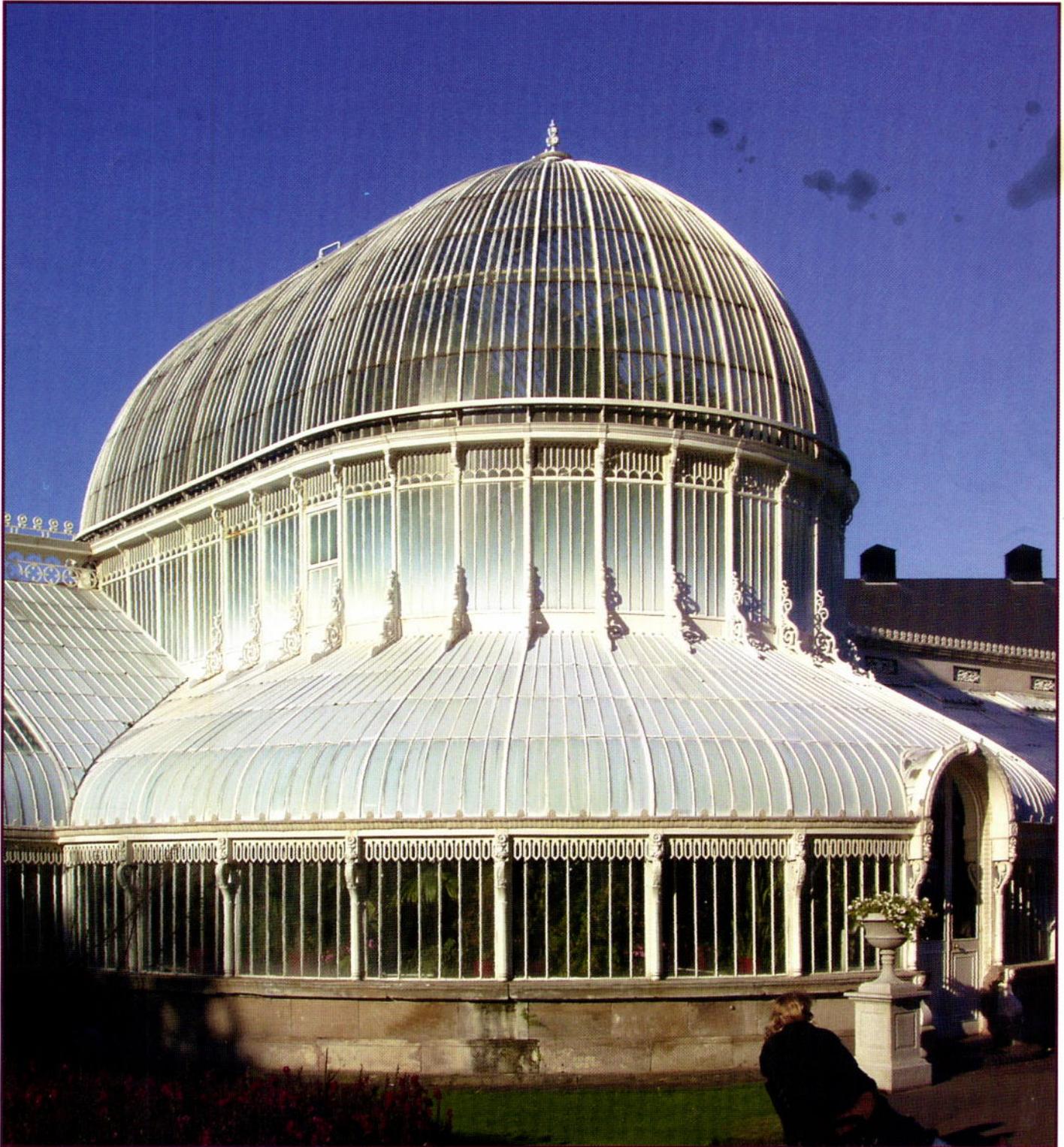


# INDUSTRIAL ARCHAEOLOGY NEWS

**133**  
SUMMER  
2005

THE BULLETIN OF THE ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

FREE TO MEMBERS OF AIA



Ironbridge Weekend • Barton airport • Lane End brickworks • Scotland's losses  
Keswick Mining Museum • IA in Belfast • Lancashire textiles • Polish matchmaking



# INDUSTRIAL ARCHAEOLOGY NEWS 133 Summer 2005

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## COVER PICTURE

*Palm House in the Botanic Gardens, one of the gems of Belfast. See page 12*

*Photo: R J M Carr*

## Ironbridge Weekend: railway structures

*This year's weekend, 2-3 April 2005, was themed around railway structures rather than railways in general, partly because of the size of the subject and partly to focus on elements other than locomotives. Some 42 people attended.*

Ray Riley

Mike Nevell opened proceedings with a paper on the archaeology of the railway warehouse, using examples from north-west England, where 43 survive, including six in central Manchester and five in Carlisle. He argued that the early railway warehouse derived its principles from the canal era, which is hardly surprising since both forms of transport were concerned with the transshipment of relatively small quantities of bulk goods. At the outset gravity hoists were employed, but as the volume of traffic increased and new technology became available, water under pressure, then steam and finally electricity provided the power. Typically the first warehouses were timber-framed with a floorspace of 4-500 square metres, the later single-storey transshipment sheds had cast-iron frames and were fireproof, while the final form was multi-storey, making use of wrought iron and steel, with as much as 18,000 square metres of floorspace. The latter warehouse persisted, but road transport saw its ultimate demise.

A complementary study by Tim Smith demonstrated just how much use the railways made of hydraulic power: for hoists, lifts, cranes, capstans and swing bridges among others. At one stage Paddington used 25 million gallons of water a year. Initially water was delivered at 60psi, but this was raised to 700psi enabling heavier loads to be raised. Where a public supply was available, as in the bigger cities, the railways used this since it was cheaper than generating their own supply; however, with the termination of public supplies in the interwar period, the railway electrified their systems. Tim's illustrated examples of hydraulic pumping houses were notable for their architectural design.

Because of its visibility, railway signalling has had a higher profile than hydraulic power, rendering Ian Mitchell's remarks on the subject a little more familiar. However, by explaining the operation of interlocking of points and signals, crucial to the avoidance of collisions, Ian made sense of otherwise disparate bits of knowledge. Once again technological progress has changed the detail if not the principles of the system, so that the advent of colour lights which can be seen over long distances has increased the spacing between signals, and electrified points have reduced the number of signal boxes required. At one time there were 12-13,000 of the latter, but now only 700, of which 110 are listed. Each company had its own distinctive signal box design but they all seemed to possess similar social elements: the provision of a domestic chair, a stove and a cat.

The last speaker in the morning session, John Crompton, looked at early railway track, pointing

out that documents dating from 1603-5 refer to rail, but tantalising do not amplify the statement. Given the small loads involved and the simple technology available, softwoods and hardwoods were used, although inevitably iron rails were stronger and longer lived. Fish-bellied edge rail is known to have existed in 1767. There was much experimentation with rail profiles, leading to the discovery that wrought iron was sufficiently robust not to need a fish-bellied shape. Interestingly, in an attempt to avoid false claims occasioned by a collapse, some chairs were cast with the date of production,

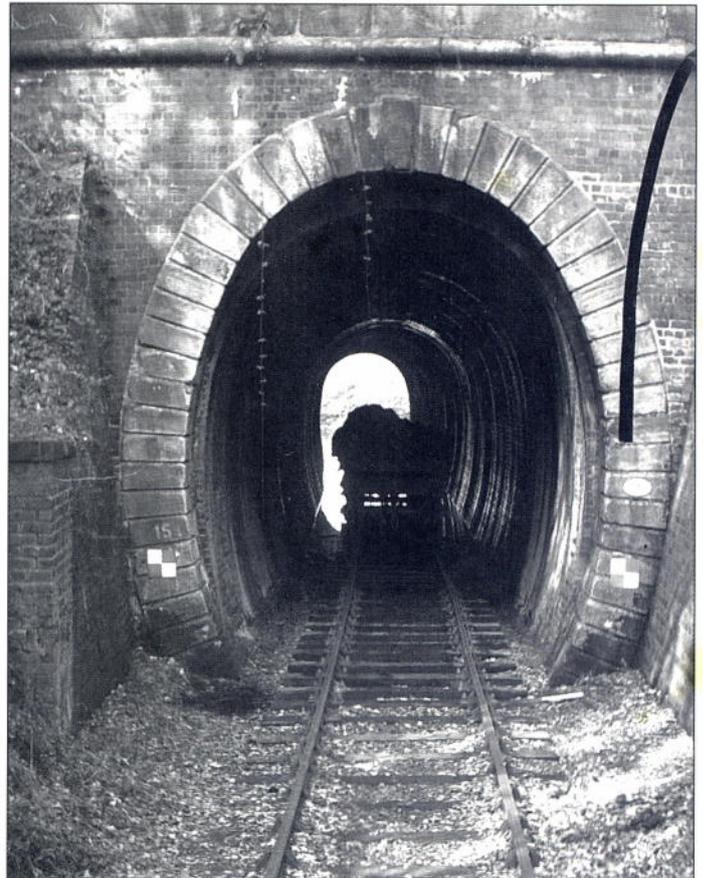
As a final conclusion to the morning, Mike Bone said a few words about Peter Neaverson, whom many will have known as an important contributor to industrial archaeology, who sadly died in December 2004.

After lunch a visit was made to the Telford Horsehay Steam railway, where a guided tour was led by Paul Hughes, suitably attired in a GWR guard's uniform. Like many such small scale endeavours, there was a plethora of equipment and rolling stock awaiting refurbishment, notably a GWR 0-6-2T in the main workshop. The half-mile length of track was viewed from an old diesel railcar. The evening's conference dinner was held at the New Inn, Blists Hill, after which there was the usual quiz, leavened this year by some literary questions; the winner was Stephen Rowson whose knowledge is obviously not restricted to canals.

Sunday morning saw the conference following Tony Jervis along the route of the line between Edinburgh and Dundee, emphasising the constructional problems encountered, and commenting on present-day use. Tunnels, bridges, viaducts, train ferry operations which were an integral part of the route, and finally the Tay Bridge, were all subject to examination in Tony's inimitably enthusiastic style.

In one way similar to Tony's paper was that of Mary Mills, since she was concerned with one particular line, that between London and Greenwich, built to the designs of George Landmann. Mary had come across Landmann as part of her work on the gas industry, and one wonders how many other little-known designers, architects and builders involved with the railways remain to be researched.

The final contributor was Gordon Biddle, one of the country's leading authorities on railway architecture. Taking as his theme the impact of the railways upon the landscape, he argued that railway structures were absorbed by the rural landscape much more readily than the motorways. In some cases sympathetic features were actually required of the railways: the castellated towers of the Conwy bridge and various stations and tunnel portals built to landowners' specifications are examples. At the same time Gordon admitted that not all urban structures are complementary. Some of the works of William Tite, Brunel, William Tress and G.T. Andrews were examined, while examples of warehouses, level crossings, signal boxes and



*Not quite the latest technology, but that's why we're here . . . a train awaits at the Horsehay platform*  
 Photo: Marilyn Palmer

*Tunnel at Horsehay viewed from the railcar driver's cab*

*Photo: Tony Yoward*

workers' housing were also analysed. This concluding paper drew together many of the themes developed by other speakers.

There were five members; contributions. Derek Brumhead gave an insight into the surprisingly complex railway network that developed at New Mills, south of Manchester.

Taking a very different perspective, Ian Mitchell was concerned with the modus operandi of the Midland Counties Railway coke store at Long Eaton, supplied by barges which curiously must have been much longer than the holes in which they were unloaded. Tony Yoward had come into possession of plans drawn up in the early 1960s

by Robert Hedley for the new Euston station. These were conveniently in a single document, together with the architect's impressions of how the new buildings would appear. Ray Riley commented on some of the structures of the Polish light railway system, retained by the communists by now disappearing. Both stations and locomotive sheds ranged from the tumbledown to the sophisticated, depending on the whim of the original railway company. Concluding, Michael Messenger looked at an under-researched aspect of railways, inclines, illustrating his talk with examples from South West England and North Wales.

