

**North East Derbyshire
Industrial Archaeology Society**
NEDIAS Newsletter No. 27 – August 2007

Price: £1.00 (Free to Members)



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Chairman's Comments:

The August Newsletter heralds the start of our indoor talk's season and, with the weather experienced so far this year, the prospect of meetings in the dry is surely very welcome. Over the three days of the Spring Bank Holiday weekend, NEDIAS provided three walks for the County's Walking Festival held in that part of Derbyshire now joyfully marketed as the bit next door to the Peak District. While those on the Saturday morning walk round Clay Cross experienced just a light shower, the Sunday walk from Ashover and Monday's Holymoorside hike had the full deluge. Even so, the booked places were largely sustained on the first two days and actually exceeded for Monday's event. With close on seventy people taking part, the NEDIAS walks accounted for a high proportion of the total taking part in the weekend's activities. Thanks must go to Patricia Pick who not only organised and lead the Sunday and Monday walks but assisted me with the Saturday morning event – a very full weekend indeed.

Sadly, four weeks later, when it became time for the NEDIAS evening visit to the Trent & Mersey Canal at Shardlow, the heavens opened up again. With the river Trent just over the wall from Shardlow's canal basin, it seemed odd that there it was just another wet English evening while just a few miles up the road mayhem prevailed. It was left to your Chairman and just two members to entertain the guides from Shardlow Heritage Centre with the buffet in the Clock Warehouse.

In between those watery events, the evening visit to Rolls Royce at Derby organised by Cliff Lea had taken place and had been very well attended. So much interest was shown by those present that a further visit for "Part II" was offered by our illustrious speaker Mike Evans and will, hopefully, be arranged for the summer of 2008.

Continuing on a positive note, members will see within these pages that an answer to the question often posed as to where the "archaeology" in NEDIAS may well be forthcoming. David Palmer, who you will see has a strong background in the practical aspects of IA, has offered to assist us. This could hardly have come at a better time, given that Chesterfield Borough Council's recent invitation to NEDIAS to take part in its project for identification of sites and buildings of importance to our local heritage. (Ed: See article from David Palmer later in this Newsletter)

With David's guidance and leadership I hope we can at last get out and get our hands dirty - weather permitting of course!

David Wilmot

WHAT'S ON?

NEDIAS Lecture Programme, 2007

When: Meetings are usually held the second Monday of each month, starting at 7:30pm
Where: Friends' Meeting House, Ashgate Road, Chesterfield

10 September 2007	Mike Taylor – <i>"Some Links between School Chemistry and Industry in North East Derbyshire"</i> – otherwise described in the NEDIAS programme as <i>"Aspects of the Chemical and Coking Industries in Derbyshire"</i> .
15 October 2007	David Jessop – <i>"The work of the archaeological rescue group ARCUS."</i>
12 November 2007	Brian Naylor – <i>"The History and restoration of Heage Windmill"</i>
10 December 2007	Christmas Meeting: David Wilmot – <i>"From Ankerbold to Antonito – a miscellany of canal, road and rail."</i>

Other diary dates

Sat 8 September 2007	Wortley Top Forge, Heritage Open Day (11:00am-4:00pm) Free admission.
Sun 9 Sept 2007	High Peak Coal Measure – tour led by Dr John Barnatt Meet 2.30 pm at Grinlow car Park. Further details, DAS, 01332 704148
Sat/Sun 22-23 Sep 07	Steam Days at Wortley Top Forge
Sat 13 Oct 2007	EMIAC 73 - 'The Foxton Lock Flight & The Thomas Lift' . Robert Monk Hall, Foxton Village, Market Harborough. Further information from Leicestershire Industrial History Society, 01773 710133

Trams powered by the combustion of coal gas enjoyed a brief appearance on the public transport scene in the closing years of the 19th century and the early years of the 20th. They are known to have been used or tried out on the Continent at Dessau, Dresden, Neuchatel and Paris, and in Britain at Croydon, Blackpool, Manchester and Neath. Of these, the longest-running system, at least in Britain, was at Neath, where the gas-tram service operated from 1899 until 1920, over a single line of about 4 miles from the Terminus Inn at Skewen through the town centre to Villiers Street in Briton Ferry – a route analogous to that of the Chesterfield trams between Brampton and Whittington.

