# North East Derbyshire Industrial Archaeology Society

## NEDIAS Newsletter No. 13 – February 2004

**Price: 50p (Free to Members)**

N.E.D.I.A.S

## Contents:



## Chairman's Comments:

Not being one to welcome the addition of yet another number to the current year, I have to admit that 2004 holds out a distinct promise of being a good year for devotees of Britain's industrial heritage, albeit with a transport bias. It was a good start for the eternally curious and infectiously enthusiastic Fred Dibnah, being awarded the MBE in the New Year's Honours List for services to history and broadcasting.

Exceptional enthusiasm also exuded from our most recent speakers. Peter Machen regaled our December meeting with the history of the Sheffield Trades and an insight in to the recent activities of some 'little mesters'. Ann Hodson spoke to our January meeting about her working experience and recollections of the local pottery industry, giving a superb insight in to what can best be described as the maintenance of traditional working practices at the Barker Pottery well within living memory. Both speakers served to remind us that we forget the human element of our industrial past at our peril.

We also held the Social Evening in January, at the Civil Service Club in Calow, attended by some twenty-five people. Thanks must go to all those who organised the evening, got together the displays, the quizzes and the prizes. It was a very enjoyable evening, even if the committee (quite properly of course!) were at the back of the queue when it came to the prizes.

So what have we to look forward to for the rest of this year? Three more talks are already in the programme up to May and the committee is working up to next session's events. There is, of course, our AGM in March and I hope this year we will fill the remaining vacancies on the committee. With our existence more widely known, we are finding an increasing call for both field survey work and historical research in this part of Derbyshire. While the

concluding work at Damstead is still under way, with a display of findings planned for Dronfield this Spring and a detailed report in the pipeline, there are two more projects looming.

Richard Robinson described his hopes for the conservation of Cannon Mill at our January meeting. Much time and effort will need to be expended in the development of a plan for the future use of the site and to see the inevitable grant applications through to fruition. We have also carried out an initial survey of a small water-pumping house on private land near Grindleford. The landowner is prepared to allow the remaining equipment to be removed for conservation. There is also the need for assistance on the history of industrial power generation being pursued, as mentioned in earlier issues, by Michael Williams from Nottingham. Can we, collectively, make 2004 the year to take up the advice once given to me in moment of pedantry; "you need to get out more"?

As to the promise of 2004, there is the centenary of Chesterfield's electric tramway, enacted in 1904 and, more particularly, the bicentenary of Richard Trevithick's Pen-y-Darren steam locomotive at work in South Wales. Twenty-five years before George & Robert Stephenson's *Rocket,* Trevithick, the man who successfully put high-pressure steam in to industrial engines, produced the first working railway locomotive. To mark the occasion, the National Railway Museum is holding "Railfest 2004" between 29 May and 6 June, an event which will include the steaming of the replica "Pen-y-Darren" locomotive. Richard Trevithick is one of our less highly regarded industrial pioneers but, hopefully, 2004 will help to set the record straight. ***David Wilmot***

## WHAT'S ON?

### NEDIAS Lecture Programme, 2003/2004

**When**: Meetings are usually held the second Monday of each month, start time 7.30.
**Where**: The Friends Meeting House, Ashgate Road, Chesterfield (junction of Brockwell Lane).
**Cost**: Free to NEDIAS members but visitors are asked for a donation of £2 for each meeting.
**Further details**: See our special NEDIAS Lecture Programme information brochure.

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| . **8 March 2004** | **AGM** & Members' Evening |
| **18 March 2004** | **VISIT** to Clayton's Tannery. Pre-book with Cliff Lea, 01246 234212 |
| **19 April 2004** | Andrew Firth; *Hulley's Buses* |
| **8 May 2004** | **EMIAC Conference**: Industries of Grantham. Pre-book via 01522 521337 |
| **10 May 2004** - | Ken Horan; *Railway Steam to Diesel - A Regional Perspective* |

## Cromford Canal — by Hugh Potter

*Hugh Potter gave a well- illustrated presentation to the Society in October 2003, covering history of the rise and decline of the Cromford Canal. Those present were heartened to hear of the formation of the Friends of the Cromford Canal, which has shown incredible growth to a membership of over 600, and a strong commitment to full restoration – Ed.*

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By the end of 1780s, the backbone structure of the English waterway system was in place with the four main river basins – Severn, Mersey, Trent and Thames – linked in a scheme that became known as Brindley's Grand Cross.

