continued) Martin Allen

ollowing on from Martin's article in the last issue he has submitted this photo pertaining to early rope haulage railways. This is the Cromford & High Peak line, specifically the top end of the Middleton incline. It shows the method of counterbalancing empty wagons on the left side going uphill and being assisted by the heavier loaded wagons on the right side going down. A single endless wire

rope links the two tracks.

Today, this section of the C&HP is a public right of way. The winding house chimney can be glimpsed at the summit of the incline through the mist. On selected open days, the winding engine can be seen in operation by means of compressed air. The tracks and the winding ropes have all gone now, but the pits that contained the massive rope wheels can still be seen. The pit at Middleton Top still has the winding wheel in-situ.



# Stephenson Snippets – City of Bridges *Rev. Chris Jackson*

Martin Allen

t was stated after his death on 12 October 1859 that Robert Stephenson was 'the greatest engineer of the present century'. A tomb in Westminster Abbey was perfectly fitting. These days we see him overshadowed by his father, the better known of the two. The two changed the face of this nation. A view from space picking out the railway lines would confirm that, at the height of the railway expansion! Robert's contribution to the welfare and prosperity of the nation was in the design and construction of engines but also in the building of bridges which enabled the railways to cross rivers and valleys.

Newcastle is a city of bridges. And still holding proud place there is the High Level Bridge designed by Robert Stephenson, continuing to be important to the life of the area. It has two other 'iconic' bridges in the seven that cross the Tyne within a short distance of each other – here is a bird's eye view of four of them.



Robert Stephenson would have been pleased that his bridge – on the far left – still keeps such distinguished company. To the far right is the famous Gateshead Millennium Bridge – 413 feet – resembling the blinking of an eyelid as it lifts to allow the passage of ships. Pedestrians and cyclists cross and it gives splendid views up river of the other bridges. From it you see clearly the most famous of all Newcastle's bridges – the symbol of the city – the Tyne Bridge, built in 1928. Across this goes ceaseless four wheeled traffic – apart from when it is reserved for the passage of the 30-40,000 runners taking part in the annual Great North Run, the biggest half–marathon in the world.

The High Level bridge is beyond the Swing Bridge of 1876. The 1337 feet long bridge was opened by Queen Victoria in 1849. London and Newcastle were now linked by rails which were beginning to cover great stretches of the country. Victoria crossed the bridge on her way from Scotland to the South of England.



It was in 1850 that The Queen opened the Royal Border Bridge at Berwick. (pictured left). The imposing viaduct featured 28 arches and a railway now stretched without interruption from London Edinburgh. Robert to Stephenson was the designer.

How George Stephenson would have loved to have been there! He had died just over a year previously. Interestingly just 17 days after his death on 12 August 1848 a passenger train had crossed the temporary wooden bridge on the foundations of the new structure. The massive sandstone pillars were still being erected at that time. There were huge celebrations that day and at a lunch at the Queen's Head toasts were drunk to George Stephenson and Robert Stephenson. *The Illustrated London News* wrote : *'the train smoothly and quietly, at a moderate pace, and without the slightest interruption or accident, glided from Durham to Northumberland'*.

And Robert Stephenson designed more bridges. The Britannia Tubular Bridge crossed the Menai Straits. He connected Canada to the US with the Victoria Bridge over the St Lawrence. Not to mention bridges in Egypt and elsewhere. Perhaps it was all in his blood having been born in a cottage on the banks of the Tyne.



Rev. Chris Jackson was the Rector of Holy Trinity and Christ Church, Chesterfield from 2001 to 2010 and regularly contributed 'Stephenson Snippets' to In Touch, the Parish Magazine. This article was previously published in that magazine in July 2009 and is reproduced with permission.

# **IA News and Notes**

## **Closure of Belper Mill Museum**

The Association for Industrial Archaeology was saddened to hear the recent announcement by the trustees of Belper North Mill that their museum and visitor centre are to close at the end of October 2022. This announcement follows the loss of the Trust's grant funding from Amber Valley District Council. The space currently occupied by the galleries will be let for commercial use. The town of Belper is a key feature of the Derwent Valley World Heritage Site and the loss of this facility, providing interpretation of the area's history

and heritage, adds to the existing threats to the World Heritage Site's long-term sustainability. https://www.belpernorthmill.org.uk/position-statement-april-2022/



Belper North Mill (image courtesy of Belper North Mill Heritage Trust)

## **Big donation for Manchester's Science and Industry Museum**

The Science and Industry Museum in Manchester has received a £3m donation from The Law Family Charitable Foundation to secure the future of its iconic Power Hall. In recognition of the Foundation's generosity, the gallery will be known as the 'Power Hall: The Law Family Gallery' when it reopens to the public in 2024. The Grade II listed Power Hall building was built in 1855 as the transhipment shed for Liverpool Road Station, the world's first purpose-built intercity passenger railway station. It houses one of the UK's largest collections of working stationary steam engines, many of them built in Manchester.



