

# North East Derbyshire Industrial Archaeology Society



**NEDIAS Newsletter No. 49 – February 2013**

**Price: £1.00 (Free to Members)**



## **Morley Park Furnaces**

***John Rowland***

Members may be interested in some photos of the Morley Park iron furnaces which I took in the 1960s and 1970s, and one of a much earlier date. The really old one, 1900-1920 maybe, is from a negative loaned to me in the 1960s by a local working in his back garden off Street Lane (just the other side of what is now the A38). He'd seem me wandering about with a camera and asked if I was interested in an old photo. It turned out to be just the negative, so he let me borrow it.... and so I did a couple of prints, and copied it....and returned the original.

As far as I know this photograph has never been published. I wonder what was behind the photographer as he was facing the



**Morley Park Iron Furnaces, thought to be c1900-20s  
(Photo John Rowland Collection)**

**Contents: Morley Park Furnaces ■ What's On? ■ NEDIAS Visits ■ Chairman's Chat ■ Derby's Modern Leviathan and the Early Reflectors ■ Mallard 75 at the National Railway Museum ■ Dogdyke Pumping Station Preservation Trust ■ The London Hydraulic Power Company ■ Request for Information ■ Henry Ellison ■ And Finally ..... more from Morley Park Iron Furnaces ■**

furnaces? Probably at least one pit-head. There were a couple of brick shaft vents still there even after open-casting; they were filled in and covered over when the whole area was tidied up and drained in the early 80s. If you heaved a brick over the parapet of one, you could wait.....and wait.....then hear a faint splash!

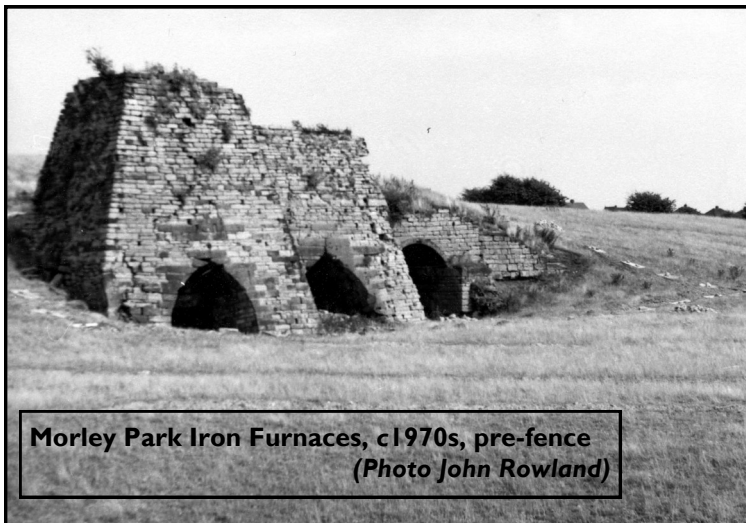
On the latest of the three photos (1970s), covered post-holes are just visible. Stanton Ironworks were about to erect a 'Stalag Luft 3' style fence with a padlocked gate after a youth fell off one of the furnaces and broke his leg.....or maybe that was earlier, (memory trouble!) and they were worried about dilapidation and vandalism. (Note missing parapet blocks on the 1970s shot.) The fence has since rusted away!

Of course Francis Hurt's structures which remain include the earliest coke-fired iron furnace in the County, and the site was turning out as much as 1400 tons of pig-iron per year at its height.

Morley Park Iron Furnaces, c1960  
(Photo John Rowland)



Morley Park Iron Furnaces, c1970s, pre-fence  
(Photo John Rowland)



## WHAT'S ON?

### NEDIAS Lecture Programme

**M**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, 11th February 2013	Neil Bridgewater: <u>"North Derbyshire Collieries"</u>
Monday, 11th March 2013	Annual General Meeting followed by Philip Cousins: <u>'Hollingwood: The Story of a Community'</u> . <i>A case-study in post First World War industrial housing</i>
Monday, 8th April 2013	John Barnatt: <u>"The Ecton Mines: Solving the Problems of Mining at Great Depth in the 18th and 19th Centuries"</u>
Monday, 13th May 2013	<b>DAVID WILMOT MEMORIAL LECTURE</b> Jane Singleton/Marson: <u>"On the Track of Unstone's Past - Exploring the relict landscape of the old branch line"</u>
Monday, 9th September 2013	David Dulieu: <u>"The Pioneers of Stainless Steel"</u> <i>2013 marks the centenary of the discovery of Stainless Steel, a major advance attributed to Harry Brearley, who worked within the Sheffield steel industry, but who lived in Chesterfield.</i>