From the Trent near Long Eaton, the Erewash Canal led northwards to Langley Mill, giving the Nottinghamshire coalfields access to markets, particularly around the Leicester area via the river Soar. There were, however, many more coalfields further north in the Erewash valley, and it was the need for an outlet for their products that brought about the concept of the Cromford Canal – effectively an extension of the Erewash Canal, with a branch to Pinxton. William Jessop estimated the cost at £42,697 in December 1788, although, as with almost all canal schemes of the time, this was to prove a gross underestimate. In today's terms that is around £3m. By the time of completion, this sum had effectively doubled.

The line had great potential, not only from the coalmines, but also from the ironworks at Riddings, Alderwasley and Butterley, lead smelting plants at Lea, and the limestone and gritstone quarries around Crich and Lea. To this list is often added Sir Richard Arkwright's cotton mills at Cromford. However, there is no evidence that cotton was carried to these mills by canal (it would have been a circuitous route from Liverpool by inland waterway) and, being water-powered, they had no need of coal.
Arkwright was involved, however, but by invitation. The promoters needed a respected name to lend credibility locally and to further their Act in the House of Commons. In this, another respected local family, the Gells, assisted them. Philip Gell of Hopton Hall, Wirksworth, owned mining and quarrying rights nearby, and his brother Captain John Gell had an office in London from where he canvassed support and reported on parliamentary proceedings. Other land-owning supporters with local industrial interests included the Hurts of Alderwasley and Reverend d'Ewes Coke of Pinxton.
Another group of the promoters, namely Benjamin Outram, William Jessop, Francis Beresford and John Wright, were to form the Butterley Company to exploit the reserves of coal and iron ore beneath Butterley Hill, through which the canal was to pass in an almost 3,000-yard long tunnel. The only ingredient missing to make iron was the limestone flux, and this was available at Crich, close to where the canal would pass. It was brought by tramway down to the canal at Bullbridge to be loaded onto boats for transport to Butterley. To its credit, this company is still operating from the same site at Butterley under the same name, making similar large-scale iron and steel products. Indeed, the company built the spectacular Falkirk Wheel for the Scottish Lowland waterways in 2002.

William Jessop was appointed engineer to the Cromford Canal, with Benjamin Outram as his full-time assistant, although Jessop's work had begun with surveys in 1787.
There was opposition in parliament particularly from the mill owners on the Derwent and from Derby corporation, the latter no doubt fearing loss of trade as much as loss of water. There were problems too with Arkwright who was not always the ardent supporter the promoters had hoped for. From the outset he began quibbling over water rights for his mills. However, the Act was passed on 15th July 1789. Thomas Sheasby and Thomas Dadford were appointed contractors for all three sections (the tunnel and the lengths each side) in 1789, but were insolvent by 1791 and Outram was called in to manage the works.
The canal was open to Pinxton by June 1792, but opening to Cromford was delayed, not only by Butterley Tunnel, but first by the collapse of the long earth embankment and aqueducts across the road and river at Bullbridge early in 1792, and towards the end of 1793 by the partial collapse of the spandrel walls of the stone aqueduct over the Derwent at Leawood. A second massive buttress was added to the south face to rectify this. Jessop blamed the failure on his use of Crich lime for the mortar – this was supposedly too pure to set – but Schofield in his excellent biography of Outram suggests that it was something more fundamental in the design of this unusually long (80ft) span on a rise of only 20ft. The canal finally opened throughout in August 1794.