Summing up, Mike Bone alluded to the range of the topics covered over the weekend, all of which indicated the complexity of the railway system which is all too often taken for granted.



*'Now tell me about the railway structures you had in mind?'. Marilyn Palmer and Ray Riley at the conference dinner*

*Photo: Tony Yoward*

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## Barton: Britain's first municipal airport and its listed buildings

*Although the City of Manchester's Barton aerodrome was located in the wrong place to have been a great success, it was nevertheless Britain's first municipal airport. This short paper outlines its history and describes the surviving listed and unlisted airport buildings.*

Derek Brumhead

Barton aerodrome owes its existence to the City of Manchester's quest in the inter-war years for a municipal airport. The location, Foxhill Farm, alongside the present A 57 (Manchester to Warrington road), was selected in 1928 and the choice was strongly influenced by the City's Cleansing Department's ownership there of 2600

acres. However, the choice proved a mistake in several ways. The boggy surface was ignored, suggesting that the difficulties faced by George Stephenson when constructing the railway over Chat Moss had been forgotten, although the City Engineer's initial costing did recognise that appreciable infill and consolidation work was needed on the moss-land. The site also had a foggy, low-lying situation.

Work started at Barton in March 1929. To reduce costs, the developed area was confined to 80 acres east of Foxhill Glen. The aerodrome was officially opened on 29 January 1930. The first landing was by an Avro Avian and the first large aircraft to call was Imperial Airway's three-engined Argosy on 23 May. Thrice-weekly flights

commenced on 16 June until 20 September 1930 using Argosy and Handley Page W.8 and W.10 airliners. In this three month period, 98 passengers left Manchester going southwards, and 38 going northwards, 20 passengers arrived at Manchester from the north, and 69 passengers from the south. The experiment, however, did not continue.

In 1934 Manchester asked KLM if they would use Barton as a terminal. On 23 January 1934, Captain Ivan Smirnoff flew a Fokker F.XII three-engined airliner via Hull to Barton. His verdict on Barton was damning, saying: 'The airfield is very small. Extensions would be very costly. From a meteorological standpoint (fog), this is the worst airfield in Europe known to me. Surrounding obstructions (chimneys, pylons etc) make approaches dangerous. Do not spend any more money on Barton, but find a more open ground. It is unfortunate that our [KLM's] proposal for a joint airport for Manchester and Liverpool has been turned down'.

It was clear that Barton was unsuitable as a major commercial airport. KLM chose Liverpool's new airfield as terminal for the service from Amsterdam via Hull. This rejection of Manchester and selection of Liverpool led directly to Ringway Airport being built. The city wasted no time in seeking a site for a new airport and on 25 July 1934, following a report by aeronautical consultants, a site at Ringway was approved, although only by one vote.

Several historic buildings constructed by Manchester still exist at Barton today and have been listed by English Heritage as Grade II. Other buildings were added during the war years and post-war. The site is described by English Heritage as a unique historical aviation landscape, and the following details of the buildings are taken from their listing notices.

The Main Hangar is the earliest municipal aviation hangar in England, dating from 1930. It is a steel-framed structure with red brick external walls and sheet roof covering. The exterior has wide gabled end walls, the north gable formed by the main hangar doors occupying the full width of the frontage and set on rails. The south gable incorporates a huge ashlar plaque bearing the City of Manchester Coat of Arms, which is visible from the A57. The interior is an undivided space with side and rear end wall with exposed steel wall framing carrying 14 braced steel roof trusses spanning the full width of the building. The hangar (70m in length, 35m wide, and 30.5m high) was designed to house the most advanced passenger aircraft of the day, the Imperial Airways Argosy. 24 Windows on each side have been blocked in. On its easterly side a workshop runs down its full length.

The Terminal Building is the first building on the left as you enter the airfield and it is a converted farm outbuilding (Foxhill Farm). It is a single storey range in red brick, three brick chimneys and a wide shallow pitched roof with Welsh slate covering. The north-east front facing



The Control Tower of 1933

Photo: Derek Brumhead



Barton Airport Terminal Building

Photo: Derek Brumhead



The Municipal Hangar, erected in 1930

Photo: Derek Brumhead

the airfield has a wide off-centre doorway, formerly for the air passengers, with narrow flanking windows. The interior, which is not accessible, is believed to retain elements of the original terminal which included offices, waiting room, ticket office, airport manager's office, storerooms, and customs.

The Control Tower, one of the earliest first flight control towers in Britain, was opened in 1933, and has been in constant use ever since. The ground floor, which now houses the reception and administration of the flying school, has four

radiating wings, while above is a walkway and parapet used for spectators. Above this is Air Traffic Control.

There are other non-listed buildings. Adjacent to the hangar on its western side is the interesting maintenance workshop, which has two semi circular extensions for offices on each side, in a classic 1930s style, built early post-war. A house for the airfield manager was built in 1930 and this can be seen to the left of the airfield entrance, in front of the helicopter school. On the right of the entrance, a dilapidated

wooden building housed the offices of the Northern Air Lines, which originally managed the airport in the 1930s. A recent loss was the sudden demolition of the former Airport Hotel (another building converted from Foxhill Farm by Manchester Corporation), the second airport hotel in the country (Croydon in 1928 was the first). One wonders if wind of possible listing may have prompted this most regrettable action. There are other hangars of great interest. Two post-1950s, the Brian Harbit Hangar, LAC 2, and LAC Hangar 3.

Barton still caters for the needs of club and private flyers. Lancashire Aero Club, the oldest aero club in the country, manage the thriving club, flying school and private aviation scene at Barton but no longer on behalf of Manchester City Council as owners. In an action which brusquely disposed of decades of the Corporation's involvement with Barton, the field was sold in 2002 to a property development company (Peel Holdings) At the time of writing the lease is up for renewal and it is hoped that negotiations will allow general aviation to continue. The club has 1100 members (including the author) and the flying school has 160 students, over 30 full time and part time instructors As well as the 12 school aircraft, there are over 70 private aircraft kept on the field or in the hangars. In addition there is, separately, a Barton aviation museum with displays on the history of the airfield, and helicopter and microlight flying schools. It seems inconceivable that Salford Corporation (the planning authority) would allow the demise of this historic aviation scene. To start with, where would all the aircraft go?

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# Lane End brickworks, Buckley

*In February 2002, a Cultural Heritage Assessment was undertaken by Castlering Archaeology prior to development on c.67 acres of land at Buckley, Flintshire (centred on SJ 289640) which included the site of the former Hanson's Brickworks at Lane End and large areas of clay extraction northwards to Drury Lane, with land formerly known as Knowl Hill. Brick-making took place continuously from 1792 until 2003 and this report discusses the remaining archaeology of the brickworks site and its immediate environs. The site has since been completely demolished.*

Pat Frost

The Buckley area in Flintshire is renowned for its production of post-medieval pottery. The glacial clays that overlie the middle coal measures were ideal for manufacturing pots. Beneath the coal seams, are gritty 'fireclays' in beds of purple, black and grey marls. These stiff clays have enabled the production of acid and fire resistant bricks, paving and ridge tiles at Buckley over a period of 200 years and the coal measures provided a more than ample supply of fuel for the kilns.

The area on the north side of the Lane End brickworks site has been subjected to mineral extraction and industrial activity for over 100 years. The area includes the former route of a late nineteenth-century tramway, later used as a track, which extended from Knowl Lane (later Drury Lane) in a south-easterly direction towards Knowl Hill brickworks and small clay quarries. The area currently comprises tracts of former mineral extraction, which have more recently been partly filled and levelled, and areas of dense gorse. No

archaeological features are present and quarrying has removed any possibility of sub-surface remains. Further south, on the east side of Church Road, two coal shafts of Dumpling Colliery were recorded in 1894 by the Ordnance Survey. The colliery workings were abandoned by 1914 and there is no longer any evidence of the site either in the areas of scrub growth or the former clay pit. South of the coal pits, a small house was recorded on site by the 1839-44 Hawarden Tithe map.

The existent buildings in the area of Lane End Brickworks have been photographed as part of the current programme of works. The brickworks were established by William Hancock in 1792 and remained continuously in use until production stopped in August 2003. The site is dominated by two brick chimneys rising above the later twentieth century corrugated and brick structures. The northern square chimney and the taller southern circular chimney appear to have been on site by 1912. Other than these two features, the plant and machinery appear to date from the refurbishment of the works in c1970s by the Butterley Brick Company. The existent modern buildings on site provide evidence of the basic processes involved in brick making, which, despite the introduction of new plant, have remained unchanged for 200 years. The main body of buildings comprise corrugated iron sides and roof above a modern brick foundation. The buildings enclose a system of gas-fired kilns and hot air ducts below a steel framed roof.

The clay extraction areas extend north and east from the existent buildings towards the dismantled railway and Drury Lane. The clay was originally trammed to the crusher house and in

more recent times carted by dumper trucks. The existent crusher house has brick foundations and corrugated iron sides and roof above. The quarried material was fed into the top-loading steel crusher on the northwest corner of the building. Following primary crushing the clays were separated and transported along a conveyor belt to the three-bay open-fronted storage area, where different clays were stored separately, such as black clays (which became white when fired) and blue fireclays. There was also a bay for crushed rock, which was added to the clay at a later stage. The clays were loaded into a hopper and carried by conveyor belt to the screening room, where they were sorted and sent back to the Pan Mill for further grinding.

The clay emerged from the Pan Mill via the extruding machine as a long clay snake, which passed along the conveyor belt to the cutting machine. The wire cutters were adjustable according to whatever product was required. The newly cut bricks were loaded onto pallets and stacked for several days in the drying sheds, which were warmed by air redistributed from the kilns. In the early days of brick manufacture, bricks were dried outside in the sun. Clay for individual or special bricks was taken to the hand-moulding shed, where the process remained unchanged since medieval times. The wooden moulds were made in the joiner's workshops. Following drying, the brick pallets were loaded by forklift trucks into the gas-fired kilns. The heat from the kilns was extracted through a hole in the floors, redistributed throughout the works and the surplus drawn up through the main chimneys. The existent kilns date from around the 1970s. Ten kilns were located in the main building with an average firing capacity of 40,000 bricks, which following firing, would be left to cool down for about six days. The bricks were stored in pallets on the yard prior to transportation.

The desk-based assessment located maps for the site dating from 1815. The brickworks were occupied by Messrs Wm Hancock & Co. and the map suggests circular kilns were operating in the area adjacent to Lane End footpath at this time. By 1838, the 1815 kilns were no longer recorded but there were eight kilns further west at the location of the existent brickworks buildings. The location of the late nineteenth/early twentieth century circular kilns were accurately recorded on O.S. maps from 1871 to 1912 together with the tramways that served them. The traditional circular (beehive) kilns appear to have remained in use until the Hancock's family business was taken over by the Castle Fire Brick Company in 1956. The take-over resulted in complete modernisation of the works, completed by 1962, during which gas-fired kilns were introduced. In 1972, the brickworks were taken over by the Butterley Brick Company, a subsidiary company of Hansons.

The Lane End brickworks site is bordered on the east by the dismantled Wrexham, Mold and



*These packaged bricks ready for despatch are some of the last made at Lane End brickworks*

*Photo: Pat Frost*



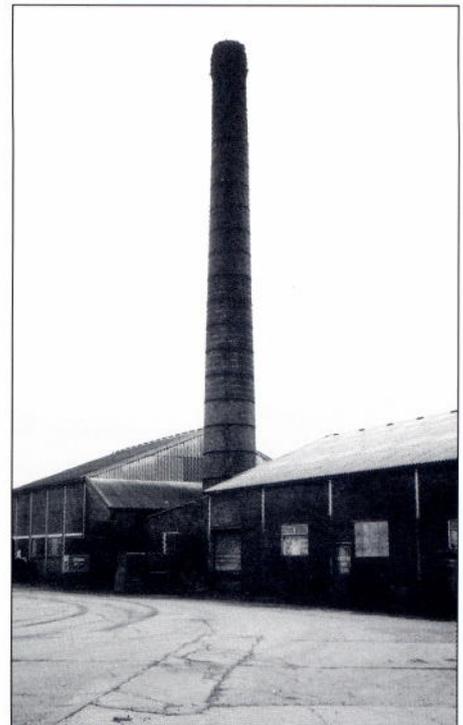
A general view at Lane End showing the earlier square chimney and a kiln on the right

Photo: Pat Frost

Connah's Quay Railway and its branch line, which was part of an eighteenth-century horse-drawn tramway for transporting coal, bricks and pots from the Buckley area to the River Dee. The section of tramway that forms part of the current assessment area is considered to be of national importance and consequently forms Scheduled Ancient Monument No. FI 181 (FLT). The section is virtually all that remains of an early network system that developed from c1700s. The scheduled area will not be physically affected by current development proposals.