## Other Diary Dates

Monday, 18th February 2013	Marcus Abbott and Mark Stenton: <b><u>“The hidden history in the woods: recent research at Rockley Furnace and Engine House”</u></b> . SYIHS. Info: Derek Bayliss on 0114 230 7693. 7:30pm at Kelham Island Museum
Thursday, 21st February 2013	David Birtle: <b><u>“Photo Charters 2005 to Digital”</u></b> . <i>David returns to follow on from last year’s presentation and shows how the preservation era can be used to recreate railway scenes from the past. Images taken at a variety of heritage railways around the country.</i> 7:30pm Barrow Hill Roundhouse Lecture Theatre
Friday, 22nd February 2013	Mike Allan: <b><u>“Coal Mining in the Valley – Belper”</u></b> . <i>In the late eighteenth century a coal seam was worked to the west of the river on the eastern side of a valley running northwards from the Belper to Ashbourne road.</i> DAS. 7:30pm St. Mary's Parish Hall, Darley Lane, Derby.
Friday, 15th March 2013	Philip Cousins: <b><u>“Clay Cross Tunnel - Plans and Reality”</u></b> , DAS. 7:30pm St. Mary's Parish Hall, Darley Lane, Derby.
Thursday, 21st March 2013	P S O V: <b><u>“Mainline 2012”</u></b> <i>The annual P S O V show is always popular. Karl Jauncey and Dave Richards will present a DVD review of mainline steam action in 2012. Karl and Dave travel the length and breadth of the country to find steam hard at work on the national network. A wide selection of their DVDs will be available to purchase at bargain prices. This presentation is in conjunction with The Little Midland Society.</i> 7:30pm Barrow Hill Roundhouse Lecture Theatre
Monday, 25th March 2013	Mel Jones: <b><u>“Destination Barnsley: nineteenth century industrial growth and large-scale labour migration into the town and surrounding villages”</u></b> . SYIHS. Joseph Bramah Lecture in Barnsley. 7:00pm at Cooper Gallery, Church Street, Barnsley. Info: Derek Bayliss on 0114 230 7693
Tuesday, 9th April 2013	Martin Smith: <b><u>“The Lancashire, Derbyshire and East Coast Railway”</u></b> . Chesterfield Civic Society. 7:30pm at Eyre Chapel, Newbold Road.
Thursday, 18th April 2013	John Morten: <b><u>“Trains Around Britain”</u></b> <i>John joins us to present a selection of material from the extensive Morten family collection built up over many years. The late Ernest Raymond Morten is renowned for his photography countryside, but particularly in the Peak District, and it is often said that his pictures have the ‘wow’ factor. The collection includes images pre dating Nationalisation.</i> 7:30pm Barrow Hill Roundhouse Lecture Theatre
Thursday, 25th April 2013	Adrian Woodhouse: <b><u>“Research on the Smithson Family of Architects”</u></b> . Old Dronfield Society. 7:30pm at Peel Centre, High Street, Dronfield.

- ➔ **Saturday 9<sup>th</sup> March 2013**
- ➔ **A joint visit with the Midland Railway Society**
- ➔ **The Unstone Colliery Branch of the Midland Railway**

The author of the new book 'On the Track of Unstone's Past', Jane Singleton (nee Marson), will be leading an exploration on foot of this little known former Midland Railway backwater – also referred to as the 'Unstone Loop Line' – and associated colliery tramways that fed it.

A recently upgraded easy access trail allows access to a section of the former trackbed between the former Unstone Sidings and Dronfield Sidings, but although two locations of specific interest remain on private land, Jane has been granted permission to allow visitors special access to the site of both Unstone Colliery and Summerley Coke Ovens - itself a Scheduled Ancient Monument. The owner of Summerley coke ovens has also agreed to clear as much of the overgrowth as possible and will address the tour party as to the historical significance of the site.

Tour participants are requested to meet at the long lay-by between Dronfield and Unstone on Chesterfield Road - the B6057 - next to Half Acre Lane in time for an 11.30am start. Duration will be about 2 – 2½ hours; it's suggested you bring a light snack/drink, but as an alternative there are two pubs nearby- the Fleur de Lys at Unstone (no real ale) and the Three Tuns, Dronfield (Spire Brewery Tap)

Jane will be presenting the 2013 David Wilmot Memorial Lecture on the Unstone Colliery Branch. Her book is 80 pages in colour and on sale priced at £11.95 at Tapton Lock visitor centre, Chesterfield, Ward's Garden Centre at Apperknowle, Unstone Post Office, Dronfield Bottom Post Office, Newbury's News (by Dronfield Station) or online at [www.pynot.co.uk](http://www.pynot.co.uk)



Interested? Please register your interest on the sheet at the next meeting.

- ➔ **Wortley Top Forge, Saturday 27 April 2013**

Following the superb talk we had from Derek Bayliss on the subject of Wortley Top Forge, a number of members have asked NEDIAS to organise a visit. I'm pleased to say this is now set up and we visit the site for a guided tour on Saturday 27 April 2013, 11:00am on site for tour start; entrance £3. The morning visit will be followed by pub lunch.

Minibus transport from Chesterfield to be arranged, details and start time TBA, although members may alternatively wish to meet on site at 11:00am

Interested? Please register your interest on the sheet at the next meeting.