The gas-powered tram was essentially the invention of Carl Lühlig (1840–93), a German engineer perhaps better known for his innovations in coal preparation. His tram design was described in British Patent No. 15,841 of 1892, featuring two double-cylinder Otto gas engines (one under each longitudinal passenger seat) coupled to transmission gearing, together with pressurised gas cylinders and a water cooling system.

The Blackpool service, running to St Annes and Lytham (c. 7 miles), was inaugurated on 11 July 1896 and continued until a gale destroyed the tram depot on 27 February 1903. The trams differed from Lühlig's design in being double-decker (open-top with transverse seats) and in having an engine at only one side. The construction of these trams was described in *The Engineer*, 17 July 1896 (pp.66–7) and 28 July 1899 (p.85+drgs – see the drawing below). The Otto engine, of about 14 hp, had two horizontally

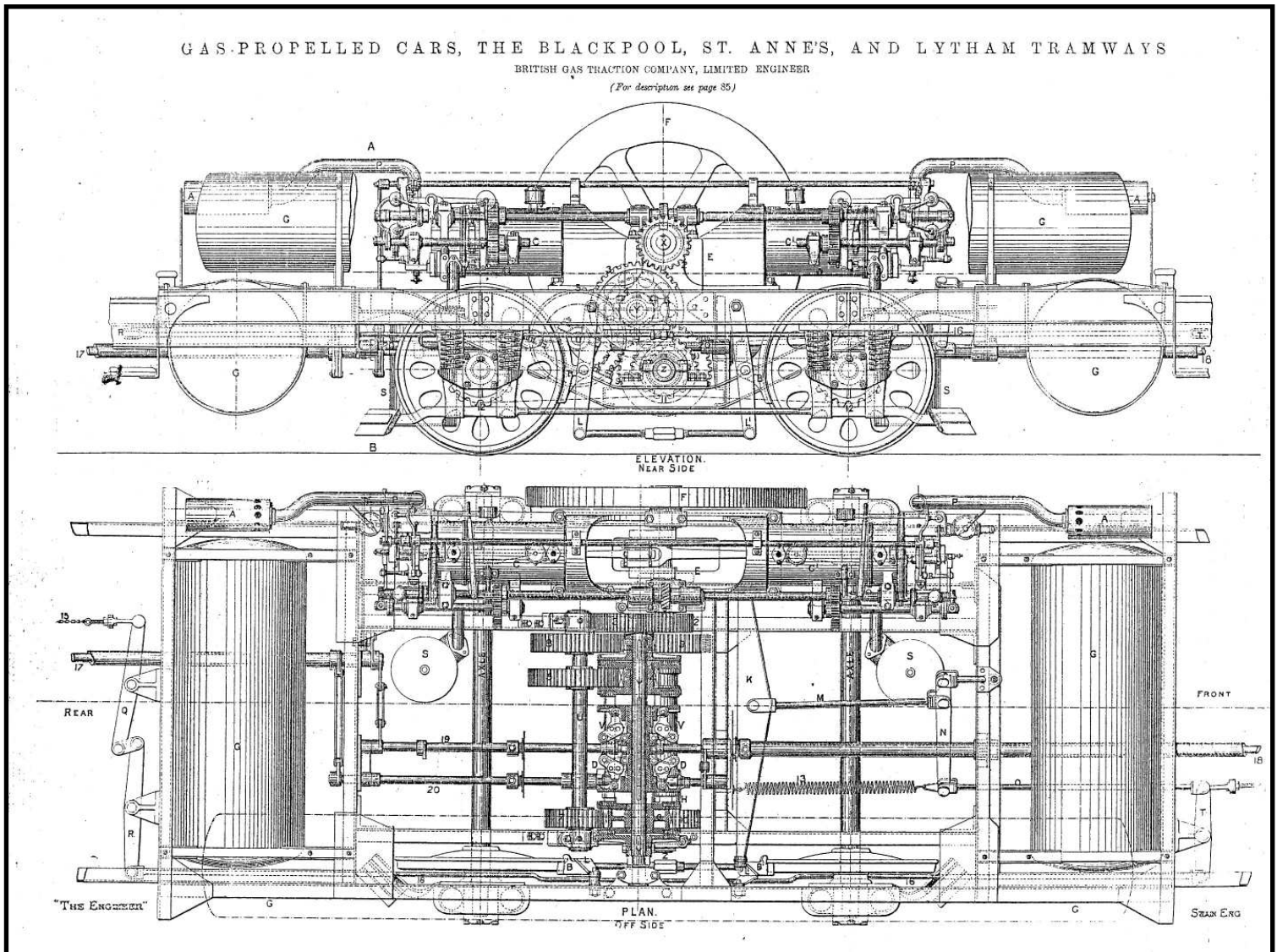


Fig. 1: Gas tram, engineered by British Gas Traction Company for the Blackpool, St. Annes and Lytham Tramways. Source: *The Engineer* 28 July 1899.