South of the scheduled area, the site of Lane End Colliery survives as an area of coal tips, mounds and depressions. A triangular concrete pillar marks the site of shaft No. 896, which was capped in 1981. The shaft is presumably engine shaft. To the east, the route of the dismantled Wrexham, Mold and Connah's Quay Railway partly survives as a cutting and partly as an embankment, which is utilised as a footpath. The site is unlikely to be affected by future works.

Apart from the two main proposed housing developments, other areas are set aside for public

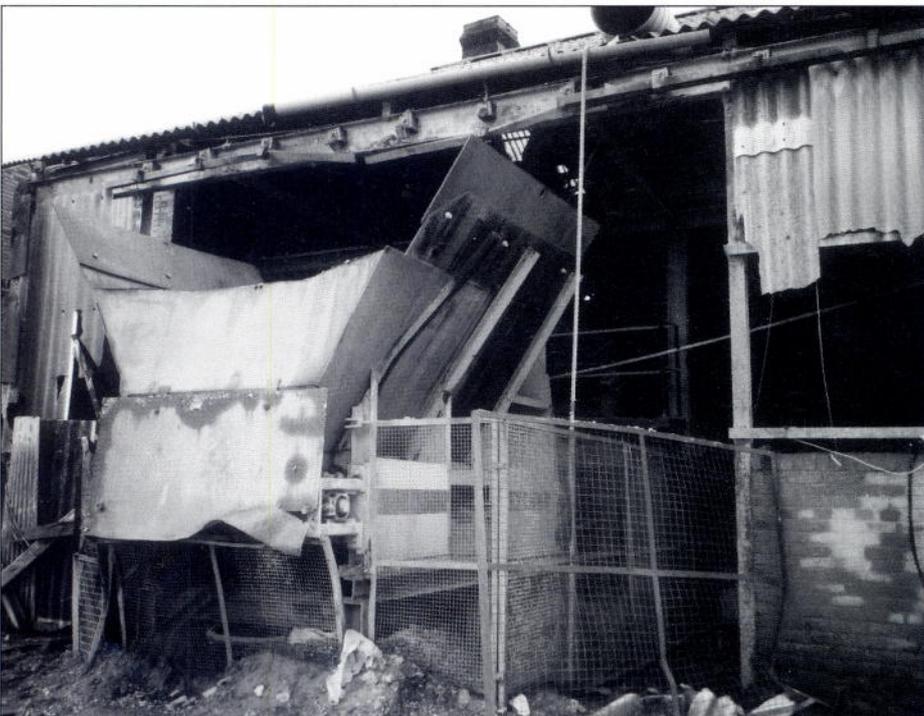


The Lane End brickworks, with the tall chimney rising between the grinding mill (left) and gas fired kilns. The whole site has now been completely demolished

Photo: Pat Frost

open space. East of the proposed open space, the area includes the scheduled area of the tramway, the line of the dismantled railway and several mining features. The scheduled area is currently in a poor state, partly densely covered in scrub and broadleaf. Above ground evidence of the tramway system also survives outside the scheduled area. Alongside the public footpath leading south from Drury Lane, areas of brick sets were located intermittently during the site visit. The bricks presumably formed the foundations of a tramway.

The assessment has provided a record of the existent site prior to future developments. It has highlighted the impact of the proposed development on the archaeological resource and the possibility that an increase in population brought by the new development may result in heavier use of the recreational resource in the area, of which the scheduled monument and sub-surface remains of the tramway are part.



Hopper feeding the grinding mill

Photo: Pat Frost

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Full details are given on page 10

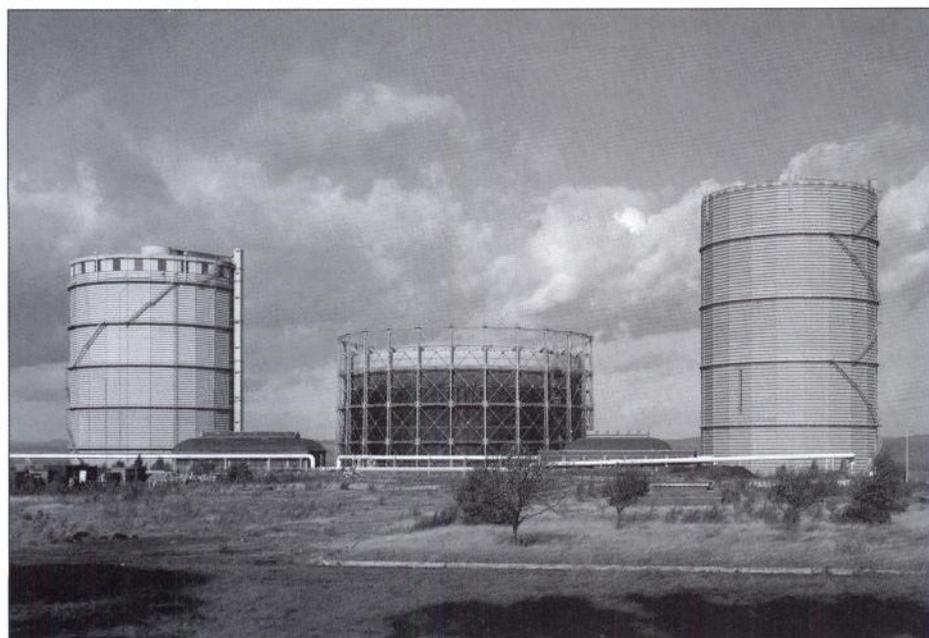
## SCOTLAND'S LOSSES

Illustrated here are some of Scotland's most recently lost industrial monuments. See also Miles Oglethorpe's Scotland report on page 17.

Dumbarton Distillery, which once dominated the town of Dumbarton. By early 2005, demolition was well advanced, making way for a new 'Riverside' development which will retain some elements of the complex  
Photo: SC 572688 Copyright: J. R. Hume, 1980



Owen William's Montrose New Bridge, which was completed in 1930. It was dismantled in 2004, and replaced with a temporary bridge  
Photo: SC 519533 Copyright: J. R. Hume, 1977



View of the three gas holders at Granton Gas Works. The two outer waterless gasholders have now been demolished, as has almost all the remainder of the gas works infrastructure  
Photo: Crown Copyright: RCAHMS, SC436658, 1998

**Important note re changes of responsibility for Book Reviews, Shorter Notices and Abstracts**

These have been done for a long time by Peter Neaverson, and his death has meant a re-organisation of his many duties.

**Book Reviews**

Marilyn Palmer will become solely responsible for Book Reviews, and books should be sent to her at The School of Archaeology and Ancient History, University of Leicester, LE1 7RH.

**Publications Awards**

Marilyn will also temporarily take over Peter's responsibility for the Publications Awards.

**Shorter Notices**

David Alderton has kindly agreed to undertake shorter notices and abstracts of local society publications, so would all local society newsletter and journal editors please note that in future, all such publications should be sent to David at 48 Quay Street, Halesworth, Suffolk, IP19 8EY. He will eventually deposit them in the Ironbridge Institute Library, where they are available to AIA members.

Peter received many such publications but some important local societies did not take advantage of this service to ensure that their journals would be known to a much wider audience, so if you were not sending them to Peter, could you now consider sending regular copies to David Alderton?

**Abstracts for *Industrial Archaeology Review***

We need a volunteer to take over the compilation of Abstracts for *Industrial Archaeology Review*. Some of these have come direct from individuals, but Peter compiled most of them from journals in Leicester University Library. If anyone with access to a good library is prepared to take this on, would they please contact Marilyn Palmer at the above address. Whoever does these abstracts gains an unrivalled knowledge of what is being published on industrial and historical archaeology!

*Marilyn Palmer*

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**Industrial Archaeology and Industrial Heritage in National Parks: call for papers**

The AIA is continuing its successful series of pre-conference research seminars and the theme for 2005 is the research, recording and conservation of industrial archaeology within our National Parks. The seminar will be held on 2 September at Cripps Hall, University of Nottingham. Unlike National Parks elsewhere in the world, they are not wilderness areas but most of the land within them is privately owned and managed. In England

and Wales, they cover some 10% of the land area and have some of the most extensive and best-preserved archaeology in Britain. Most are in upland areas which were exploited for minerals in the past, and retain evidence for mining and its associated transport systems and settlements as well as farming. They are now often heavily used for recreation, which puts great pressure on the conservation of their archaeology. This seminar will consider both the potential and problems for the conservation of the industrial heritage within National Parks.

We invite papers of 20 minutes duration so that adequate discussion time is possible. Potential contributors should send a title and short synopsis to the Professor Marilyn Palmer, School of Archaeology and Ancient History, University of Leicester, LE1 7RH or e-mail [mai@le.ac.uk](mailto:mai@le.ac.uk) by 1 June 2005.

Contributors are welcome to attend the AIA Conference at the same price as AIA members: full details and booking forms will be sent to all making submissions, or can be obtained from Simon Thomas, AIA Liaison Officer, AIA Office, School of Archaeology and Ancient History, Leicester University, Leicester LE1 7RH, ☎ 0116 252 5337, Fax: 0116 252 2862.

**AIA ANNUAL CONFERENCE 2005 – DERBYSHIRE**

The 2005 Annual Conference will be held at the University of Nottingham on 2-4 September. The conference will follow the established format with a Friday pre-conference seminar, the main conference over the weekend from Friday evening to Sunday, and a post-conference additional programme from Sunday to Thursday, 4-8 September. The local organisers are the Derbyshire Archaeological Society, who have devised a programme to show off the extraordinary variety of industry in their county. The main conference weekend will concentrate of the south of the county, close to the conference venue at the University of Nottingham, whilst the additional programme will explore up into the Peak District and coalfield areas to the north. As well as the Derwent Valley Mills World Heritage site, one of the birthplaces of the industrial revolution in England, there is a fascinating range of other historic buildings and museums.

Join us in Derbyshire in 2005 for an AIA Conference to remember. Booking details are included with this mailing.

The AIA Liaison Officer, AIA Office, School of Archaeology and Ancient History,  
University of Leicester, Leicester LE1 7RH

☎ 0116 252 5337, Fax: 0116 252 5005, e-mail: [AIA@le.ac.uk](mailto:AIA@le.ac.uk)

## Preservation of Large Steam Engines

Jim Mitchell and his team are to be congratulated on their achievement in returning the Trencherfield Mill engine to good working order (see *IA News 131*, pp5-6). The scale of the works and the expertise required illustrates just what a mammoth task is taken on by any organisation setting out to demonstrate such engines in steam to the public. Yet running the Trencherfield Mill engine is relatively straightforward since it is a self-contained unit designed to function at all outputs up to full power. Operating it at no load is not a problem other than taking care not to overspeed it. Preservation through operation is quite realisable with money and effort.

There is another group of stationary steam engine survivors that are not so simple to demonstrate running on steam. I refer to units such as the large triple expansion engines at Kempton Park where the pump rams are driven off the crossheads of each cylinder. This integrated design has led to a number of problems on this engine and readers may be aware that the planned programme for 2005 has had to be cancelled.

Economics and environmental conditions dictate that these engines can no longer pump water to any significant head but the engines were carefully designed so that the steam forces, the weight of the running gear and the water forces were intended to be roughly in balance for each cylinder unit. Remove the water pressure and the loads on the crosshead, crankpin and main bearings are substantially greater when the engine is run without load than when the engine was in service. The engine now has a bearing problem. These engines

were not designed for easy removal of the load side of crankshaft main bearings.

The 1000 HP engine at Kempton Park now only needs 150 HP to turn it over for demonstration at a realistic speed. The resultant much reduced steam flow is already close to condenser vacuum conditions when it exits the high pressure cylinder. The other two cylinders have little work to do. But their spring-loaded poppet valves, and their timing, were designed for higher pressures through the steam circuit. Under the present conditions, relative cylinder and receiver pressures can be the reverse of the original design. The result is that the spring loaded valves lift from their seats at the wrong time and slam shut again with a loud and very undesirable bang.