**Derek Bayliss has just sent to me a brief summary of the trip:**

*Wortley Top Forge is Britain's last surviving water powered heavy iron forge. It used the water power of the River Don to work tilt hammers. From the 17th to the 19th centuries it forged wrought iron into bars and plates, as part of an iron industry based on local ores. The iron went to users round the region, including the local wiremaking and nailmaking trades. From about 1850 until it closed in 1908, it specialised in making railway wagon axles and other products from iron bars 'fagotted' (forge welded) into a single piece of iron.*

*The derelict forge was bought for preservation in 1953 by the Sheffield Trades Historical Society (now the South Yorkshire Industrial History Society), and restored by volunteers over many years. It is managed by the South Yorkshire Trades Historical Trust. There are three working waterwheels and two historic hammers, displayed to*



*show how railway axles were made. In the two adjoining cottages we think of the hard lives of the people who lived and worked there. The other buildings house a collection of old engines, machinery and other exhibits collected by the Society, and some of them can be run with compressed air or electricity.*

*We look forward to welcoming NEDIAS on Saturday 27th April. Gordon Parkinson and Derek Bayliss will take the party round in small groups, and run the wheels and machinery.*

*If you can't come then, the Forge is open on Sundays and bank holidays from Easter to early November, from 11:00am to 5:00pm, with a small admission charge. The miniature railway is usually running on the afternoons when the Forge is open.*

## **Chairman's Chat**

**Cliff Lea**

**T**he New Year has started with a bang! The earthquake of a few weeks ago (which awoke both Christine and I), is fading into the background and as I write this the snow and ice of winter are with us. At NEDIAS our meetings have started well; despite snow and freezing weather, Peter Hawkins captivated us all with a "walk around Broad Oaks" at the January meeting, showing a great photographic record of equipment and processes at Markhams.

Just a reminder, if you haven't already done so, January 1st was the time to renew NEDIAS membership for 2013, but of course any new member who joined us from September last year automatically receives membership through to the end of 2013.

You might be interested to know that in 2012, our membership numbers exceeded 100 for the very first time in the history of the Society – and at our meetings we continue to attract a significant number of visitors. So it's clear that we are tapping a rich vein of interest from people in Scarsdale and the wider area.

One of the reasons for the growing membership is that our Society is very much a proactive one. The current dig at Wingerworth is revealing much information, which we hope you'll hear at a members evening later in the year, and many members are constantly carrying out their own research as well which can be featured in our publications: an easy and convenient way to see the results in print. Do you have a paragraph or two you'd like to share with members in our publications? Short articles are ideal for the Newsletter and we can accommodate longer items in the Journal; the next NEDIAS Journal is now at the draft stage.

This year marks the centenary of the discovery of Stainless Steel, do please look at Newsletter No 39 which has an article recounting some of the fascinating story of Harry Brearley, the man behind this, who lived in Chesterfield at the time. This is an important event for the Sheffield and Chesterfield area, and we are marking this centenary with a lecture on the historic work leading to this discovery by Dr David Dulieu, himself a distinguished scientist who has spent his career researching special steels.

I look forward to seeing you at our meetings through the year – other talks are on North Derbyshire Collieries, copper mining, and on an almost forgotten Midland Railway branch line at Unstone. The speaker list for Autumn includes Professor David Hey who is currently Chairman of the British Association for Local History, so 2013 – having started with a bang - looks set to continue with a bang too!

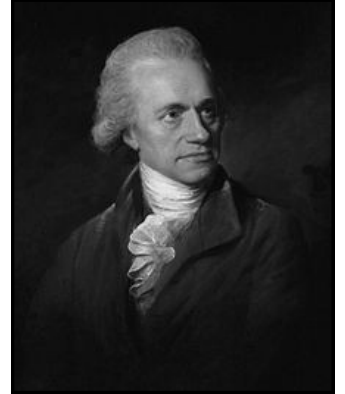
## **Derby's Modern Leviathan and the Early Reflectors     Derek Grindell**

**B**BC2's *Stargazing Live*, broadcast at 8:00pm over the evenings of 8<sup>th</sup>, 9<sup>th</sup> & 10<sup>th</sup> January, featured live reports from the University of Derby's Markeaton Street site where a modern version of one of William Herschel's most famous creations, the 20ft-long rotating telescope, had been constructed. The project, a collaboration between BBC Learning, *Stargazing Live* and the Open University, will see the telescope become a permanent fixture at the University's Faculty of Arts, Design and Technology (ADT). The University has supported the telescope's construction, part funding the base, and students from its School of Technology are involved with the project, along with consultants from University College London. Derby and District Astronomical Society members have assisted with the telescope's calibration and have marked out the points of the compass.

The first commercial development of the reflecting telescope was by James Short (1710-1768) from an

original design by James Gregory (1638-1675). Short, persuaded by one of his professors at Edinburgh University to forsake his planned pursuit of a church career for one in optics, began to specialise in the production of reflecting telescopes. Buying in bodies and accessories, he fitted them with mirrors of his own manufacture using his own process, details of which he took to his grave. Even the tools, which had enabled him to craft his products and sell them for two or three times the market price to a constant stream of buyers, were destroyed on his instructions. He left an estate valued in excess of £20,000, the equivalent of £2 million at today's prices. Whereas Short's customers had included European observatories and affluent dilettantes, it was the Hanoverian, Friedrich William Herschel (1738 – 1822), who was responsible for the production of instruments regarded as necessary requisites for the serious astronomer.