opposed cylinders with pistons of 7¼ in. diameter and 9¾ in. stroke, working a central crank with a flywheel, running at 260 rpm during travel but only 75 rpm when idling. The cylinders were provided with lubricating and water cooling systems, the water being circulated through pipes on the roof of the car.

Two travel speeds, about 8 and 4 mph, were achieved by gearing, friction clutches and chain drives to the axles. The gas was contained in three cylindrical reservoirs: one under the longitudinal passenger seat on the opposite side to the engine and one transversely at each end of the chassis. These reservoirs were charged at a pumping station to a pressure of 10 atm., the charging time being only about one minute. *The Engineer* articles provide no information on the regulation of the gas supply from the reservoirs to the engine, on the spark-ignition system (presumably a magneto), or on how the engines were started from cold. Data also seem to be lacking on the specific gas consumption.

The construction of the trams was subcontracted by the British Gas Traction Co., (which had acquired the rights to the Lührig design), to the Ashbury Carriage Co. of Manchester initially and then to the Lancaster Railway Carriage & Wagon Co. The engines were obtained from Gasmotorenfabrik Deutz, Cologne. The first cars at Blackpool carried 40 passengers (16 inside, 24 outside); they were supplemented later by cars accommodating 52 passengers. Similar cars were operated in Manchester by Trafford Park Tramways from 1897 to 1908, but here they ran on flat-topped, not grooved, rails.

Neath Corporation leased the operation of its tramway (hitherto horse-drawn) to the British Gas Traction Co. in April 1898, but gas trams did not start running until August 1899. The company went into liquidation soon afterwards; by late 1902 a new firm, the Provincial Gas Traction Co., had taken over the operation, succeeded in 1916 by the Corporation itself until the tramway was abandoned on 8 August 1920, to be replaced by a bus service.

The Neath trams are believed to have been of the same design as those used at Blackpool; indeed, it seems that at least some of those abandoned in Blackpool in 1903 were transferred to Neath. The numbering of the Neath trams ran from 1 to 23, but it seems inconceivable that all these were in stock, let alone in use, simultaneously: the depot on London Road in the town centre, previously used for stabling the horses, would hardly have held them all. The building no longer survives.

The town gas was supplied from Neath gasworks (about a third of a mile away) to compressing plant at the depot. In the latter years of operation, one of the tasks for which my late uncle, E.M. Edwards, was made responsible – as a young trainee at the gasworks – to ensure adequate gas supply to the depot. One filling of the tram cylinders sufficed for one double journey, but whether this was just from the depot to one terminus and back or over the whole 8 miles seems uncertain.

My uncle remembered that the trams were underpowered, as reflected in some lines of a ditty sung at the Gnoll Hall: 'But when you get to the hills, boys, You've got to get out and push!' There were numerous complaints about the service, which seems to have been less than satisfactory, all told. A former tram conductress interviewed in the 1970s recalled that on approaching one low bridge she had to run upstairs to tell the 'outside' passengers to duck!

One tram body has been recovered from use as a car-port and has been rebuilt; it is now on display at Cefn Coed Colliery Museum near Neath, but no engine or drive mechanism has yet been found for it. A number of photographs of the trams in service exist, e.g. in Paul Collins, *The Tram Book* (1995), p.26; in Ellis Jenkins, ed., *Neath and District: a Symposium* (1974), plate 4; and in the volumes of *Old Neath & District in Pictures* published by Neath Antiquarian Society (1980–1997).

Main sources used for the above, besides the articles in The Engineer already cited:

Gordon Tucker, 'Neath Corporation tramways 1897–1920', *Trans. Neath Antiq. Soc.* (1979), 67–84

Harry Green, 'Neath trams: the human element', *ibid.*, 85–90

Gordon Tucker, 'Gas trams at Croydon—the first in Britain', *Tramway Review* (1986), no.127, 213–221

J.C. Gillham, 'Gas trams at Neath', *ibid.* (1987), no.129, 25–26

Bernard Lloyd, 'Memories of the gas trams that made Neath unique', *Country Quest* (1985), April, 10–11

My thanks to Rosemary Thacker, National Tramway Museum, for supplying copies of the last three.