The private Nightingale Arm was opened in 1802 linking mills, lead smelters and stone quarries at Lea with the main canal just south of Leawood, or Wigwell, Aqueduct. On the opposite side of the canal, from 1831, the Cromford & High Peak Railway effectively made the canal a through route, with considerable trade to Manchester.

The canal flourished and traffic soon built up to around 300,000 tons per year, a figure maintained until the 1850s. However, from the 1840s, competition from railways caused the canal company to lower its tonnage rates (the amount charged per ton per mile) so that toll income began to fall rapidly. Share dividends dropped by half from their peak of over 20%. As a result, in August 1852, it was decided to sell the canal to the Manchester, Buxton, Matlock & Midlands Junction Railway who paid £103,500. Trade immediately began to decline, halving by 1870, when the whole became part of the Midland Railway. It fell to less than 46,000 tons by 1888, with an increasing proportion of it being local rather than long-distance traffic.

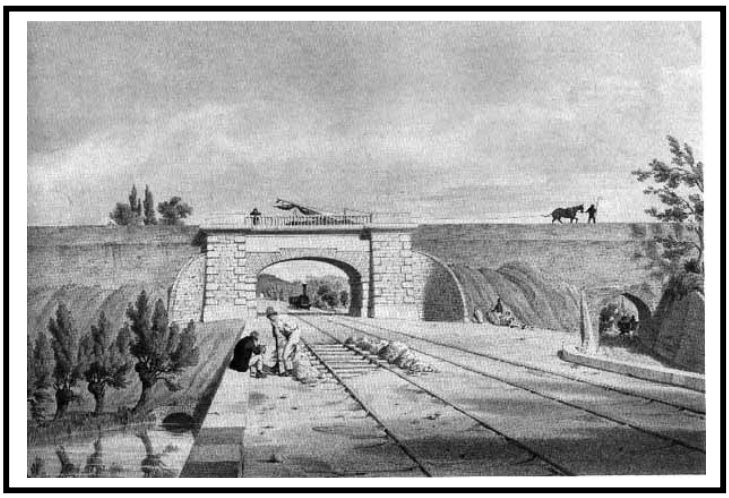
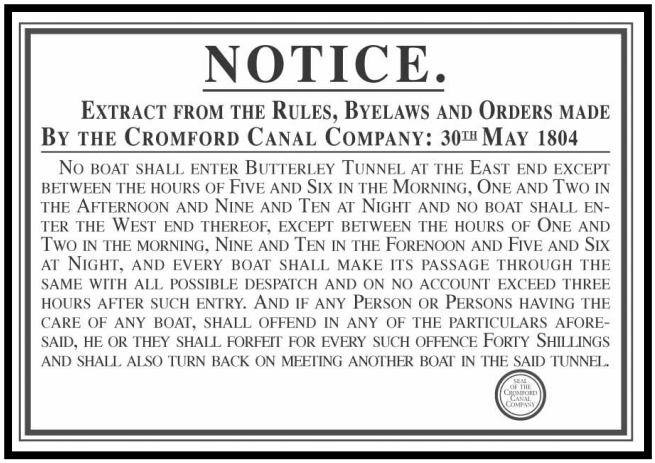


*Fig. 1: This early depiction of the Bullbridge Aqueduct across the railway was one of a series commissioned by Francis Thompson, architect for the North Midland Railway, at the time it opened in 1840. Although the architectural details are apparently accurate, the depiction of the masted sailing boat on this narrow canal has to be attributed to artistic licence. Note the accurately depicted tiny gothic arch of the road aqueduct on the right, which was perfectly adequate for the horse-drawn carriages of the time – and remained in place, albeit with traffic lights, until demolition in 1968.*

Through traffic ceased in 1889 following a collapse in Butterley Tunnel, which was not repaired until 1893. Some 180 boats per year then used it, carrying 3–4,000 tons, until a second collapse in 1900 closed it for good. However, traffic continued between Pinxton and the main canal system, and coal was still carried on the now-isolated upper section from Hartshay to Lea and Cromford. The whole canal, apart from the half-mile above Langley Mill which was still in use, was officially abandoned in 1944.