Finally, in common with most water works engines, the waste heat was rejected by discharging it up the main to the reservoir. The pumped water has now to be recirculated and the waste heat dumped by spilling warm water and making up with fresh. A small temperature rise on the water side could be disastrous, since the cast iron condenser shell is firmly squeezed between 800 tons of engine and the solid concrete wall of the engine house sump. Nor can the spilled water be allowed straight in to the drains – it must be stored for processing in case it has picked up any oil. This limits the length of time that the engine can be run.

Maintenance in their last years was just sufficient to keep the engines going till they were shut down in 1980. One has only to look at the degree of wear on the barring engine worm drives to see what this meant. This may be a factor in the bearing problem. It certainly adds unexpected tasks in the restoration.

These are some of the problems thrown up during 10 years of work by the members of the Kempton Great Engines Society to get to a situation where they could show their achievement off to the public. These hopes are now dashed by a hot main bearing, certainly not helped by the greater bearing loads. Quietening the valves may require radical alterations to the camshaft and cams. But can this be done on a Scheduled Ancient Monument? The average age of the Kempton team is 74. Will they want to continue? Their fun has been to work as engineers, fitters, electricians, plumbers to get the engine going. The satisfaction is different once the job is done and the only fun is to run the engine, a rather repetitive exercise. Are competent people to manage and drive the engines available? There may be problems even with tight control of driving standards – a very difficult thing to achieve in a volunteer environment.

At least two horizontal reciprocating engines have been damaged in preservation by operator error to my knowledge. There are almost certainly others. Every one of the Cornish drivers at Kew has hit the catching blocks on the 1846 Grand Junction 90 inch beam engine. With weight taken out of the balance box to reduce stresses in the beam and reduce fuel consumption, the engines are much more sensitive to handle than when they were in service. A structural beam has just been broken at Crofton by an over-stroke and the Newcomen engine at Elsecar has not been run since it was damaged in preparation for a Newcomen Society visit in 1953. In many ways, operating these engines as museum demonstrations is a completely new ball-game compared with their working days. The 'old' skills are not necessarily relevant or even helpful.

The difficulty that museums like Kew have in getting volunteer drivers (and be under no illusion – there are few takers in response to their pleas) may be due to the risks, the responsibilities and the dedication required. Perhaps running these engines to preserve them is not the way forward. We could be left with damaged engines and no finance and manpower to repair them and keep going. What do members think? Is experience further north more encouraging?

John Porter

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## Water from Wendover Springs

At last year's pre-Conference Research Seminar at Hatfield, Adrian Bayliss and myself made a presentation on the very long historical record of flows from springs at Wendover (Bucks) which feed the Tring Summit of the Grand Union Canal via the Wendover Arm (see also Home Counties News). In his report on the Seminar (*IA News 132*, 9), Bob Carr mentioned that a scientific paper was to be published, linked to the research that we presented. That paper is titled 'The Wendover Springs record: An insight into the past and a benchmark for the future'. The authors are Adrian Bayliss, John Norris and Terry Marsh, and the paper was published in the Royal Meteorological Society's journal *Weather*, Vol. 59, No. 10, October 2004, pp 267-271. Adrian and I are planning to publish separately on the complexities of both the spring culvert system beneath Wendover, and of the various flow measurement techniques which have been involved.

Henry Gunston

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## VISIT THE AIA WEBSITE

[www.industrial-archaeology.org.uk](http://www.industrial-archaeology.org.uk)

Our website contains information on the Association for Industrial Archaeology, including Membership, Abstracts of *Industrial Archaeology Review*, Awards, Conferences, Affiliated Societies and Sales. The Diary gives notice of events, day-schools and conferences, often in more detail than can be published in *Industrial Archaeology News*. Links give access to other societies, museums and organisations in the world of industrial archaeology.

## Keswick Mining Museum

Local mining historians Ian and Jean Tyler have re-located their Mining Museum a short distance from Threlkeld Quarry to a new and larger site in the centre of Keswick. The Tylers founded the first mining museum in Cumbria 16 years ago at Priests Mill, Caldbeck. Over the years the collection has grown and now boasts not only the finest collection of mining artefacts in Cumbria, but the UK. In fact, one widely-travelled American mining engineer declared it the finest in the world!

The collection has been enhanced with the acquisition of the collection of Bill Shaw, who was an eminent and well respected Cumbrian mining engineer. There are also important artefacts and minerals from the John Hemingway, William Creighton and Norman Thompson collections.

The Museum is not just a collection of mining artefacts and memorabilia, it portrays the vital importance of our mining and quarrying past, all too easily forgotten in the mists of time and referred to by many as a blot on our beautiful landscape. Cumbria's long mining heritage commenced with the extraction of axes from Great Langdale during the Neolithic period; there was early extraction of coal on the western seaboard at

Whitehaven; early iron extraction, then the coming of the German miners under the guidance of Daniel Hechstetter at the behest of Queen Elizabeth I. In 1564 they came to Keswick Town to discover the copper veins of Borrowdale and the Newlands valley. It was their 100-year stay which greatly influenced our mining heritage, they taught us the skills to mine and tunnel underground, prospect and smelt the ores recovered. These skills, now learned, were to turn Cumbria into one of the most prolifically mined counties in England, with up to around 20 commercial minerals being extracted by the twentieth century.

In the nineteenth century Cumbrian miners were itinerant and travelled to and exploited the countries of the world: Africa, America, Canada, India, Australia, South America, etc, helping to make the 'Empire' as great as it was to become. Meanwhile at home in Cumbria, down the Borrowdale valley, the purest deposit of graphite in the world was being mined giving birth to the pencil industry in Keswick which still continues to this day. On the west coast the huge deposits of deep coal at Whitehaven and iron ore at Cleator Moor and Hodbarrow near Millon were being opened up, creating a vast steel industry, ship building and the production of railway lines for use

all over the world. On the Caldbeck Fells lead deposits were being mined along with a new mineral baryte which was required in the paper, glass and paint industries. To the south, the Coniston copper mines flourished, a legacy of the earlier German miners. Further new minerals such as fluorspar and zinc were being won in east Cumbria and of course the county boasts the finest green slate in the world. By now this was being quarried and mined in Coniston, Honister, Elterwater and the vast holes of Hodge Close and Kirkby Moor. Today it adorns some of the most opulent buildings in the world.

Many native Cumbrians do not realise that most of the county's original roads were constructed to transport our minerals and the once complex rail network was essential for transportation. Some locally mined materials were taken out to the coast to then small but important ports. These were the tentacles of success spreading out around the country. Indeed, by the turn of the 1900s nearly 25% of the male population of Cumbria was involved in mineral extraction. During this period Cumbria was a thriving and prosperous county and much of this wealth and prosperity was due directly and indirectly to the extractive industries.

Today Cumbria still boasts a mining and quarrying trade. At

Egremont the last working iron ore mine in Europe still continues under the mine captain G. Finlayson; Mark Weir, recent winner of the Director of the Year Award, has pioneered the re-opening of Honister Slate Mine; Burlington operates the vast quarries at Kirkby Moor, Coniston and Elterwater; Corus are the steel giants at Workington; Hanson Ltd continue to work the huge Shap quarries for limestone and the nearby Shap Granite Co. still produces one of the world's finest granites; further east at Kirkby Thore, British Gypsum deep-mines gypsum and anhydrite by the most up-to-date methods.

Ian and Jean Tyler, in an effort to keep the memory of Cumbria's mining heritage alive, not only started the county's first mine heritage centre, but have also produced nine books on the subject and have received four awards in the Lakeland Book of the Year Awards. The latest title to be published by Blue Rock Publications, their own in-house company, is the history of Goldscope and the mines of Derwent Fells. For those who wanted a closer and more in depth look at our mining heritage, Ian founded MOLES (Mines of Lakeland Exploration Society) 15 years ago, an active society which has a membership of over 120.

The new Keswick Mining Museum in Otley Road, Keswick, is now open. It covers many aspects of mining heritage, including the tragedy of pit disasters, the equipment of the Mines Rescue Service, tools, artefacts and ephemera through the ages, the history of Cumbrian gunpowder manufacture. The geology and mineral room shows the large spectrum of rocks and minerals which made Cumbria one of the most complex geological locations in the country. The new shop contains a large range of new and second hand books on all aspects of mining, geology, minerals and industrial archaeology. The museum also caters for university and school visits, and is also available for slide shows and lectures and well as guided walks with an industrial flavour.

The museum is open all year round. The full address is Keswick Mining Museum, Otley House, Otley Road, Keswick, Cumbria CA12 5EL. ☎ 017687 80055, website: [www.keswickminingmuseum.co.uk](http://www.keswickminingmuseum.co.uk)



One of the mines close to the Keswick Mining Museum is at Force Crag, now preserved by the National Trust

Photo: Peter Stanier

## Industrial archaeology in Belfast

What is there for the visiting industrial archaeologist to see in Belfast? On arrival, ships in the harbour are a prominent feature and the ship repairing industry is still active. The two giant yellow gantries at Harland & Wolff's yard known as Samson and Goliath make an immediate impact. They have a lifting capacity of 840 tons; one is 100 metres high and the other 110 metres.

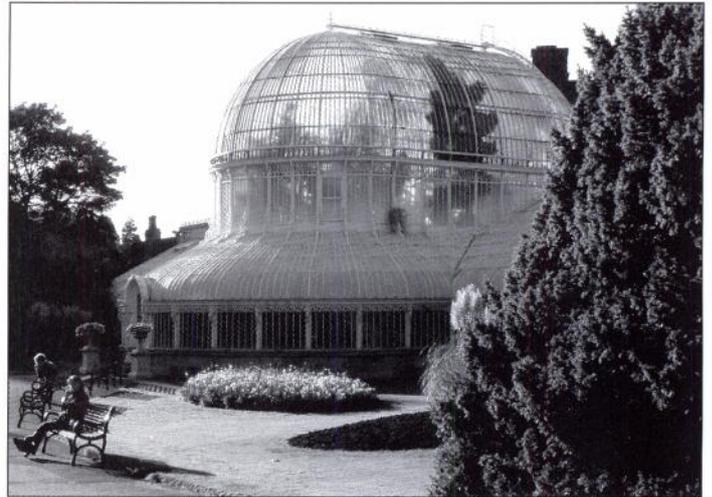
The large Harland & Wolff engine works has recently been demolished. It was on the north side of Sydenham Road and the site is currently occupied by a massive funfair. Artisans who worked at the yard formerly rented accommodation and in McMaster Street of 1889-99; typical 'parlour houses' can be seen. This is now a conservation area. Shorts, well known for the Sunderland Flying Boat and the Stirling Bomber are now Shorts Bombardier. Their factory is just to the west of Belfast City Airport in Airport Road.

Belfast achieved City status in 1888 and in the City Centre the five-arch Queen's Bridge built 1843 over the River Lagan is still in use. It is on the site of the late seventeenth century Long Bridge. Also of note in this area is the Custom House by Charles Lanyon and W. H. Lynn, built 1854-7, and the Harbour Office by George Smith and W. H. Lynn completed in two phases 1854 and 1895. The Harbour Office, Corporation Square, still houses the

Belfast Harbour Commission. The Custom House, Donegall Quay, is decorated with figures of Neptune, Mercury, Britannia, Manufacture, Peace, Commerce and Industry. Also on Donegall Quay is Tedford's Chandlery and Sailmakers (1790). Formerly a ships' provisioner this is now a seafood restaurant.

In Great Victoria Street, the Grand Opera House (1895) by Frank Matcham, with twin domes and Moorish lantern is a typical product of that architect. It is still very much in use. To the north east of the City Centre, a striking TUC building probably dating from the 1950s commands interest. Buildings later than this are being demolished rapidly and the first impression of Belfast is that, apart from grand public buildings, much of the City Centre is recent. On Sunday 21 November 2004, the 19-storey office block Churchill House in Victoria Square, a former Department of Social Development government building dating from the 1960s, was demolished by explosives. This was performed by Controlled Demolition Ltd with large crowds of spectators - apparently it was a great success. The nearest building was little more than 30 feet away. Churchill House was the third tallest building in Belfast.