With reference to Richard Robinson's article which appears in NEDIAS Newsletter No.26 of May 2007

Josiah, an only son, was the third and youngest child of Josiah CLAUGHTON (1736-1768) and Mary ENGLAND (1742-1824).

He was baptised at Campsall, near Doncaster on 6 November 1767 and died at Chesterfield on 15 April 1836. (An obituary for him may have been reported in the Derbyshire Times.)

He married Elizabeth BRAILSFORD at Chesterfield on 3 April 1792 and they had eleven children, eight girls and three boys. Only two of the boys lived to adulthood, namely, William their 7th child, (1803-1874) and Henry their 8th child, (1805-1849). William eventually succeeded to the family business and is recorded in White's 1857 Directory as a Wholesale Druggist residing at Brampton House.

Josiah's wife Elizabeth was baptised at North Wingfield on 16 July 1769 and she died at Hasland House, Hasland on 19 November 1853. She was the daughter and third child of David BRAILSFORD & Elizabeth MILNES.

Josiah was a Chemist and Druggist, and his business was probably based at Market Place, Chesterfield but most interestingly your relative John Bradbury ROBINSON (1802-1869) was apprenticed to him in 1818 and later had his own Chemist & Druggist business, which was located at Packer's Row, Chesterfield.

Fieldworking for the Industrial Archaeologist

David Palmer

David Palmer has joined NEDIAS this year, and his previous experiences in involvement with industrial fieldwork could be invaluable as follow-up to some of our earlier activities. Ed.

The first thing to say about fieldwork is that it is fun! You're out in the open air doing something useful in the company of like minded people. What more can you ask of a hobby?

My own skills, if I have any, lie in site interpretation and survey. My interest in IA began in the late sixties and early seventies when I taught site survey and engineering drawing amongst other topics, to an extramural diploma class in IA at Leicester University.

For many years I was on the committee of Leicestershire Industrial History Society and Chairman of Nottinghamshire Industrial Archaeology Society for a time. During that period I helped with the recording of quite a few sites including Fall Mill near Ashover. I never did quite understand why NIAS so blatantly trespassed into Derbyshire! Unfortunately I have no idea where that report went.

I had a longish break from active involvement with IA for various domestic and job related reasons but about five years ago I helped to run a project funded by the Heritage Lottery Fund to restore a hydraulic ram pump and dam in southern Derbyshire near Ticknall. This involved a levelling survey of the feed to the pump and marking out where the water line of the restored lake would be as well as a preliminary site survey. More recently I have surveyed a potential pottery kiln site, again near Ticknall, which involved making a site plan and overlaying a course resistivity survey to spot probable kilns. These "hot spots" were then accurately located on the ground so that a more detailed local resistivity plot could be carried out. This work is on-going.

Of course before you can start recording a site you have to find it! The older it is the harder that becomes. If you have humps and bumps in a field you know where to start. If you have a reference in a 16th century will you will probably have your work cut out to locate the site. Which is where us field workers need back up from the documentary researchers. The two must go hand in hand.

Once you've located your site the very first step is to record what is there on a site plan and photographically. Photographs should include proper scales, not your partner in skimpy beach wear propping up a wall! Excavation is essentially a destructive process. Once you start there is no going back! The site plan may have to include cross sections of earthworks, dams etc. Once this preliminary work is done then its time for the pick and shovel men (or should I say personnel in this enlightened age?). I should stress that the picks and shovels should be wielded with intelligence but you can waste an awful lot of time scraping away with a trowel at a collapsed wall when that is all it is. What lies under the wall may need the trowel and brush but probably not the rubble itself. Of course the skill comes in knowing when to use which tools and recognizing what you've got to excavate. The first rule is, "If in doubt STOP!"

Equipment can be a problem because it costs money. However you can now get a complete, new, levelling outfit for £100 + VAT. I mention levelling specifically because it is the one technique for which an instrument is essential.

A most important person associated with any site is the one who collects all the data, of whatever form, and puts it together into a properly presented report. If this doesn't happen all the work is wasted. Another problem is where to put the report when it is finished.

Finally I don't think a small group should be too put off by a large site. In my view any record of a site is better than none, the more accurate and complete the record the better, obviously.