In the late 1960s British Waterways, who had inherited the canal, began selling off sections: north of Langley Mill and between Hartshay and Buckland Hollow for open casting; at Sawmills to local householders and businesses; at Bullbridge to Stevenson's Dyers; at Ambergate to East Midlands Gas; and between there and Cromford to Derbyshire County Council for a walking, cycling and wildlife trail.



NOTICE.

EXTRACT FROM THE RULES, BYELAWS AND ORDERS MADE BY THE CROMFORD CANAL COMPANY: 30TH MAY 1804

NO BOAT SHALL ENTER BUTTERLEY TUNNEL AT THE EAST END EXCEPT BETWEEN THE HOURS OF FIVE AND SIX IN THE MORNING, ONE AND TWO IN THE AFTERNOON AND NINE AND TEN AT NIGHT AND NO BOAT SHALL ENTER THE WEST END THEREOF, EXCEPT BETWEEN THE HOURS OF ONE AND TWO IN THE MORNING, NINE AND TEN IN THE FORENOON AND FIVE AND SIX AT NIGHT, AND EVERY BOAT SHALL MAKE ITS PASSAGE THROUGH THE SAME WITH ALL POSSIBLE DESPATCH AND ON NO ACCOUNT EXCEED THREE HOURS AFTER SUCH ENTRY. AND IF ANY PERSON OR PERSONS HAVING THE CARE OF ANY BOAT, SHALL OFFEND IN ANY OF THE PARTICULARS AFORESAID, HE OR THEY SHALL FORFEIT FOR EVERY SUCH OFFENCE FORTY SHILLINGS AND SHALL ALSO TURN BACK ON MEETING ANOTHER BOAT IN THE SAID TUNNEL.

*Fig. 2: Special arrangements had to be enforced at Butterley Tunnel so that boats did not meet in the middle. The tunnel was only 9ft wide, and the 'narrowboats' that used it were 7ft wide, so they could not pass each other. The regulations were displayed on boards at each end of the tunnel, although for whose benefit is questionable as few boatmen could read*

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Today, although the whole route is walkable, the sections of most interest are: the bottom lock at Langley Mill, reopened in 1973 thanks to the Erewash Canal Preservation & Development Association; the bottom of Ironville locks to the eastern portal of Butterley Tunnel; the western portal to Hartshay; and the 5.5 miles between Ambergate and Cromford, restored by the erstwhile Cromford Canal Society and owned and maintained by DCC.

In March 2002 a group of people, concerned for the future of this beautiful and historic canal, held a public meeting at Ironville. Thus was formed the Friends of the Cromford Canal whose aim is ultimately the restoration and proper maintenance of this waterway for the benefit of all. Their membership has already reached over 600, demonstrating the interest that there is – locally, nationally and internationally – in the Cromford Canal.

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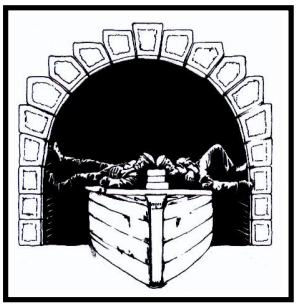


Readers who would like more information about the Friends of the Cromford Canal should contact Yvonne Shattower at 264 Bennett Street, Long Eaton, Nottingham NG10 4JA (Tel: 0115 946 4479) or visit the web site at www.cromfordcanal.org.uk, where many images of the canal, including inside Butterley Tunnel, may be viewed, as well as further information about the canal.