The presentation ceremony for the British Archaeological Awards 2004 (see *IA News* 132, 10-11) took place in the Elmwood Hall opposite the imposing Queen's University building completed in 1849. Just to the south of the University are the



*The Palm House designed by Richard Turner in the Botanic Gardens, Belfast, looking west*  
Photo: R J M Carr

Botanic Gardens established in 1829. On entering the Gardens one sees the fine statue of the great scientist Lord Kelvin (1824 - 1907), erected in 1912. Kelvin (William Thomson) was born in Belfast. There is another statue of Lord Kelvin in Wellington Place, central Belfast.

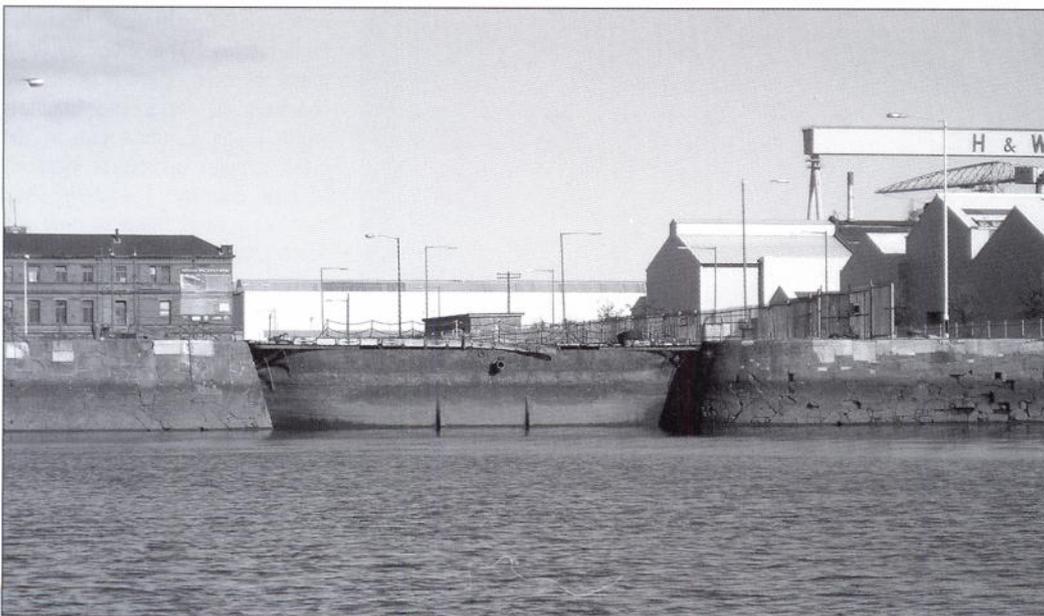
One of the industrial archaeological gems of Belfast is the pioneer Palm House by Richard Turner (c1798-1881) which was commenced in 1839. Turner of the Hammersmith Works, Ballsbridge, Dublin, established a great reputation for the construction of wrought-iron framed glasshouses in Ireland. Later he was to build the Palm House in Kew Gardens, London. The Botanic Gardens also boast a Tropical Ravine and the Ulster Museum (1924 onwards) is just to the west. For those unfamiliar

with Belfast this area of the City can be likened to the Kelvingrove district of Glasgow.

In the early nineteenth century the Lagan Valley was the source of Belfast's first water supply. In Lagan Meadows an earth dam created a reservoir which was named after John Lester. The remains of Lester's Dam can still be made out. In the 1840s large reservoirs were constructed in what is now known as Waterworks Park, south west of Cavehill Road off the Antrim Road. There is further waterworks industrial archaeology to the north west of the reservoirs.

Canal building in Ireland started early. Work began on the Newry Canal in 1731 and when completed in 1742 it was the first true summit-level canal in the British Isles. The carriage of coal was a principal aim. The Lagan Canal was constructed to bring coal to Belfast from County Tyrone, the section from Belfast to Lisburn being opened in 1763. The Lagan Navigation was finally completed to Lough Neagh in 1793. Not a tremendous success, it was finally abandoned in 1931. In Belfast a lock keeper's house still exists beside the third lock.

In Colin Glen are the remains of a weir and aqueduct or millrace. Machinery in the nearby Suffolk Road Linen Mill was formerly water-powered. Conway Mill West Belfast, Conway Street, built in 1842 by the Kennedy family, is listed grade B2. Linen manufacture ceased here in 1972. Most of the space inside the building is now used by local businesses. In central Belfast Ewart House by James Hamilton 1869 was originally the Bedford Street weaving mill. The Engine Room Art



*Harland & Wolff's Works, Belfast, looking east. One of the large Goliath gantries can be seen on the right*

Gallery based in the former Portview Linen Mill, East Belfast, is another example of re-use.

More can easily be written about Belfast's industrial archaeology. The railways of the city are of great interest but lack of space prevents a description. The running of special trains hauled by steam locomotives is a marked feature of Irish Railways generally and the reader will find much on this subject elsewhere. Belfast is a very friendly city where visitors, including industrial archaeologists, will find more than sufficient to make a journey there worthwhile.

*Robert Carr*

## Archaeology of the Lancashire Textile Industry

This North-West Industrial Archaeology Conference was held at the Library Conference Centre, Blackburn, on Saturday 25 September 2004. As Mike Nevell explained in introducing the morning session, the object of the Conference was to concentrate on the textile industry in the current (post-1974) administrative County of Lancashire as previous work had tended to concentrate on Greater Manchester. The opening presentation was by Geoff Timmins on 'The Development of Turnpikes and Lancashire Textile Industry'. Consideration was given to McAdam, Telford and Blind Jack of Knaresborough and their differing styles of construction. Gradients were very important, the maximum for horse-drawn wagons being 1:30. There was a great deal of destruction to cart wheels caused by running over setts. Also, there was the question whether setts cause more or less friction.

Colin Dickinson next spoke on 'Water and Steam Power in Lancashire Mills'. Within the early textile industry, many people were developing the industry and the power source at the same time, people like Arkwright and Watt. 1795 saw the first engine with a separate condenser successfully adapted for rotative motion by James Watt. Until the 1840s beam engines were used with gear drives, then there was a move to horizontal engines. In the 1870s rope drives were introduced, resulting in engine houses being built on the end of the mill building to give a drive rope

angle of 60 degrees. Rope speeds were 5,000 ft/min. Early mill chimneys were octagonal and that of India Mill, Darwen, built in 1868 is square, but from the 1860s there was a change to round chimneys.

Roger Holden ended the morning by speaking on 'Weaving Mills in the Landscape of East Lancashire'. Cotton weaving was concentrated in east Lancashire, from Preston through Blackburn, Burnley and Nelson to Colne. By contrast cotton spinning was concentrated in south-east Lancashire, centred on Manchester. Initially cotton weaving in Lancashire was often carried out in the basements of cottages. Power looms, however, were housed in weaving sheds, single storey buildings built with cast-iron columns and structural support gutters for the north roof light construction. The north light roof was a very important aspect of the weaving shed as it gave a good even light but not direct sunlight, reducing the amount of shadows cast throughout the day. Different styles of weaving shed can be distinguished which probably reflects different cloths being produced and different patterns of ownership.

The afternoon session was chaired by Ian Gibson and was opened by Alan Fowler speaking on 'The Powerloom Weavers' Community'. Most weaving towns developed after 1850. These were often single industry towns and were therefore affected much more by the depression. There was a high proportion of married women in weaving towns. Men and women did the same job and in theory received the same pay. The prosperity from weaving only applied if all the family were involved. Obviously the pay was less than spinning. There were health hazards from weaving. The dust, noise and even kissing the shuttles were not eliminated in Lancashire until 1958.

Mike Nevell followed with 'The Lancashire Textile Finishing Industry'. Textile finishing works are a little studied part of the industrial landscape of the eighteenth, nineteenth and early twentieth centuries. The development of the bleaching, dyeing and printing industries had a dramatic effect on the eighteenth and nineteenth century rural scene. The introduction



## £500 Reward

The AIA, in conjunction with Dorothea Restorations Ltd, offer an annual award of £500 and a handsome Plaque to the project considered the best of that years entries.

**To be eligible for entry projects must be concerned primarily with the conservation of a site or object of industrial, agricultural or domestic archaeological interest.**

Initial expression of intent to submit a detailed application is achieved by completion of a simple Questionnaire, which can be obtained from the award co-ordinator, David Lyne, 10 Somerville Road, Leicester, LE3 2ET, Phone/fax 0116 29 19 706. e-mail davidlyne@ntlworld.com, who will also ensure that you receive a full copy of the rules and award information.

**Entry for an Award** is made by completing the questionnaire, followed by a detailed submission at a time decided by yourselves. Applications received **before the end of April 2005** should be in time to be considered for the award for that year. Applications received after this date may have to be deferred until the following year.

The winner will be notified by 31 July, in time to arrange for representation at the AIA conference in August or September, at which two places, one of which is complimentary, will be reserved, for the presentation.

**DO NOT DELAY, ENTER TODAY!**

of two technologies gave rise to this change, chemical bleaching and steam power. The dyeing process, which until the mid-nineteenth century was undertaken using natural dyeing, was often done on a separate site, but like bleaching involved intensive preparation of both cloth and yarn requiring large amounts of power and water. The process similarities meant that by the early nineteenth century, bleaching and dyeing were done on the same site. The impact of such rural based industries was greatest from 1750 to 1850. Whilst many textile mills and their associate communities ultimately became urban centres, textile finishing works usually remained outside these urban developments. Often the only landscape changes wrought by the construction of finishing works is the remains of water courses and reservoirs.

After coffee David George gave his presentation on 'The Carlisle Cotton Industry - An Outlier of the Lancashire Textile Industry?'. Why cotton mills in Carlisle? This has

been attributed to the many Scottish and Irish weavers who settled there from the early eighteenth century. The Solway Firth was navigable to Stansfield which was only two-thirds of a mile from the city centre. In 1820 Port Carlisle was built which had transport connections to the city, initially by canal and later by rail. General Wade, after the defeat of the Jacobites, was instructed in 1745 to build a road to Carlisle to give better access for the troops and make sure that there would be no future defeats. This road was known as the military road and provided a much improved transport route. 1761 saw the building of the first printing factory. The initiative for development came from local entrepreneurs and banks. The machinery, such as throstles and looms, was supplied from Lancashire. Power looms were installed after the cotton famine and this was the saviour of the cotton industry. Between 1760 and 1830 Carlisle in proportion to population had the same number of cotton looms as Manchester. In 1812

Ferguson Mill was built on the corporation dam. In 1820 Warwick Bridge Mill, a water powered spinning mill, had throstles and looms installed. In 1836 Peter Dixon built Shaddon Mill within the city, a seven-storey sandstone building with beam engine house in the centre, spinning mill at the right side, and weaving on the left. When it was completed it was the largest in the country.

Peter Illes, archaeological advisor for the Lancashire County Council, concluded the day on conservation issues and the focus of community.

*Gordon Browne*

## Matchmaking in Poland

During the summer of 2004, I was lucky to visit Poland and its historic cities. The obvious destination for industrial archaeologists is the Wieliczka Salt Mine near Krakow, but when visiting Czestochowa (famous religious centre) I came across a fine example of working heritage: a unique matchmaking factory. This, the 'Czestochowa Match Factory', is the oldest matchmaking factory in Poland, and today has been set up as a living museum, using the original 1930s machinery in situ, to produce its famous 'Black Cat' match which can be found all over Poland.