The Walking Festival, Spring Holiday Weekend

Pat Pick

NEDIAS' contribution to the Peak District's Historic Border Country Walking Festival started on the Saturday when David Wilmot led a group of 12 on a tour of Clay Cross's industrial heritage, and the part played by George Stephenson. David showed us the remains of the Bywater's site, and a discussion ensued about the regeneration of the area. The Rainbow café and the railway carriage from the Ashover Light Railway were looking in need of much tender loving care. The party went inside the church to view the William Morris window. The day was mostly fine and cloudy.

Unlike the heavy rain which greeted me on the Sunday for the Ashover Industrial Walk. Twelve brave souls gathered at the Village Hall car park. After a brief history of the village and past industries we walked down to the Amber to see the remains of the Ashover Light Railway track bed. This we followed by the side of the Amber to Fallgate Mill. Unfortunately we were unable to look inside due to health and safety concerns. A walk up over various lead rakes brought us a view of the now disused Milltown Quarry. Our walk then took us to look at Gregory's chimney, and the spoil heaps of old lead mine waste. Gregory Mine was a very profitable business in the late 18th century. A quick lunch was taken in the shelter of the wood, before walking along the old coffin road, and on to Goss Hall – the home of Anthony Babington who was hung for his part in the plot to rescue Mary Queen of Scots. Because of the bad weather there were no trail riders in Butts Quarry, so we could enjoy this in peace. Butts Quarry marks the end of the Ashover Light Railway, and we picked up the track bed to walk back to Ashover.

Monday dawned even wetter, and I wondered if anyone would venture out. Twenty-four people turned up at Holymoorside including a family from Oxford. After a brief history of the village, its water works, mills and the part Simeon Manlove played, we climbed uphill



to look at the quarries where stone to build Chesterfield parish church came from, now sadly a dumping site – but there were finds to be made including the illustrated clay pipe. A footpath took us to a boundary stone with markings “Ashover/HH” (Henry Hunloke).



It was then on in grey and very wet conditions to Stonedge chimney, the highest point of our walk at 1,200 ft. The chimney is the oldest surviving industrial chimney, a relic of the 18th century lead smelting industry.

After lunch it was all downhill, via Stonehay Farm, to an old Chesterfield Corporation Water Board building. Our visit finished with a visit to the old dye works; a surprise was in store when a lady from one of the cottages came out and produced a painting of the dye mill. The party arrived back at their cars just before the heavens opened once more.

The Schwaz Silver Mines

Cliff Lea

Members will recall the account published in NEDIAS Newsletter of August 2006 of Paul Smith’s visit and survey of a silver mine in Arizona. Silver from the America’s started to assume growing importance from the 19th century, but before that it came from the old countries. And no source had been more important than from the Alps, and particularly from Schwaz in Austria.

During my holiday in Austria this summer, I visited this fascinating area.

It is said that the Romans were amongst the earliest to exploit silver in the area, but copper had been sourced there a millennium or so earlier. First documentary evidence for the mining of silver in the area is dated 1273, and the town of Schwaz grew in importance, until by the 1700s it is believed that the Schwaz area produced 75% of the world’s silver. Schwaz grew to become one of the major economies in Austro-Hungaria, but declined in importance as silver became more and more difficult to extract. As with much mineral mining in Derbyshire, water became the major problem.

Nevertheless, it is claimed that a network of some 500 km of mining tunnels, shafts, roadways and tracks had been worked during the centuries of activity in the mountains in that area, before it eventually became uneconomic.

During my holiday this year I visited a mine at Schwaz, which had been re-opened in 1990 to demonstrate the massive undertakings that had at one time taken place in the area. We entered the mine by an electrically powered narrow gauge railway, through a small tunnel penetrating approx 1 km right into the mountain, sitting with severe claustrophobia astride the cars, no walls or ceiling, and in a tunnel maybe 1 metre wide, and with the roof only a short distance above our heads; then on foot we were led through the many workings. (And yes, Christine herself even agreed to come on this stressful trip too!)

It was reported that in 1515, the mine employed 600 people simply to carry water in leather buckets out of the workings, up 9 haulage levels, so that the valuable ore could be retrieved. However one major introduction of 1554 was the famous “Aquatic Art” of Schwaz, installed by Anthony Loyscher; this was a reversible water wheel. It was actually two water wheels whose veins were mounted in opposite directions, and used to lift the water and ore from great depths from within the mountain,

By 1650, the depth now reached required new ingenuity, and a 10 m diameter overshot wheel was installed actually in a cavern right in the heart of the mountain, but it was driven by water piped into it from a river on the outside, then piped away again, so that water power from the surface powered wheels whose function was to lift out water and ore.