***Fig. 3: The logo of the Friends of the Cromford Canal.***

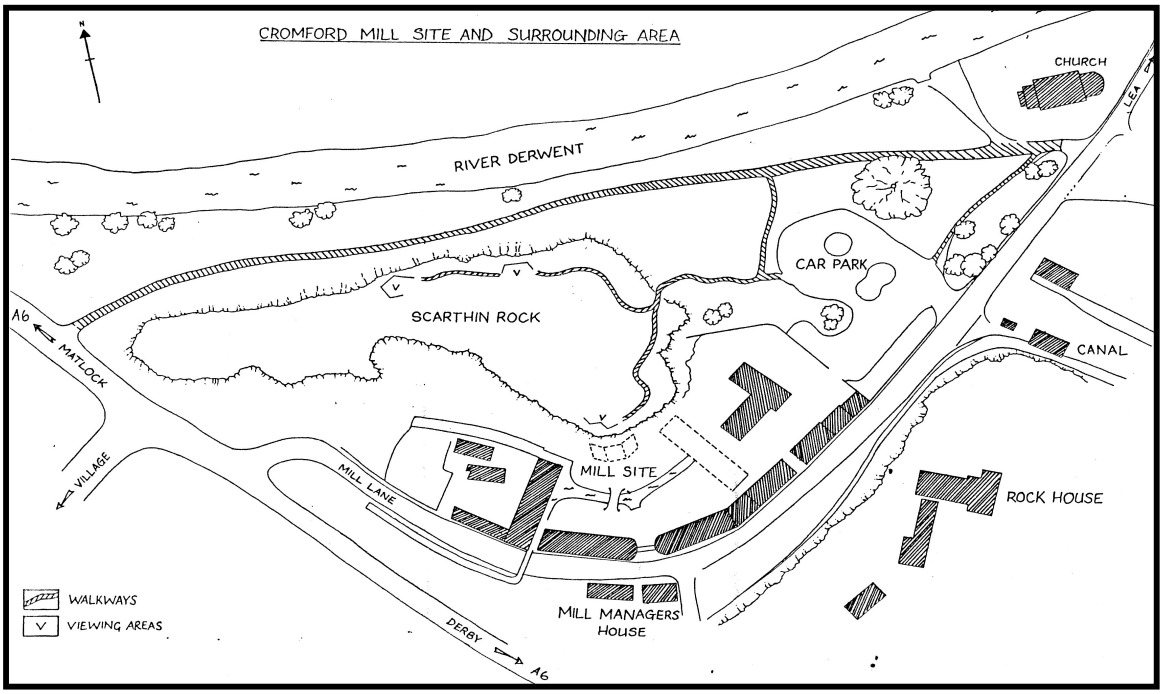
## Arkwright's Mills at Cromford — by Darrell Clark

*Darrell gave a scintillating and enthusiastic (did we expect anything different?) presentation on the subject of Arkwright's Mills at the November 2003 meeting, and has sent to me the following pertinent notes drawn from archive on the restoration project.*

It was in 1979 that the Arkwright Society .purchased the major part of the Cromford Mill site at a cost of £70,000. For more than 50 years the buildings had been used as a colour works, and many of them were chemically contaminated, most in severely dilapidated condition.. Scrap dealers had already stripped the buildings, and it must be said that the authorities believed that all the most important structures had been lost.

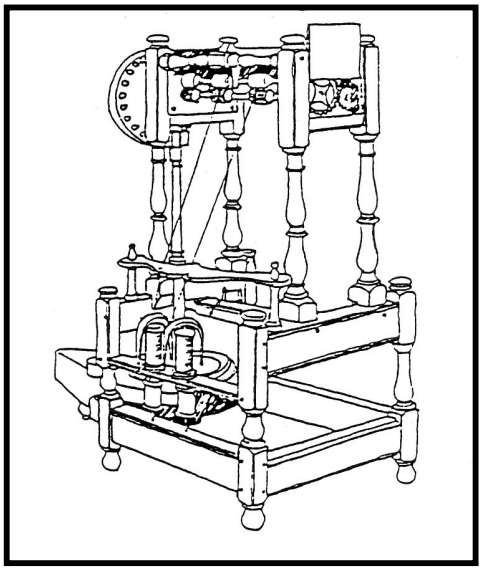
A number of strategies for restoration and conservation were considered, but the policy which emerged committed the Society to refurbishing a large number of buildings in a phased programme so that they could be let to tenants, with the project benefiting from the rent income. Creating an income also made it possible for the Society to borrow money for its capital investments and to use the rent to service both loans and debt – and this worked well with the Society generating significant annual income.