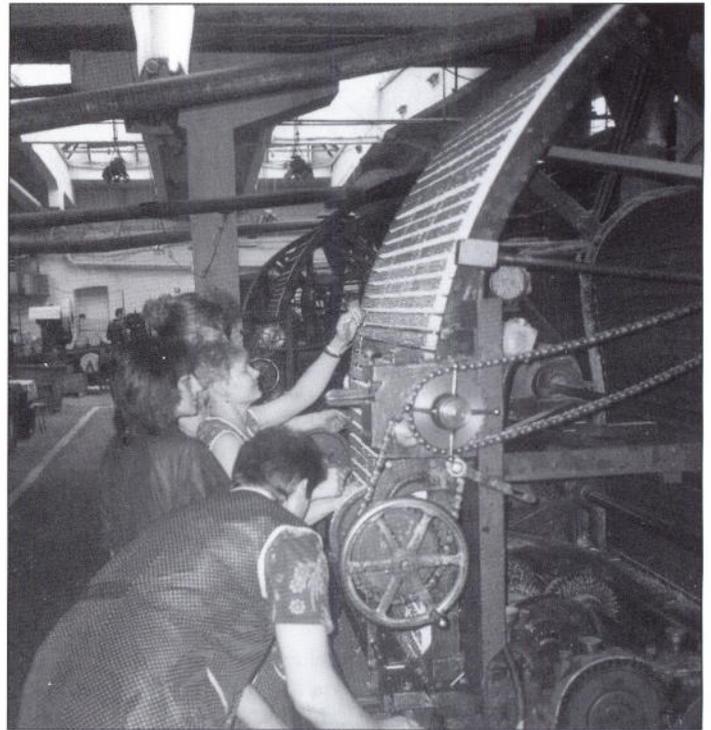
For a small fee, they gave me a tour of the factory, complete with English guide, of which I was very grateful as my Polish is not good! Not knowing much about matchmaking, I found it extremely interesting. The factory has been destroyed by fire twice in its history and is now using buildings dating

from the nineteenth century. It also houses a small exhibition of sculptured matches and original papers and letters concerning the factory.

Jan, my guide, was very knowledgeable and able to answer my questions. He was able to explain how the machine takes the cut match stalks, which are tipped into a hopper and then 'juggled' onto the match jig, ready for mounting on the machine. The stalks have to be upright. This process throws matches everywhere, and is quite exciting to both hear and watch! This is before the process of putting on a head is undertaken.

I was able to see the complete progress of matchmaking, from the stripping of the logs (yew, I believe) to the cutting of individual matches, the application of ignition head and safety. The machine takes the cut matches, collects them on a 'jig' and then proceeds to dip them in both fire retardant chemical and ignition head. This head can be coloured for display. The workers must first remove any bent or broken stalks from the jig. They then put the machine into motion. This starts the process of passing the stalk over the ignition mixture, and by a ratchet system, dips and moves them forward at a set pace. The matches are then dried before taking the jig and emptying it into another machine for boxing up.

The match, I was interested to learn, has to be by law, be extinguished with a blackened head, so it is visibly unusable. The stalk is coated in fire retardant so it does not burn down to the fingers, and the head itself is chemically enhanced so that



*Match workers removing any bent or broken stalks from the jig before putting the machine into motion*

*Photo: Martyn Taylor*

the initial burn is enough to light the match and keep it lit before extinguishing.

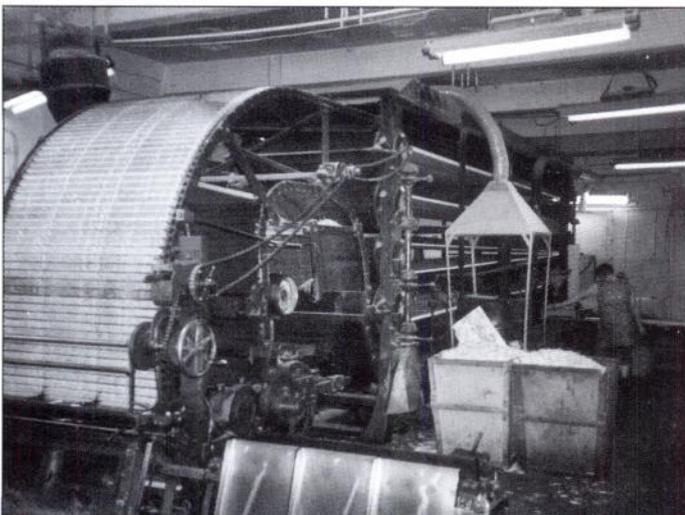
Finally the tour ended with the production of matchboxes. I was able to watch the printing and folding of the box, and the application of the striking side. I was able to view some fine examples of promotion matches and boxes, of which they are seeking to expand production. Examples include the Accor Ibis hotel chain and short run advertising matches for local and German markets.

All of the match and box production still uses the old techniques, but with today's safety

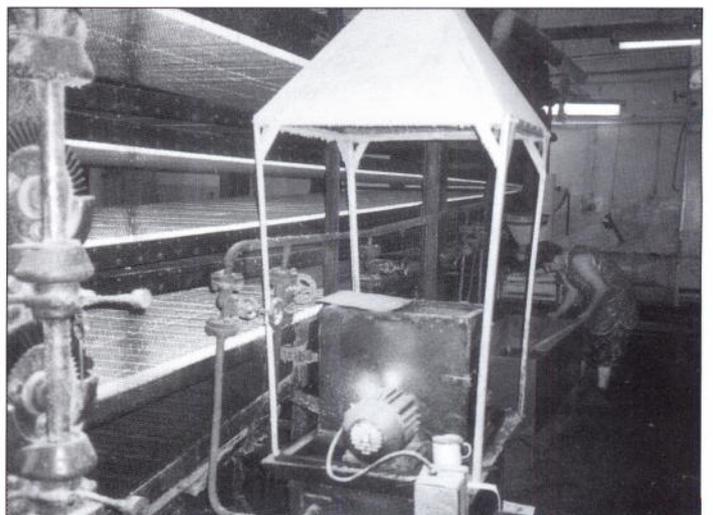
standards and European laws governing matches. The machines are worked by skilled locals, which gives a twofold benefit of providing much needed employment and allowing the visitor to see them in action.

I would recommend anyone who is going to Czestochowa to visit, as the factory is located near the rail station. When I was there, the museum was only open mornings. Their website <http://www.zapalki.pl> which means 'match' or my guide Mr Jan Batorski at [Handlowy@zapalk.pl](mailto:Handlowy@zapalk.pl) are very helpful.

*Martyn Taylor*



*These two views give an indication of the size of the match-making machine*



*Photos: Martyn Taylor*

## An early brick-making industry in Pontefract

Recent archaeological work at the site of the former Arriva bus depot on Northgate at Pontefract, West Yorkshire, has provided evidence for an early brick-making industry situated within the backfilled ditch of Civil War siegeworks, prior to the establishment of a malt kiln on the site in the late eighteenth or nineteenth century. The archaeological evaluation was carried out in two phases by Field Archaeology Specialists Ltd., on behalf of Mike Griffiths and Associates for Bellway (Yorkshire) Homes Ltd.

The earliest feature encountered on the site was a large ditch, which has been interpreted as part of the remains of the Civil War siegeworks, constructed around Pontefract Castle in the mid-seventeenth century by Parliamentarian troops.

The substantial ditch, orientated northwest-southeast, measured over 7m wide and up to 2.5m deep. Having fallen out of use relatively quickly, the ditch was partly backfilled, and the hollow was then found to have been used for brick-making, possibly as part of reconstruction following Civil War damage. The remains of three brick clamps were identified, and although diesel contamination prevented further investigation of one of the features, the remaining two were excavated, and dated by pottery to the mid- to late-seventeenth century. The clamps were producing slop-moulded brick, and provide significant evidence for industrial activity on the site that was not previously known from historical sources. The bricks were created from local clay; earlier excavations on an adjacent site on Spink Lane revealed quarry pits and a clamp, believed to have been



One of the seventeenth century brick clamps under excavation at Pontefract  
Photo: Field Archaeology Specialists



Extant remains of the Pontefract malt kiln prior to demolition  
Photo: Field Archaeology Specialists

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associated with extraction of clay for brick-making.

In the late eighteenth to early nineteenth century, some time after brick-making on the site had ceased, areas of the Northgate site appear to have been landscaped through the importation of soils, probably associated with construction of a malt kiln during this period. By the nineteenth century, the site is known to have been associated with Castle Lodge to the east, and the malt kiln to the west.

At the Northgate frontage, part of the malt kiln was found to be extant, and was recorded prior to its demolition. Buried remains revealed evidence for cellar walls and floors, which may have contained the furnace, used to heat the drying room above. Evidence was noted for a cast iron chute leading to basement level, and the standing remains of an arched recess were interpreted as a flue, for a vent to drive warm air into the drying room at basement level.

*Field Archaeology Specialists Ltd*

## Nelson's sail

The only surviving sail from Nelson's flagship HMS Victory, complete with shot holes, is being displayed at Portsmouth to mark the 200th anniversary of the Battle of Trafalgar. The 3,618 sq ft fore topsail would have taken about 1,200 hours to make in Chatham dockyard's the sail loft at Chatham in 1803. It was displayed on the Victory for the Trafalgar centenary in 1905, and was discovered many years later in a sail loft at Victory barracks, now HMS Nelson, in 1960, covered by gym mats.

## Ellington Colliery abandoned

Serious flooding in early January has forced the closure of Ellington Colliery, north-east England's last deep coal mine. The Northumberland colliery was sunk in 1910-13 and there were 2,179 employed at the time of the Miners' Strike in 1984. After a brief closure in 1994, it re-opened in 1995. UK Coal has announced the closure with a loss of 340 jobs.

## Biggar steam days

Biggar Gas Works in Scotland is one of the last surviving examples of a small town gas works in mainland Britain. Gas works formed an important part of our industrial heritage and at Biggar there is the unique opportunity to see the actual plant and machinery that produces gas from coal – long before the advent of gas from the North Sea! During 2005 there will be seven steam days when the boiler will be operating and driving various items of steam driven machines associated with gas production and distribution. Also on show will be a video film showing how gas was produced at Millport Gasworks.

Founded in 1839, the gas works are remarkably complete, with the retorts, condenser, purifier, exhauster house, gas meter, holders and gasman's cottage still in place. The cottage now serves as a visitor centre and artefact display. The site is run in conjunction with Historic Scotland, National Museums of Scotland and the Biggar Museum Trust.

The group of single story buildings and two gas holders were built chiefly from random whin and slate roofs, common brick and asbestos sheeting; the buildings, gasholders and open spaces were created with function firmly in mind. The gas works finally shut down in 1973, following the arrival of natural gas in Biggar. It was decided then to take the monument into state care, in order to preserve the gas works as a 'monument to industry'.

Below the walking surface at the works will be a maze of services and pipes running between the various buildings. A superficial study of these was carried out in the early 1980s, but it is thought that further study of these, in conjunction with archaeological clues in the standing structures have the potential to add significantly to our understanding of the nature of the processes. The 1914 exhauster house also contains two important advances in 'gas cleaning' technology: a Livesey washer and a rotary scrubber.

While the townspeople of Biggar did debate the merits of keeping the site intact initially, the gas works now play a positive role in Biggar town life. For example, the highly popular steam days which take place throughout the summer are a chance to see the boiler

steaming and the gas engines run. This year, the steam days will be taking place on 30 May, 11 June, 18 July, 13/14 August, 19 September and 26 September. If you would like any further information about the property or the steam days, please telephone 0131 550 7612.

*Ayla Torun*

## Gulbenkian Prize for Museum of the Year finalists announced

The dust and damp of the coalface, the stench of a herring curing factory, the sounds of the steam age and the roar of the fastest car in the world are all part of the museum experience of the four Gulbenkian finalists, announced on 22 March. Britain's industrial heritage and economic regeneration are the dominating themes for this year's Gulbenkian Prize for Museum of the Year, the UK's largest single arts prize. All are superb examples of museums listening to and working with their local communities. In every case, there is genuine local involvement and remarkable collaboration. The list demonstrates that museum-making is no longer a one-sided process but that great, modern museums are created when curators engage with their audiences. The four finalists are:

Big Pit, National Mining Museum of Wales, Blaenafon. The £7m redevelopment of a former colliery where 1,300 people once worked forms a key part of the industrial history of Wales. Now part of a World Heritage Site, it offers visitors the chance to descend 300 feet to the depths of the mine and experience something of the reality of the miners' daily work both above and below the ground.

Coventry Transport Museum, the culmination of a £7.5m redevelopment that houses the largest British road transport collection in the world. The museum has become the critical link between the city's past and its future, helping to change people's perceptions of not just the museum but Coventry itself.