This wheel has been restored and is still in situ – deep inside the mountain!



Letters

In the Letters column of the February 2007 NEDIAS Newsletter, there was information of a potential separate grouping for non-professional voluntary and community archaeologists but within the IFA. The originator Jeff Morris updates us:

I am happy to announce that the council of the Institute of Field Archaeologists accepted the proposal for the formation of the “Community & Voluntary Archaeology Group” at its last meeting.

We are therefore able to look into the possibility of recruiting members of the group who may or may not also be members of the IFA.

Membership of the group is free to existing IFA members, however a small fee will have to be paid by non-IFA members (the level of which has not yet been decided).

In the first instance if you feel that the group will be of relevance and interest please email me at SIG@jeffmorris.org.uk

Thank you.

Jeff Morris MA PIFA

☎01582 700695 / SIG@jeffmorris.org.uk

I.A. News and Notes

EMIAC Conference at Foxton

This years East Midlands Industrial Archaeology Conference will be held at Foxton, the site of the majestic flight of 10 locks, dating from 1814 and the Inclined Plane Boat Lift, opened in 1900. A tremendous amount of work has been carried out here by British Waterways and the Foxton Inclined Plane has to be seen. Because of its fragile nature and designation as a Scheduled Monument, the Plane cannot simply be restored. It is being preserved. Dr Crowe, Head of Heritage for British Waterways will present details at the conference of current proposals, and its history will be recounted by Dr Wendy Freer.

The conference, which costs £16 per head including buffet lunch, takes place on Saturday 13 October, and more information can be seen on the Leicester Industrial History Society web site, www.lihs.org.uk, by phone 01773 710133, or direct with your cheque payable to LIHS and sae to Alan Brittan, 18 Westbourne Road, Underwood, Notts NG16 5EG. Booking form available from Cliff Lea.

Heage Windmill

Brian Naylor of the Heage Windmill Trust, who is to give us a talk in November on the history and restoration of this unique working example of a multi-sailed stone towered mill, has kindly sent to me the following notes and photograph to whet our appetite! Ed.

Heage Windmill ceased commercial production and gradually became derelict because it couldn't compete with roller mills, and 1919 was the year it ceased working commercially. It was finally rescued in the mid 90s when a group of enthusiasts, led by a couple of 'molinologists', formed Heage Windmill Society and out of that grew The Friends of Heage Windmill with a view to eventually restoring the mill to full working order.

The Friends of Heage Windmill are a group of volunteers who work throughout the year to ensure the mill remains in good condition and working order. It opens at weekends and Bank Holidays between Easter and the end of October from 11am until 4pm and private parties are bookable by contacting Mrs. Margaret Bonsall on 01773 852270.



Rolls-Royce Heritage Centre

An enthusiastic group met at the Rolls-Royce Heritage Trust Museum, Sinfin, on the evening of 21 May, to hear a fascinating account of R-R's history by the celebrated R-R historian Mike Evans; the speaker covered much of the early history of the company, and his background knowledge and anecdotes concerning many of the early characters and projects was encyclopaedic.

We barely had time to briefly tour the museum, the photograph showing the group with Mike Evans in front of the famous RB 211.