**Fig. 1: A plan of the Cromford Mill site and surrounding area**



The first task in 1979/ 1980 which faced the project team was clearance of the modern factory buildings to create safe access for the public, and in summer 1980 limited public access began. Soon afterwards an exhibition and small shop opened, and the first team of volunteer guides welcomed visitors.

Between 1981-1983 clearance of the site continued, and excitingly the original watercourses were revealed. The sluice, which controls the flow of water to the Canal, was rebuilt.



By 1984 the Society began rebuilding the handsome brick building in the upper yard which has come to be known as the Counting House, the restoration winning widespread public appreciation.

In 1986 the aqueduct was restored and painted (only to be destroyed in 2003 by a heavy vehicle wilfully using this road). Between 1988 and 1990, English Heritage and the National Heritage Memorial Fund combined to fund the purchase of that part of the site which the former colour works had retained, and also purchased the ground surrounding the mill to protect from unsuitable development. .

Since this time the project has gone from strength to strength with grant aid from a number of sources, a fruitful association with Derby University and with the Prince's trust, and the establishment of the Derwent Valley World Heritage Site.

**Fig. 2: Arkwright's Spinning Frame – where it all started. Sketch of prototype built for the patent office in 1769**

A number of major tasks remain to be completed, including restoration of the historical first mill of 1771, to restore its water power, including a working water wheel, and to establish interpretation facilities and a visitor centre, etc.

Much of this is now underway or in plan, and the work and dedication of the Arkwright Society over the last 25 years must serve as a model for other industrial rescue archaeology projects.

## Letters to the Editor

### From Stuart Kay.

*Ed - In NEDIAS News No 12, November 2003, a request by Michael Williams for details of early electricity supplies in Derbyshire, eliciting the following important and detailed information from Stuart Kay:*

I note from the info request section of the latest newsletter that details are required on the power generation system for the Avenue Works. I was associated with the site in various senior engineering capacities from 1968 to closure in 1992.

I have just started compiling a brief synopsis on the P/G system and steam raising plant have a copy of the full works power distribution system circuit diagram and a full system report I compiled during 1973 which gives a fuller picture. If this information would be of interest to Michael Williams I would be only too willing to share it

Some of our plant attendants came from Clay Cross when it closed and I recall talking to them about the system there; from their memory the voltage at the Alternator terminals was 3.3 kV ac.

The Generators at Stavely were a combination of Gas Engine and Steam Turbine, I recall peeping in the shut down generator house at Stavely when I was an apprentice for a local firm working there on other plant in the early

1960's In my minds eye I think there were two gas engines and one turbine (the gas engines were enormous things, slow speed twin cylinder using blast furnace gas as a fuel 5,000 kW ?? is). They were called Dora and Vera I think after one of the proprietor's daughters.
Can't recall much more though as I shouldn't have been there actually and had to scarper quickly, curiosity got the better of me at the time.

All part of life's rich tapestry.
Regards.
Stuart Kay.

*Ed. -In response, and following receipt of the above, Michael Williams writes that with this update, he now has over 20 very detailed case entries related to power generation starting in the East at Cresswell, Markham No 2, various collieries with their own supplies of electricity and hot water around Chesterfield, Ashover Light Railway, etc. Unfortunately Michael advises that he's unable to continue his researches at present due to illness, but clearly there is much material here for a future paper on the subject; perhaps within NEDIAS we can help and support with further research to complement Michael Williams' sound foundation and bring the work to publication. Do we have an electrical engineer in the Membership?*

# IA News and Notes

## Canon Mill, Brampton

Richard Robinson reports that vital repairs have now been carried out to the pantile roof of the historic Cannon Mill. He has also prepared a summary of current detailed investigations and discussions with a number of organisations, looking to a more secure future for the building. Unfortunately space does not allow for publication of the full details in this edition of NEDIAS Newsletter, and Members will have to contain their enthusiasm until arrival of full details in the next edition ! And you can hear further news at the AGM.