From an early age, Herschel had trained to be a professional musician but, fleeing from the Seven Years War, he landed in England in 1757. Pursuing his profession for several years, he performed in concerts, tutored pupils and cultivated an appreciative clientele. He was so well regarded that he was appointed organist at the newly built Octagon Chapel in Bath and by 1770 he was sufficiently affluent to allow more of his family to join him. William was first joined by his younger brother Alexander (1745 - 1821), who was not only a musician and skilled metalworker but also an amateur clockmaker. Their sister Caroline (1750 - 1848) was the next to arrive but her ambition to train as a singer was thwarted by William, who was keen to harness her domestic skills as his housekeeper, thereby releasing him from the more mundane domestic tasks. With his professional career in the ascendant, Herschel turned to astronomy, an interest that had fascinated him since his youth. He read what literature was available and was particularly inspired by Robert Smith's *A Compleat System of Opticks* (1738). In 1773, intent on constructing a reflecting telescope, he bought tools and materials from a local Quaker, John Michel, who had forsaken the manufacture of mirrors but was willing to pass on the fruits of his experience. His first instruments used a metal speculum mirror made to a formula of two parts copper to one part tin with a trace of arsenic, a dangerous combination given the propensity for the red hot moulds to fracture during casting.



William Herschel

The Herschelian design used a curved mirror to collect light instead of a lens but, since the light was focused in front of the mirror instead of behind, it was necessary to direct it to a suitable viewing point. This could be either back through the mirror via an aperture or to one side. Practically, this posed the problem of manufacturing a polished mirror to the correct shape, which would ideally be parabolic rather than spherical. A further complicating factor was that any flaws in either the surface or shape of the mirror had a greater impact on the resultant image than in the case of a lens. Herschel himself was devoted to the shaping and polishing of mirrors, leaving the metalwork to Alexander and the tubes and frames to a local cabinet maker. Even Caroline, already helping to train the local choir, was assigned a role in the lengthy process of making mirror moulds, which were to a recipe, which included loam prepared from copious amounts of horse manure pounded in a mortar prior to sifting.

The University of Derby's project was obliged to resist the temptation to replicate Herschel's speculum since its construction could have taken twelve months and the mirror required polishing for 16 hours a day to remain ready for use. Another problem calling for a novel solution was the construction of the tube, which was neatly circumvented by acquiring a sewage pipe.

The major observatories of the time were concerned with mapping the skies more accurately as an aid to navigation but Herschel aimed to build a more powerful reflecting telescope, capable of examining each light source with a view to the categorisation. In July 1776, he and his team had constructed such an instrument with a focal length of 6.1 m. (20 ft.) but it was suspended from a mast and the viewer had to climb a ladder. In March 1781 Herschel recorded a new object, which proved to be an unknown planet. His first instinct was to call it Georgium Sidus after his fellow Hanoverian, George III, but it became known as Uranus and henceforth the name of Herschel became known to a wider public. An even larger instrument of the same focal length, suspended from scaffolding, was commissioned in 1783 with the observer stood on a platform and the tube manoeuvred by ropes and pulleys. This arrangement allowed the viewer to scan the skies systematically and identify single or double stars, clusters or clouds of light-emitting material (nebulae). This was a marked departure from current astronomical practice, which involved the measurement and timing of fixed stars as they crossed the telescope's line of sight.

Of more importance to Herschel was the respect he gained from astronomers across the world and, in particular, an invitation to demonstrate his instruments at the Royal Observatory. The Astronomer Royal,

Nevil Maskelyne, who had previously criticised their blurred images and opined that they should be '*banished from astronomical uses*' was confounded by their performance and underwent a Damascene conversion, claiming that reflectors were 'superior to any telescopes made before'. Denied the honour of being appointed Astronomer to the King, a new post of Private Astronomer to the King was created for his benefit and the annual pension of £200 it commanded enabled Herschel and his sister to forsake music and move to Slough. Caroline became his astronomical assistant and was trained to log William's observations. In order to supplement his royal pension he decided to build and market his telescopes. His venture was so successful that over the next thirty years his instruments and mirrors boosted his income by more than £15,000. Apart from the Greenwich Observatory, his reflectors were acquired by observatories at Palermo, Goettingen, Madrid and St. Petersburg. In 1799 William Pitt, the Prime Minister, had a 7ft. (2.1 m.) reflector installed at Walmer Castle, to keep a watchful eye on any French preparations for invasion.