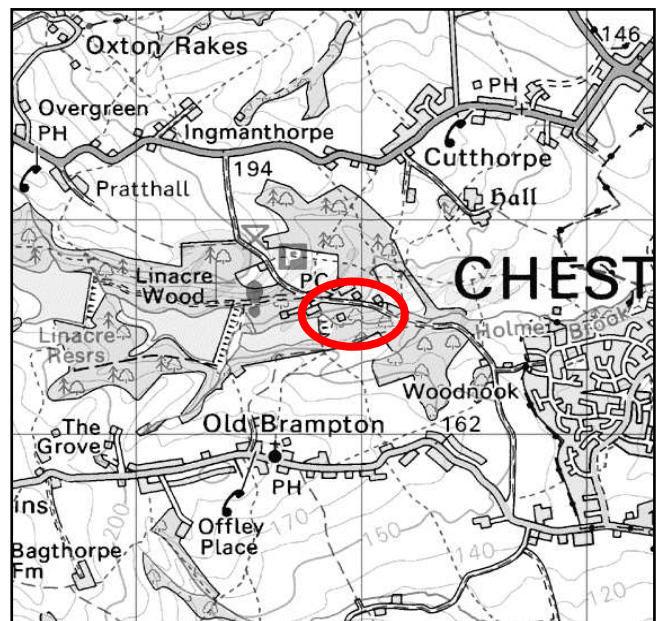


Lead smelting at Linacre

Members may remember that student Mary Wilde in completing her degree in Archaeology at Sheffield earlier this year, would be carrying out a survey of Linacre Over Smelt Mill, the earliest reports for which go back to the late 16th century. The site is close to the bottom reservoir in Linacre woods.

Mary has now completed her survey, and has kindly agreed that her comprehensive paper can be published in the next NEDIAS Journal; in the meantime she will be letting me have a short report for the next Newsletter, so watch this space.

Incidentally, Mary has now graduated with First Class Honours, and has been awarded a prize for "best archaeological sciences student". I think her work at Linacre was a major feature in helping to gain the award, and she deserves our sincere congratulations!



The Friends of Pleasley Pit will be holding an open house during the weekend of 8-9 September, when the site can be seen in all its glory, open from 10:00am - 4:00pm both days. Visitors can see the latest restoration work on the massive winding engines. In addition there is a photo display by the Pleasley People's History Group.

For those who visit on the Saturday, there will be a real treat, with flypast by a Lancaster Bomber!

<http://www.pleasley-colliery.org.uk>



A Tour of the Cromford Canal in Two Directions: to the Portland Basin and to the Butterley Tunnel ~ Saturday 8th September 2007

Ironville, Derbyshire

Description:

The walk will explore the canal in two directions. To the east and south the canal passes the Junction Bridle with the former Pinxton arm before descending the Ironville Flight of 7 locks of which 6 remain largely intact. En route the water control systems will be seen, several surviving buildings from the canal era, as well as the entrance bridge to the Portland Basin (link to Mansfield and Pinxton Railway) and site of a cast iron aqueduct across the River Erewash. In the opposite direction we walk the path between the canal and reservoir then pass the restored Butterley Co housing of Golden Valley before reaching the Butterley tunnel.

Directions:

Meet at the Codnor Park Reservoir, off Coach Rd, W of Ironville

Opening times:

Saturday 8th September, Tour 10:30am

Booking Required:

Pre-book on 01629 823256 (Arkwright Society)

Additional information:

Walk is approx 3 miles in length. Sturdy footwear and wet weather gear recommended. Refreshments for purchase. Max 40 people.

Organised by:

Sir Richard Arkwright's Cromford Mill

..... and Finally ...

... Derbyshire's first endless chain?

Cliff Williams

Whilst perusing through the Derbyshire Courier, 5th September 1868, I came across this little interesting snippet and thought it might appeal to our members:

“West Staveley - Endless chain for a coal pit”

“The West Staveley Coal Company have succeeded in sinking a pit at Hundow, at a distance of one and a half miles from north Whittington, upon the estate of Charles Thorold Esq. Owing to the hilly ground it has been deemed desirable to form an improved gang line, over which, by means of the endless chain, 1,000 tons of coal may be daily conveyed at a cheap rate, thus dispensing with the more costly locomotive . On Tuesday for the first time, by means of the chain, coals were sent from the Old Colliery, where it will be screened or washed for coke purposes. The length of the chain is nearly three miles, and weighs 26 tons. It was made by Messrs. Wood and Brothers, Stourbridge, and travels over the land at the rate of two miles an hour, but is capable of being worked at the rate of six miles.

We understand that this is the first introduction of the chain into Derbyshire, and its successful working is expected to promote the prosperity of North Whittington and the adjacent Villages”.

Next Meeting

Monday 10 September

Mike Taylor: “The Chemical Industries of Derbyshire”

NEDIAS Committee:

Chairman – David Wilmot; Secretary – Patricia Pick; Treasurer – Pamela Alton; Membership Secretary/ Assistant Treasurer – Jean Heathcote; Publicity/Publications – Cliff Lea; Lecture Meetings –David Rance; Visits Co-ordinator – Brian Dick; Archivist – Pete Wilson; Committee Members – Roger Evans; Derek Grindell; David Hart.



Published by North East Derbyshire Industrial Archaeology Society.

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Printed at St Michael & All Angels, Brimington

☎ 01246 470533