## Robinson's Model Village: further information on the subject from **Richard Robinson**

Following the articles by Darrell Clark and Jacqueline Currell I have been in contact with Mr Fred Rhodes, the retired Company Secretary and Director of Robinson and Sons Ltd. Before he retired about 10 years ago Fred had legal and financial responsibility for our buildings and housing. He says that the Wheatbridge Housing Association fell on "hard times" in the 1920's and that the tenants could not afford the rents required to balance the books of the Association. After this Robinson and Sons Ltd took over its debts and the rents were subsequently paid to them – though some employees did buy houses themselves. The Anchorage flats for retired employees were subsequently built on the site of the area allocated for the tennis courts. Mr Bill Pursglove, referred to as the secretary of the Works Council, was later pensions Secretary and Labour Manager. He retired aged 70 in 1945 in the absence of a qualified successor during the war. Fred Rhodes remembers the names most of the occupants of the houses as successive families moved in. There were also a good may other houses in Brampton owned by the company. If anyone wishes to do further research there are a number of files in the Robinson Archives at the County Records Office covering the Wheatbridge Housing Association Ref D5395/2/10/43 and on P207 Ref D5395/25/1 to 25/7/3 up to /25/11/4.

***Richard Robinson***

## Derbyshire Archaeology Day

The annual Derbyshire Archaeology Day was held (with its usual technical hitches) at the Pomegranate on 17 January; carrying on the success from previous years, it was extremely well attended with well over 300 delegates this year. There were a number of Industrial presentations, including much detail from Pat Strange on the Cromford Mill project, and confirming our view that this was some rescue! John Barnatt gave a flavour of the Lead Rake Project, designed to assess, to raise awareness, to conserve and to generally raise interest in these significant features of the Peak District landscape. A good subject for a future NEDIAS evening.

## NEDIAS AGM …. Call for Nominations

Included with this Newsletter are details of NEDIAS AGM. There are a number of vacancies on the Committee, and I must say we would welcome some new blood….! The duties are not onerous. More importantly, new members bring new ideas, and all organisations thrive on new ideas to avoid stagnation. One thing is for sure, NEDIAS would welcome **your** involvement and **your** ideas. How about it? A warm welcome awaits.
If you're not sure, do please give David W (01246 854 180), or any of the current committee a phone call to discuss.

Nominations please in writing to the Hon Sec, Patricia Pick, 40 Longedge Lane, Wingerworth, Chesterfield S42 6PD, phone 01246 272 181.

## IS THERE A CONTRIBUTION *FROM YOU* FOR THE NEXT NEDIAS NEWSLETTER?

A short article or observation, which would be of interest to the membership? Maybe something for the letters column? Then please send to Cliff Lea, 15 Kelburn Avenue, Walton, Chesterfield S40 3DG (Tel; 01246 234212, email; c2clea@tiscali.co.uk).
***Deadline: Contributions for the next newsletter before 25 April please.***

## And Finally …

**Tell that to the Marines!**
From the Sheffield Independent, 11th October 1904 –

***"Earl Fitzwilliam has purchased a Union Castle liner, and renamed it the Veronique, for a tour in the South Pacific in search of coal".***

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**Your NEDIAS Committee**: - *Chairman* – David Wilmot; *Secretary* – Patricia Pick; *Treasurer* – Pamela Alton. *Membership Secretary/Assistant Treasurer* – Jean Heathcote; *Publicity & Newsletter* – Cliff Lea; *Lecture Meetings Organiser* – Malcolm Fisher; *Archivist* --Pete Wilson; *Committee Members* – David Hart, David Rance, Paul Smith, Jack Smith

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