Time and Tide, Museum of Great Yarmouth Life, Great Yarmouth, Norfolk. Located in a Victorian herring curing factory (a site nominated by local residents), the success of this new £4.7m museum, set in one of the most socially deprived boroughs in the country,

demonstrates what can be achieved through genuine consultation and the application of its findings.

Locomotion: The National Railway Museum at Shildon, Co. Durham. This new £11m railway museum celebrates Shildon's history as one of the world's oldest railway towns and is the first national museum in the north east of England. As well as providing public access to 70 vehicles from the national collection, many of which were formerly inaccessible, the new museum is a centre for community activity and training, and a key element in the economic regeneration of Shildon.

The Gulbenkian Prize for Museum of the Year is, at £100,000, the biggest single arts prize in the UK and is funded by the Calouste Gulbenkian Foundation. It is given annually to one museum or gallery, large or small, anywhere in the UK. The four finalists were drawn from a shortlist of ten that included Taigh Chearsabhagh Museum & Art Gallery in North Uist, Compton Verney in Warwickshire, the National Trust's Back to Backs in Birmingham and the Museum of Barnstaple and North Devon.

All four projects have received funding from the Heritage Lottery Fund, and the winner will be announced during Museums and Galleries Month on Thursday 26 May at the Royal Institution of British Architects.

## Cowes hammerhead crane threatened

This Grade II listed crane is now under threat of being pulled down. The owner has raised an 'independent' report claiming it is a hazard and is submitting it to English Heritage as a basis for having it de-listed. It may be the hazard only amounts to extraneous items which have not been properly maintained. In a building this would equate to no more than falling tiles from a badly maintained roof. However there is no telling how English Heritage will react. The 80-ton crane was erected in 1912 for Cowes shipbuilders J.S. White by Babcock and Wilcox of Renfrew. More information can be found on the Isle of Wight Heritage Centre website, hosted by the Isle of Wight Industrial Archaeology Society, at <http://freespace.virgin.net/iw.history/cowes/crane.htm>

*Roger Hewitt*

## Boddingtons closure

226 years of brewing history has ended at the Boddingtons' Strangeways brewery in Manchester on 25 February 2005, despite a campaign to save the brewery by the Transport and General Workers Union. Belgian owners Interbrew are moving production to Preston and Wales.

## Milestones milestone

The Milestone Society has reached a new milestone of success by publishing its first Journal (*Milestones & Waymarkers*) within three years of its official launch in May 2001. Articles include the milestone database, milestone restoration and conservation, milestones in West Cornwall, Jersey, Fife, the USA and in legislation, as well as book reviews. This is addition to its already well-established six-monthly newsletter. The society's next annual conference is being held on 11 June at the Avoncroft Museum of Historic Buildings, Bromsgrove (see the website [www.milestone-society.co.uk](http://www.milestone-society.co.uk)).

## Call for Papers: Yorkshire AD 1500-2000, Research Directions and the Next Ten Years

Papers are invited for the SPMA Autumn Conference at the University of Sheffield on 29-30 October 2005. The meeting aims to assess the current state of archaeological work in the region, and to set the research agenda for the next decade. It is anticipated that those actively working in universities, museums and commercial field units will contribute to the establishment of a regional research framework for the future. Themes to be considered include Trade, industry and transport; Religion and burial; Upland and rural landscapes; Urban environments; Defence and military archaeology; material culture, production and consumption; and New Themes in historical archaeology in Yorkshire. To contribute a 20-minute paper, please send a title and abstract of under 150 words by 31 May 2005 to Hugh Willmott, Department of Archaeology, University of Sheffield, Northgate House, West Street, Sheffield S1 4ET, ☎ 0114 2222940.

**Scotland**

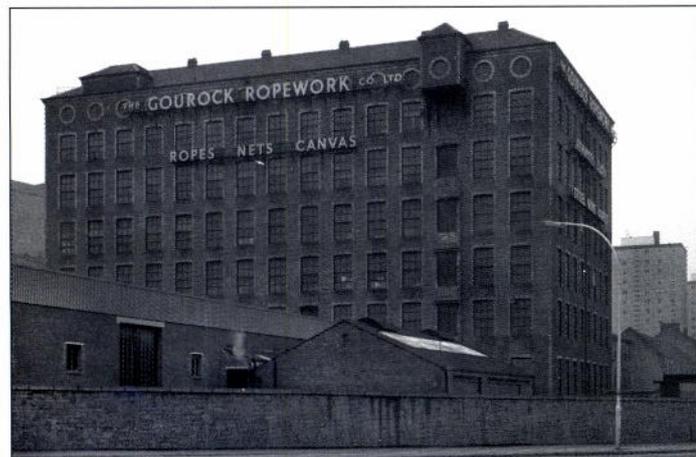
If anything, the pace of change seems to be accelerating in Scotland. In 2004, this was not only apparent in the usual list of industrial casualties, but also penetrated deep into the heritage establishment itself. For years, observers north of the border have witnessed with some bewilderment the endless sequences of debilitating reviews and subsequent reorganisations that have afflicted English Heritage, but were perhaps somewhat unprepared for the same phenomenon in Scotland. In this case, much of the change has been brought about by the retirement of senior colleagues, not least in Historic Scotland, where the chief executive, Graeme Munro, had been a great supporter of industrial heritage. Since his departure, there has been considerable change, not least the merging of the Chief Inspectors of Historic Buildings and Ancient Monuments into one post. It is also sad to have to report that his former deputy, Frank Lawrie, who had retired two years previously, and who had also been a keen supporter of industrial heritage, died in 2004.

Meanwhile, at the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS), the Chief Executive, Roger Mercer, retired in September, and was followed soon after in November by the head of the Buildings Division, Geoffrey Stell. Both had supported industrial recording, but Geoffrey Stell's contribution was particularly notable, and is well represented in the book, *Monuments of Industry* (1986), which he co-authored with

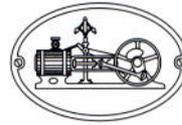
his colleague, the late Geoffrey Hay. The post of Chief Executive at RCAHMS has since been taken over by Diana Murray, and her new senior management team has set about a radical re-organisation involving the integration of skills in archaeology and architecture within 'multi-disciplinary' teams. The extent to which this will affect industrial recording programmes remains to be seen.

Change has also deeply affected the Scottish Industrial Heritage Society, two of whose stalwarts, John Crompton and Carol Whittaker, are emigrating from Scotland to Wales. This has again been brought about by another retirement, this time of John Crompton, who has stepped down from his post in the National Museums of Scotland. Carol has as a result been able to pursue a new career, and both she and John will be sorely missed. The Society also suffered a blow with the sudden death of Ian Ross, its Treasurer, and is therefore having to undergo a period of regeneration. This should soon be apparent with the planned re-launch of its website.

Meanwhile, the world of manufacturing industry and commerce seems to be under threat of being swamped by a massive house-building and recreation programmes, most prominently in the form of waterfront developments. Such schemes are spreading across Scotland, and in Edinburgh have resulted in the demolition of the second of Granton Gas Works' three gasholders, and in due course, will lead to the closure by Forth Ports of most of Leith Docks to make way for thousands of bijoux apartments. One of the most prominent casualties has been



*Richardson's Sugar Refinery, latterly the Gourock Rope Works. After years of doubt and neglect, there are now plans to save the building and convert it to a new use  
Photo: Crown Copyright: RCAHMS, E51760/CN, 1976*



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Caledonia Grain Mills, the demolition of which hit the headlines following the death of two contractors in a tragic accident.

Also in Edinburgh, it is pleasing to note that 'Edinburgh Quay', a development that has revitalised the terminus of the Union Canal in the heart of the city, is shortly to open, and has involved the refurbishment of the Leamington Lift Bridge. In contrast, half a kilometre to the west, Fountain Brewery is to close in a development which has involved the purchase of the Caledonian Brewery by Scottish & Newcastle, where McEwan's ales will now be made alongside the wonderful award-winning 'Deuchars IPA' 70 shilling. Soon, Fountain Brewery will be cleared away to make way for more waterside dwellings, this time adjacent to the canal.

Much the same pattern seems to be occurring in the west on Clydeside, where concerted attempts to save the former Clyde Navigation Trust boatyard (dating from 1908) failed, and the tenants were evicted. The significant feature of this particular situation was that

the tenant enterprises were all viable, and being maritime in nature, all relied upon the river for their business. Unfortunately, the authorities appear to have sided with the developer, preferring to see the area converted to waterside residential use. Meanwhile, the tenants have been offered what they believe to be inadequate and unsuitable alternative sites elsewhere on the Clyde.

As usual, the last year has witnessed a number of high profile losses. Amongst these, one of the saddest was the final demise of Richards plc, whose city-centre Broadford Works (see cover of *IA News 121*, Summer 2002) has still not been converted into an 'urban village', as was hoped. Its future, therefore, remains uncertain. Another important casualty was Stoddarts, the last large carpet manufacturer in Scotland. The company had merged with Templetons many years ago, and had recently retreated to Kilmarnock from its huge Elderslie factory in Renfrewshire, the latter subsequently being demolished,

inevitably to make way for yet another housing development, this time by the Walker Group.

Not far from Elderslie, the town of Johnstone has not had a particularly good year. Perhaps most important, the closure of Clifton & Baird's Empress Works represents the death of Scotland's once important machine tool industry, much of which was centred in Renfrewshire, particularly in and around Paisley. Also in Johnstone, there are controversial plans to demolish Barbusch Mills, a linen works situated opposite Johnstone Mill, Scotland's oldest surviving cotton mill. Unusually perhaps for Renfrewshire, there is, however, relatively good news from Port Glasgow, where Richardson's Sugar Refinery, latterly part of Gourrock Rope Works, is to be reprieved and converted as part of a major development.

Moving to the north bank of the Clyde, now that the huge brick-built granaries at Meadowside in Glasgow have been demolished, another massive red-brick industrial landmark is the throes of destruction. Built in 1938 by Hiram Walker (Scotland) Ltd as a modern grain distillery, Dumbarton Distillery dominated the waterfront of the town for decades, having been built on the site of MacMillan's Shipyard, which closed in 1933. Its disappearance is going to leave a large hole in the townscape, but some elements of the development are going to be retained.

To the north-east, transport infrastructure in Angus has been benefiting from an upgrade of the A92 trunk road between Dundee and Montrose. This process led to the excavation of an old quarry at Pitskelly, within which the road contractors found a curious small circular building, with vaulted domed roof, and what appeared to be some sort of hearth. The building was given a stay of execution whilst it was recorded, but no satisfactory explanation has so far been given as to its original function. Suggestions have ranged from a folly to a smiddy (for quarrying tools), and a blackpowder store. Despite efforts of local groups in Carnoustie to have the building saved, it was eventually demolished later in 2004.

At the other end of the A92, Montrose has seen a major change to its townscape with the removal of Owen Williams's iconic re-inforced

concrete bridge over the South Esk. The two sides of the bridge were lifted away by giant barge-mounted cranes, and the bridge itself replaced with a temporary carriageway. Nearby, the decay of some of the town's finest industrial architecture continues. Although significant elements of Paton's Mill (once Scotland's largest linen works) have survived the recent conversion to housing, the site is barely recognisable, and its west façade remains untouched by the redevelopment. Not far away in Montrose docks, many fine buildings lie derelict, and some, such as 'Dock Buildings', are in urgent need of attention.

It is, however, further north in Aberdeen where the most significant industrial change is being experienced. As the British newspapers are filling with stories of rises in gas prices, the UK offshore oil and gas industries are preparing for a major decommissioning programme.

*Miles Oglethorpe*

### Home Counties

Big plans in Bedfordshire. A two-domed 'aquatic attraction', four times the size of the Cornish Eden Project, is being planned for former brick pit land near to Stewartby, where the large Hanson brickworks still operates. Stewartby Model Village, built to house brick industry workers, is also nearby. Again on a grand scale, a giant airship, 'the biggest the world has yet seen', could be constructed on land close to the two surviving airship hangars at Cardington. The Advance Technologies Group calculate that

the monster Sky-Cat-1000 could carry up to a dozen tanks or several hundred troops at up to 100 mph.