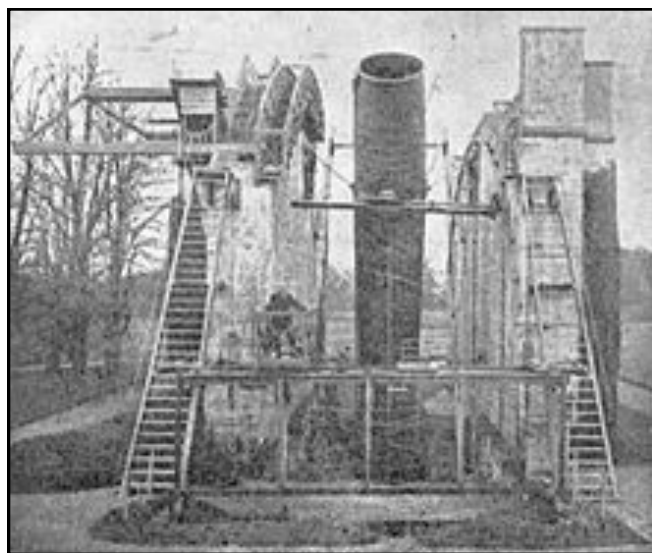
William Herschel received funding from the King for a 40 ft. (12.2 m.) telescope but when the construction costs escalated his royal patron became alarmed. The situation was resolved when Herschel's suggestion that his sister be granted a pension for life of £50 p.a. and the project be allocated a £200 p.a. operating allowance over and above the £4000 construction cost, was accepted by the King, who was thereby relieved of any further financial liability. Caroline's pension was timely since it made her financially independent and secure within the Herschel family's business. William's marriage in 1788 ended her domestic role but she acquired a new professional freedom and acclaim. She discovered not only numerous nebulae and eight new comets but she published an index and corrections to *Historia Coelestis*, the star catalogue published by Derbyshire born John Flamsteed (1646 - 1714), the first Astronomer Royal. Caroline Herschel was later granted honorary membership of the Royal Astronomical Society, an exceptional achievement for a woman in the 18th century.

On completion in 1789, the telescope became a famous landmark and was even marked on the 1830 OSS. It had, however, significant drawbacks and was not fully utilised but it did create a precedent for the larger reflectors, which were to follow. Part of each night's observation 'window' was taken up by the setting up process, two operators were required in addition to William and Caroline and a large work force had to be on hand for maintenance. The telescope fell out of use and was left to rot until 1840 when its tube was sealed. Thirty years later a falling tree delivered the 'coup de grace', leaving the residual quarter of its tube to find a final resting place at Greenwich. Strangely, it was through an amateur that Herschel's work reached its apotheosis. William Parsons (1800 - 1867), third Earl of Rosse, was one of numerous wealthy amateur astronomers, who invested in increasingly large reflecting telescopes to see further into space. His interest in astronomy had begun in his twenties and he became a member of the Astronomical Society of London. He published accounts of his research, which was biased towards new methods of manufacturing telescope mirrors.

Herschel had left no records of how he ground large mirrors and it is not until 1839 that Parsons made a 3 inch (8 cm.) mirror. Subsequently he made mirrors of 15 inches (38 cm.), 24 inches (61 cm.), 36 inches (91 cm.) and in 1842, after five attempts at casting, he produced his greatest achievement,

the 72 inch (183 cm.) mirror. Located on his estate at Birr Castle, Parsonstown, County Offaly, it weighed 8960 pounds (4064 kg), and cost £12,000. Known as the '*Leviathan of Parsonstown*' and with a tube of over 56 ft (17 m) in length, it was vulnerable to the Irish climate and was supported

by a system of platforms, chains, and pulleys between two massive masonry piers 50 ft. (15.24 m.) high and 23 ft. (7 m.) apart, which also afforded some protection against the wind. Shortly after commissioning, it proved the capability of its mirror by discovering the spiral structure of M51,



Parsons' Telescope

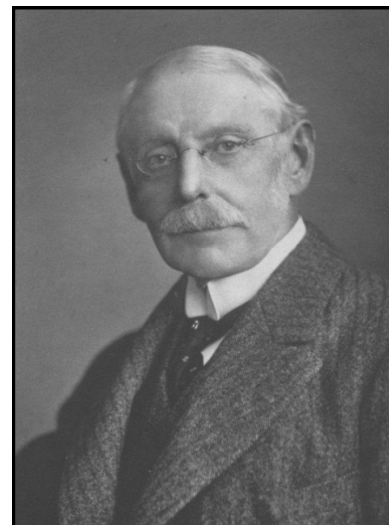


Third Earl of Rosse

later known as the *Whirlpool Galaxy*. His drawings of it closely resemble modern photographs. *Leviathan* remained the world's largest instrument until the early 20thC and like Herschel's great reflector it remains a tourist attraction, having been recently restored. In 1844, Parsons received a visit from William Lassell, a Liverpool brewer, to learn more about speculum-grinding since he was about to construct a 24 in. (61- cm.) reflector telescope. When it was commissioned in 1846 Lassell discovered Triton, the largest moon of Neptune, itself discovered only weeks earlier.

The 3rd Earl of Rosse had thirteen children but only four grew to adulthood. The youngest, Charles Algernon, was born in London on June 13, 1854. Initially privately tutored at the family seat in Ireland, he was educated at Dublin University and St. John's College, Cambridge, where he achieved a mathematical honours degree. He served an apprenticeship at the works of Sir W. G. Armstrong & Co., later moved to Messrs. Kitson of Leeds and then became a partner in the Gateshead firm of Clarke, Chapman & Co.