Museum of Science and Industry (courtesy of Visit Manchester)

Along with large grants from the Government, this donation will transform the whole museum's environmental sustainability and place zero-carbon technology at the heart of the museum's visitor experience, including water-source heat pumps to provide heating and power the historic engines sustainably.

https://www.scienceandindustrymuseum.org.uk/about-us/we-are-changing/power-hall

## Elsecar 1880 digital fly-through launched

The team at Barnsley Museums, winners of AIA's award for Community Engagement in 2021, have produced a fantastic five-minute digital recreation of the Elsecar area of South Yorkshire. It shows what this unique collection of collieries, workshops, ironworks, housing ands transport infrastructure would have looked like in 1880. Equally remarkable is the fact that the vast majority of the structures shown survive and can be visited.

Watch the Elsecar fly-through on YouTube : <u>https://youtu.be/6KYqMX5EfGs</u>



Elsecar Heritage Centre, former industrial workshops (photo courtesy Barnsley Museums)

# Chairman's Chat

#### Have you been yet?

It's quite shameful, but until a week ago I hadn't visited the "Museum of Making" (the old Silk Mill) in Derby since its re-vamp. But I've just been and I must say I had a great few hours there. It really is quite innovative as museums go, and it's no wonder that the awards keep rolling in. It tells the story very creatively of Derby's place over 300 years of industrial history in so many directions.

And the building itself? It was between 1717-1721 that the Lombe brothers completed the building of what is widely recognised as the world's first factory using very new silk throwing technology. This technology had been acquired from a small innovative silk throwing mill in Piedmont, Italy, a really early example of industrial espionage. The enormous 5-floor silk mill that was built on the Derwent was, in the early 1720s, a great wonder. Over the next few decades a small number of silk mills were constructed in Britain, including that in Chesterfield. When Daniel Defoe (yes, he of "Robinson Crusoe" fame, and a great pamphleteer and writer at the time) visited the Lombe's Silk Mill in the early 1720s, he described the complexity of the equipment that he saw in Derby ...

"One water wheel gives motion to all the rest of the wheels and movements, of which any one can be stopped separately. This ... contains 26,586 wheels, and 96,746 movements, which work ...73,726 yards of silk thread every time the water wheel goes round, which is three times in one minute ... and 318,504,960 yards in one day and night."

Does this sound complex? It certainly was! And whilst in the Derby Museum of Making there is no reconstruction of the silk throwing process, you can see reconstructed equipment in the Macclesfield Silk Museum - see photo. My photo is quite poor because this complex equipment with so many spindles and moving parts was safely protected behind Perspex.

So, these are two museums I can strongly recommend to you, not just the Museum of Making but also Macclesfield Silk Museum.



LEFT: "Museum of Making" – Derby Silk Mill RIGHT: Reconstruction of the silk throwing process – Macclesfield Silk Museum

I look forward to seeing you all at our first talk of the Autumn, on Monday 12 September, Peter Dunkersley's talk on the Strutt family, at a time when sadly the North Mill Museum in Belper is closing due to their funding crisis. If we and our local governments don't support these repositories of our heritage, we lose them.



# **NEDIAS Outings 2022**

Here is a photographic review of this year's outings (so far!) - enjoy!



Bolsover Town Trail – Tuesday 26 April 2022 Photos-Doug Spencer



Wortley Top Forge – Saturday 21 May 2022 Photos – Cliff Lea



The Industries of the Hipper Valley through Brampton – Monday 20 June 2022 Photos – Doug Spencer

# And finally .... .... Hydropower in history

Cliff Lea

atermills started here in Roman times, and by the time the Normans arrived it's estimated there were already 6,000 watermills in Britain. By 1800 after the great textile mill splurge in the late 1700s there were 20,000!

So we've generated energy from water power since the year dot.

Right now it would be a **brilliant** idea to use all these old historic water mill sites for raising hydroelectricity to reduce our reliance on coal and gas; but suddenly the Environment Agency have raised the fees they charge for approval sky high! From a few hundred pounds to anywhere from  $\pounds 10,000 - \pounds 25,000$ .

This will affect anyone who is currently considering doing just this in their historic water mill, such as at Cromford, Belper, Bakewell, Milford, Darley and so on. One closer to home which could be hit is Chesterfield Canal Trust. And last week I was at the very famous Brindley Mill in Leek, where this absence of joined-up thinking by Government Agencies would scupper their ideas, and closer to home, so potential much on the tributaries of the Don, Rother, Rivelin and so on.

Come on politicians, let's stitch these policies together with a bit of synergy.



## THE NEDIAS NEWSLETTER ARCHIVE

We now have the NEDIAS Newsletter live on Grace's Guide – <u>https://www.gracesguide.co.uk/</u><u>North East Derbyshire Industrial Archaeology Society</u>. Access to the actual newsletters is either through registering and a small payment or free by logging in (top RHS). If you wish to log in for free access [members only] then please request the log in details from Cliff (<u>cliff.lea@btinternet.com</u>) or Doug (<u>editor@nedias.co.uk</u>)

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: 5 October 2022**

#### **NEDIAS Committee:**

**Chairman** – Cliff Lea; **Secretary** – Patricia Pick; **Treasurer** – Pamela Alton; **Membership Secretary** – Jean Heathcote; **Committee Members** – Brian Dick, Diana Allen, David Hart, David Palmer, Christine Thomason.

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