In 1889 he built and equipped a factory on the Tyne at Heaton for the manufacture of steam turbines, dynamos, transformers, searchlight reflectors and other appliances under the name of C. A. Parsons & Co. Tackling the problem of the inefficient use of steam he designed his first condensing turbine and manufactured it in 1892. Such was his confidence in its potential threat to the reciprocating engine that two years later he formed the Parsons Marine Steam Turbine Co., Ltd. After three years of research, the steam yacht *Turbinia*, equipped with turbine machinery, was launched and, although only 100ft. in length, it attained a speed of 34.5 knots. Two torpedo-boat destroyers, the *Viper* and the *Cobra* were built in 1900 for the Royal Navy, the former attaining on trial a speed of 37 knots. In 1905 the first turbine battleship, the *Dreadnought*, was laid down at Portsmouth and the Admiralty's investment in turbine propulsion was henceforth followed by the world's leading Navies.



Charles Parsons

Parsons' collaboration with Sir Archibald Denny led to the launch in 1901 of the *King Edward*, a passenger vessel powered with turbine machinery. Its immediate success in the Glasgow Exhibition of the same year was instrumental in the technology being accepted by ship owners and a series of cross channel steamers and merchant vessels followed. The ultimate seal of approval for Parsons' invention came when the Cunard Steam Ship Co. announced that turbines would be fitted in its new liners, the *Mauritania* and the *Lusitania*. Prior to the launch of the *Bremen* in 1929, the former was the fastest passenger liner afloat. In a mere six years the technology had progressed from the 3,500 H.P. turbines of *King Edward* (1901) to the 74,000 H.P. turbines of the Cunard liners (1907).

One of Parsons' turbo-alternators, having supplied a part of the Paris Exhibition of 1900, was purchased by Sheffield Corporation and hurriedly re-commissioned to cater for load growth over the Christmas period. In 1913 he had designed and constructed a 25,000 kW turbo generator for the Crawford Avenue Power Station in Chicago. This was followed by a 50,000 kW machine for the same plant in 1924. His subsequent contribution to the growth of UK's electricity industry was immense but he found the time to pursue other scientific interests, mainly in the optical field. As early as 1897 he had devised an improved method of producing searchlight reflectors and, in 1921, took over the Derby Crown Glass Works, where he introduced marked improvements in the production of optical glass in the U.K. He also not only acquired a controlling interest in Messrs. Ross, Ltd., makers of binoculars and associated optical instruments, but took over the Newcastle telescope works of Sir Howard Grubb, F.R.S.

Showered with honours during his lifetime he died as The Hon. Sir Charles Algernon Parsons, O.M., K.C.B., F.R.S., D.Sc., LL.D., M.A. on February 11, 1931, after a short illness. He and his wife were on a cruise to the West Indies and with his passing the engineering and electricity generation industries lost one of its greatest pioneers. It was fitting that he spent his last days on a vessel equipped with the latest developments in marine turbine propulsion, an advanced technology which, in its application of high pressure and high temperature steam, owed so much to his inventive genius.

### **Bibliography**

*The Telescope A Short History* by Richard Dunn, pub. 2009 by the National Maritime Museum.

*Obituary of Sir Charles Algernon Parsons, O.M., K.C.B., F.R.S., D.Sc., LL.D., M.A.*, Transactions of The Institution of Naval Architects, 1931 (p.340-344).



## Mallard 75 at the National Railway Museum

This year the NRM are marking the 75<sup>th</sup> anniversary of Mallard's achievement with a series of commemorative events including a never-before-seen line up of all six surviving A4s at York. 35 A4s were built, but only six survive: **Mallard** is part of the National Collection at the NRM; **Union of South Africa**, the **Sir Nigel Gresley**, and the **Bittern / Dominion of New Zealand** are all in the UK and operational; **Dominion of Canada** is usually at Exporail, the Canadian Railway Museum in Montreal, Canada; and finally the **Dwight D Eisenhower** is usually at the National Railroad Museum in Wisconsin, USA. The two have already arrived in the UK and are on loan to the NRM for two years. It sounds as though a few "events" are planned, and all six will be together in the summer, dates yet to be announced.



Sir Nigel Gresley at North York Moors.

*Photo by courtesy of Graham Swift*

## Dogdyke Pumping Station Preservation Trust

Dogdyke steam drainage station was built in 1856 to replace the existing wind-driven pump to drain a large area of farmland between the rivers Bain and Witham. The engine, which runs in steam on all the Open Days, is the original external condensing beam-engine built by Bradley and Craven of Wakefield. It is possibly the oldest steam-driven scoop wheel pumping set in the country that is still in steam in its original position.

You can see the unique working steam engine of 1855 driving a scoop wheel land drainage pump and the Ruston diesel pumping set operating on Open Days. FREE admission, but donations welcome.

### STEAMING DATES FOR 2013 (all times are 1:30-4:30 pm):

Sunday 31 March (Easter Sunday), Sunday 5th May, Sunday 2nd June, Sunday 7th July, Sunday 4th August, Sunday 1st September, Saturday 14th September (Heritage Open Days) and Sunday 6th October.

Dogdyke Pumping Station is located near Bridge Farm, Tattershall, Lincolnshire LN4 4JG. You will find them off the A153 Sleaford to Horncastle road, and the entrance is on the right, immediately after crossing Tattershall Bridge in the Horncastle direction. The site is well signposted on Open Days and is reached down a farm track. Web address: [www.dogdyke.com](http://www.dogdyke.com)

## The London Hydraulic Power Company

***Doug Spencer***

The Victorian age was the age of steam power, not only for steamships and railway engines, but also for a multitude of smaller applications where nowadays we would find an electric motor or diesel. Pumps, cranes, presses and workshop machinery all relied on steam. For a period of perhaps 50 years however, between the 1880s and 1940s, a rival source of power challenged steam in the commercial and industrial fields, and was seen by many people at the time as the most modern method of propulsion-hydraulics. The secret of the utility of the hydraulic mains lies in the fact that water is virtually incompressible, and is therefore an ideal agent for transmitting power from one place to another.

The Wharves and Warehouses Steam Power and Hydraulic Pressure Company was formed in 1871 to operate in London's Docklands. In 1884 this became the London Hydraulic Power Company, providing hydraulic power over a wide area. This Company was the brainchild of Edward Bayzand Ellington (1845-1914) who was director of the Hydraulic Engineering Co of Chester and who successfully launched other hydraulic power enterprises in Hull, Liverpool, Birmingham, Manchester, Glasgow, Melbourne, Sydney,

Antwerp and Buenos Aires. His method was to install a system of pipes, running below the London streets to reach a large number of commercial premises. The pipes, made of cast iron and carefully jointed, conveyed water at a pressure of 800 pounds per square inch. They formed a network of mains, rather like a gas or electricity main, which could be tapped by consumers to drive machinery of almost any type. Each consumer had a meter, read periodically by the Company, which recorded how much water had been used from the hydraulic supply. The pressure was maintained by a huge triple-expansion steam engine at the powerhouse in Wapping; coal for the boilers was brought up the Thames by barge.

Ellington was also responsible for many inventions. The most important were the hydraulic balance list and the automatic injector fire-hydrant. His hydraulic power supply system was awarded a gold medal at the Inventions Exhibition in 1885. He was President of the Institution of Mechanical Engineers in 1911-1912.

The Company obtained its own Act of Parliament in 1883, and the sponsorship of the distinguished Victorian engineer, Sir John Allport. It then enjoyed a rapid growth of business, under the new name of the London Hydraulic Power Company. The hydraulic mains spread throughout the City, reaching Camden, Chelsea and Kensington. The Company built up its own construction and maintenance force, diversified and absorbed the Vauxhall Engineering Company. There were demands for hydraulic power to be provided in all major cities as a public utility.

Before the LHP Company reached its zenith many dock and railway undertakings in London generated their own hydraulic power, using steam pumping engines and conspicuous 'accumulator' towers for storing this energy. A few such towers can still be seen, such as one close to the north end of Tower Bridge. Tower Bridge itself was operated by hydraulic power and the huge steam engines can still be seen in its engine room, now a museum.

Once the London Hydraulic Power Company's mains spread out, covering much of London, and provided reliable service most users abandoned their own generators. Since the demise of the LHP Company the wheel has turned full circle, forcing users to install their own plant or convert to electric motors.

The new system brought environmental changes - hundreds of workshops and offices previously using small, labour-intensive steam engines, (with all the attendant smoke and noise) changed over to a clean, quiet and reliable alternative. Drawing its water from the Thames, the Company's charges were always extremely reasonable: £2.50 per thousand gallons was a typical charge even in modern times. In fact, for many applications, hydraulic power was for a long time cheaper than electricity. Hydraulic motors were approximately half the size of electric motors developing equivalent power; they could also be used in damp conditions where electric motors needed careful protection. Applications for the enormous power of the hydraulic ram were manifold; it was used for cranes and lifts and could also be applied in presses for forging, stamping or flanging. At one time hundreds of such presses were in use throughout warehouses for baling cloth and paper, and for compressing scrap metal and other materials to facilitate transport.

Hydraulic power drove the revolving stages at the London Palladium and the Coliseum theatre, it operated the Safety Curtains at the Drury Lane and His Majesty's theatres; it raised the cinema organ at the Leicester Square theatre and the complete Palm Court orchestra platform. The Savoy hotel was extensively 'wired' for hydraulic power - even the vacuum cleaners depended on it. Most spectacular of all, the bascules of Tower Bridge were raised and lowered by a pressurised flow of 3000 gallons from the hydraulic main. The system had its curiosities too. Water in the mains was warmed to prevent freezing, which had the happy side effect of melting snow and ice on the pavements beneath which the mains were laid. Bursts in the system (fortunately rare) could produce a jet of water 100 feet high. Understandably, the Company had the right to dig anywhere at any time in the London streets in order to put trouble right.

At the height of its fortunes, in 1930, the London Hydraulic Power Company supplied 8000 machines with power through 186 miles of pipes. It consumed 33 million gallons of water per week, much of which ultimately returned to the river after use. Wartime bomb damage, and the departure of many manufacturing firms from Central London, led to a decline in the Company's activities post-war and despite a programme of electrification, pumping ceased in 1977. Control of the Company was acquired in 1981 by a group led by



Edward Bayzand Ellington

Rothschild's, which recognised the importance of the pipe network for the coming generation of communications systems.

The system covers an area from Kensington in the west to the East End docklands. Five pumping stations at Wapping, Bankside, Pimlico, City Road and East India Dock were closed, the sixth at Rotherhithe acting as the LHP Co. headquarters. The network of 150 miles of pipes, ducts and conduits was sold in 1985 to Mercury Communications Ltd, now owned by Cable & Wireless Ltd, and since that time many miles of optical fibre cable have been laid in this network. Wapping Hydraulic Power Station, the last of the five to close, is now an arts centre and restaurant.



London Hydraulic Company's Wapping Station

## Request for Information from Member Marrian Tattersall

Hi Cliff,

Could you please ask the members if they have any information on the village of Aldwark. We had two weeks holiday there in September staying at the Old Coach House next to the converted pub called The Bulls Head. Diane Wain who now lives in the Bulls Head was very helpful but I am sure there is quite a history to the village.

Thanking you in anticipation,

Marrian Tattersall (Info to [marrianwalk@yahoo.co.uk](mailto:marrianwalk@yahoo.co.uk))

## Henry Ellison

**A**lan Walker has recently sent me details and photos of the loco "Henry Ellison", which has been one of the long term restoration projects at the Ecclesbourne Valley Railway HQ at Wirksworth. The 22 ton steam locomotive was built in 1947, at Andrew Barclay and Sons Ltd, Caledonia Works, Kilmarnock, plate 2217. It spent its working life (around 23 years) at the Kilnhurst Tar Works of Yorkshire Tar Distillers near Swinton in Rotherham, before becoming redundant in about 1970. It was stored for about 35 years prior to the transfer to Wirksworth and the commencement of restoration.

“Henry Ellison” was given its public debut in steam at Wirksworth on 30 October 2012, double heading with “Brian Morrison/ Ferrybridge No 3”. When it actually moved out of the servicing shed a few weeks before, it was thought to have been the first movement under its own steam for 42 years.

Alan tells me *“the loco is now in the maintenance shed and is drained down for the winter. Much rubbing down, filling and painting has been carried out, along with a lot of minor “finishing off” jobs. Final painting and lining will be left until the weather warms up a bit. Expect Henry E to be available for normal service this spring. The other operational loco, No. 3 Brian Morrison, is also drained down and receiving a lot of routine maintenance including fitment of a brick arch in the firebox, intended to improve combustion and reduce smoke generation.”*

More details about Henry at <http://www.e-v-r.com/stock/2217>



Oct 2012 – First time in steam for 42 years!



Interestingly, the maker Barclay – which started as an engineering workshop at Kilmarnock in 1840 - is still alive and ticking. After a long period of operation the company was acquired by the Hunslet group in 1972 and renamed Hunslet-Barclay; in 2007 the company changed hands after bankruptcy becoming Brush-Barclay as part of the FKI Group. In 2011 Brush Traction and Brush-Barclay were acquired from FKI by Wabtec - as of 2012 the company still operated in Kilmarnock providing rail engineering services as Wabtec Rail Scotland.

So where did the name “Henry Ellison” come from? In 1886, Mr Henry Ellison of Cleckheaton purchased four acres of land, the firm became known as Ellison & Mitchell Limited and distilled tar. In 1927, the company merged with other important tar distillers to form the Yorkshire Tar Distillers Limited. The Kilnhurst works expanded from four acres to thirty acres (and of course a brand new loco named HE) and a quantity of tar being distilled increased by five times. In later years the company was acquired by Croda and operated until circa 2000.

Congratulations to all involved at Wirksworth – what an achievement.

So, when was the last time you visited the EVR? The next Diesel Locomotive Weekend is on Sat 2nd and Sun 3rd March 2013, when no doubt Henry will be in evidence.

## And finally ..... more from Morley Park Iron Furnaces

John Rowland’s early photo of these furnaces on page 1 reminds me of a great picture of the site penned by Brian Cooper in *“Transformation of a Valley”*.

Cooper comments: *“With their steam blowing engines, banks of coke ovens, pig beds, foundries and 3,000 yards of connecting wagon-ways, they must have presented to the wondering villagers of Heage not merely the hope of constant employment for hundreds of men, .....*

*..... but a veritable panorama of hell!”*

## NEDIAS Committee:

**Chairman and publications** – 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 Wilmot, David Hart, Les Mather, David Palmer, Doug Spencer.

**Published by:** North East Derbyshire Industrial Archaeology Society.  
**Editor:** Cliff Lea, 15 Kelburn Avenue, Walton, Chesterfield, S40 3DG  
 ☎ 01246 234 212  
 or e-mail: [cliff@nedias.co.uk](mailto:cliff@nedias.co.uk).

**Assistant Editor:** Doug Spencer

*The authors retain copyright of the contents.*