The Wendover Arm of the Grand Union Canal runs close to the borders of Herts and Bucks. During March, the Wendover Arm Trust planned the 're-watering' of Phase 1 of their project to restore navigation between Tringford Pumping Station and Wendover Wharf. Phase 1 has involved preparing a basin and winding hole along the line of former canal at Little Tring. A stop lock (which connects to the section of the Arm which is already in water) and a road over bridge have already been restored. Nearer to London, the former Ovaltine Factory of the 1920s has been a distinctive feature beside the main line of the Grand Union Canal at King's Langley (Herts), although its more impressive facade was on the 'landward' side. Demolition of the northern part of the building has commenced, but it is not yet clear whether any of the original facade will be retained. Demolition also for the shelters on the island and the Down Main platforms at Apsley Station (Herts), which was opened by the LMS Railway in 1938 to serve the nearby Dickinson's paper mills. Hopefully, West Coast Main Line works will not result in destruction of more of the fabric of this interesting station.

Two motoring tales from Oxfordshire. A fine new 'Morris Motors Car Museum' was opened in December 2004 as a further attraction on the Oxford Bus Museum Trust site at Long Hanborough, west of Woodstock. Both bus and car museums are well

worth visiting. At the Cowley motor works Oxford - once home to Morris Motors and Pressed Steel - the success of the current BMW Mini has led to the start of work on a new 15,000 square metre production building. This will augment buildings from earlier days which are still in active use, and will help BMW raise the production of Minis at Cowley towards 250,000 cars per year.

In Berkshire, the 20th Century Society is keeping a watchful eye on the Grade II-listed Newbury Electric Filling Station, at the junction of Newton Road and Monks Lane. When opened in 1934 it featured the then-new electrically operated petrol pumping system, rather than hand pumps. It has been described as the first building "to clearly announce itself as a functional building self-consciously devoted to the service of the automobile." Finally, following concern over the environmental health of the River Kennet (which runs through Newbury), the Environment Agency has launched the Kennet Chalkstream Restoration Project, a scheme in which British Waterways and the Kennet & Avon Canal Trust are becoming actively involved.

*Henry Gunston*

### East Midlands

Details of all the East Midlands programmes can often be found on the web site operated by Rod Sladen ([www.rod.sladen.org.uk](http://www.rod.sladen.org.uk)). The local societies work well with each other, offering joint trips and events, the most recent one being a weekend in Cumbria, on 6-9 May. Preparations for the next EMIAC on the subject of 'Workshop and Work', at Worksop on 21 May are complete further details from Mark Sissons ([mark.sissons@bhs.co.uk](mailto:mark.sissons@bhs.co.uk)). Members of the Derbyshire Archaeological Society are hosting this year's AIA conference at Nottingham, and are very much involved in the detailed planning.

Yet another large Victorian Factory in Leicester has been damaged beyond repair by vandals setting the empty building on fire. Frisby Jarvis Dye House occupied a prominent position at the side of the River Soar, Frog Island, until torched on 19 April. The A50 remains closed whilst the building is demolished, but canal and river traffic are not affected!

*David Lyne*



*A mystery to be solved: this building was unearthed at Pitskelly quarry by the A92 trunk road improvement project. It was eventually demolished after being recorded by CFA. Suggestions please to the Editor Photo: Crown Copyright: RCAHMS, E51760/CN, 2004*

**Local Society and other periodicals received**

Abstracts will appear in *Industrial Archaeology Review*.

- Cumbria Industrial History Society Bulletin*, 60, December 2004 & 61, April 2005
- Dorset Industrial Archaeology Society Newsletter*, 11, January 2005
- GLIAS Newsletter*, 216, February 2005 & 217, April 2005
- Industrial Heritage*, Vol. 31, No. 1, Spring 2005
- Journal of the Worcestershire Industrial Archaeology & Local History Society*, No.27, Winter 2004
- Lancashire History Quarterly*, Vol. 9, No.1, Spring 2005
- Milestones & Waymarkers* (Journal of the Milestone Society), Vol. 1, 2004
- The Milestone Society Newsletter*, 8, January 2005
- Museum of Bath at Work Newsletter*, Winter 2005
- SAVE Britain's Heritage Newsletter*, November 2004
- Scottish Industrial Heritage Society Bulletin*, 36, February 2005
- Surrey Industrial History Group Newsletter*, 143, January 2005 & 144, March 2005
- TICCIH Bulletin*, 27, Winter 2004
- WaterWords*, (News from Hereford Waterworks Museum), December 2004
- Yorkshire Archaeological Society, Industrial History Section Newsletter*, 63, Spring 2005
- Yorkshire History Quarterly*, Vol.10, No.2, November 2004, & No.3, February 2005

**Books Received and Short Notices**

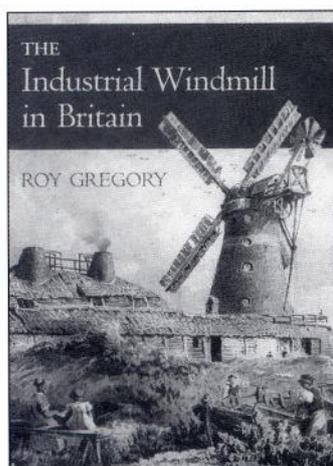
The following books have been notified or received for review in *Industrial Archaeology Review*.

*The Forgotten Mines of Sheffield*, by Ray Battye. Sheffield, 2004. £9.99 + £2.01 p&p, obtainable from the author, 78 Towngate Road, Worrall, Sheffield S35 0AR.

This book examines the rise and decline of ganister and pot clay mining and processing, and its impact on settlements in the landscape of western Sheffield. Here, parts of the eastern slopes of the Pennines are littered with the remnants of a mining industry that is fading from the memory of many Sheffielders. Around Stocksbridge, Oughtibridge, Wadsley, Loxley, Stanington, Ecclesall Woods and Totley, this extractive industry expanded in the eighteenth, nineteenth and early twentieth centuries before moving into obscurity over the last 50 years. At one time companies such as Dysons, Marshalls, Wraggs and General Refractories, who owned the mines and produced refractory materials, were well known to inhabitants of Deepcar, Dore, Dungworth, Loadbrook and Worrall, and to many others. The impact of the industry is still evident in the area for those who know where to look.

*The Industrial Windmill in Britain*, by Roy Gregory. Chichester: Phillimore & Co. 2005. 148 pp, 62 illus. ISBN 1 86077 334 6. Hardback £19.99.

Windmills are best known for grinding corn or pumping drainage water, yet wind power has also been applied to a surprising number of industrial processes, mostly in the eighteenth and nineteenth centuries. This revealing book draws together many of them and is illustrated with diagrams, contemporary paintings and drawings, and photographs of surviving remains. Chapters deal with windmills for crushing oil seed, crushing material for pottery manufacturing (such as flints) and paint manufacture, and crushing stone and clay including chalk, cement, gypsum, coprolites, brick clay and fullers earth. Wind power also helped process organic materials for snuff and rope making, textiles, oak bark and bones. There are further chapters on brass making, mines and quarries, as well as paper making, saw mills, saltworks, and the supply of



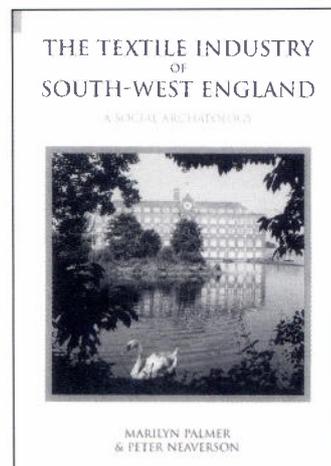
water to canals and the public. A few miscellaneous applications include agriculture and electricity generation. The book concludes with a useful assessment of wind power's contribution to industrial activity. An appendix lists industrial windmills identified in the counties of the British Isles, with uses, dates and grid references.

*The Severn Tunnel: its construction & difficulties 1872-1887*, by Thomas A. Walker. Stroud: Nonsuch Publishing, 2005. 160 pp, 48 illus. ISBN 1 84588 000 5. £16.99.

First published in 1888, this is the full contemporary account of one of Victorian Britain's greatest engineering feats as written by the chief contractor on the project. The work took 14 years and the task was considerable, not least overcoming the Great Spring which necessitated the erection of the famous beam engines in the Sudbrook pumping station. At the time of its construction the Severn Tunnel, at 4 miles and 624 yards, was the longest submarine tunnel in the world.

*The Textile Industry of South-West England: A Social Archaeology*, by Marilyn Palmer & Peter Neaveison. Stroud: Tempus Publishing Ltd. 2005. 176 pp, 100 illus. ISBN 0 7524 3133 1. £17.99.

A welcome, readable account of the textile industries in the counties of Gloucestershire, Wiltshire, Somerset, Dorset and Devon. The early mechanisation of processes such as fulling mills, and the organisation of the trade by clothiers, are explained. Spinning and preparatory and finishing processes were first mechanised in mills towards the end of the eighteenth century, while handloom weaving continued in places into the 1870s. Water power played a dominant role despite the introduction of steam engines. Woollen textiles dominated but others such as silk, sailcloth and lace are also mentioned. The social aspect is not forgotten and housing, from weavers' cottages to sumptuous clothiers' houses, is covered as well as the benevolent activities of mill owners. The region lost out to Yorkshire but its early decline resulted in many mills being taken over by other industries and were thus saved from destruction. A final chapter discusses this re-use of buildings for industry or residential use and gives many fine examples surviving in the landscape. It is also shown how documents such as insurance plans or Parliamentary commissioners' reports can be used alongside the archaeological evidence.



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**16 MAY 2005****RUINS: NEW APPROACHES**

at the Holburne Museum, Bath, a symposium concerned with new approaches to the presentation, interpretation and conservation of ruins, jointly organised by the University of Bath and the University's Holburne Museum. For details, contact Marion Harney, Heritage Institute Coordinator, Department of Architecture and Civil Engineering, University of Bath, Bath BA2 7AY, ☎ 01225 383016, E-mail: M.Harney@bath.ac.uk

**21 MAY 2005****EMIAI 69**

at Worksop, the 69th East Midlands Industrial Archaeology Conference, hosted by the Nottinghamshire Industrial Archaeology Society. The topics will be Worksop at Work with speakers covering many aspects of the industry of the town, including maltings, chair making and the bodger's art. Further details from Joan Hodges, 2 Knighton Road, Woodthorpe, Nottingham NG 5 4FL.

**11 JUNE 2005****EERIAI 15**

to be held in the Sheringham area of Norfolk, the 15th East of England Region IA Conference, on the theme

of trains and trippers. Please send a decent sized SAE for details and booking form, available after the end of February from Mrs Brenda Taylor, Crown House, Horsham St Faiths, Norwich, NR10 3JD.

**11 JUNE 2005****MILESTONE SOCIETY ANNUAL CONFERENCE**

at Avoncroft Museum of Historic Buildings, Bromsgrove, Worcestershire. Details on website [www.milestone-society.co.uk](http://www.milestone-society.co.uk)

**3-6 JULY 2005****EXPLORING DEVON'S INDUSTRIAL HERITAGE**

at Dillington House, Ilminster, Somerset, a course examining the evidence for past industries in east Devon, with lectures and two field visits to textile sites, watermills, breweries, lost railways, canals and other industries on the edge of Dartmoor where the famous Haytor granite quarries once supplied London Bridge. Details from Dillington House, Ilminster, Somerset TA19 9DT, ☎ 01460 52426, website: [www.dillington.co.uk](http://www.dillington.co.uk)

**8-10 JULY 2005****NAMHO CONFERENCE 2005**

at Juniper Hall Field Centre, Mickleham, near Dorking, Surrey,

organised by the Wealden Cave & Mine Society with the assistance of the Chelsea Speleological Society, Kent Underground Research Group and Subterranea Britannica. A programme of lectures, underground and surface trips, focusing primarily on medieval and post-medieval underground building-stone quarries, chalk mines and underground quarries, and the Wealden ironstone mines. For details see the website: <http://namho2005.wcms.org.uk> and for further enquiries e-mail: [namho2005enquiries@wcms.org.uk](mailto:namho2005enquiries@wcms.org.uk) or ☎ 01737 243912, or write to Robin Albert, 13 Beaufort Road, Reigate RH2 9DQ.

**2-8 SEPTEMBER 2005****AIA DERBYSHIRE CONFERENCE 2005**

at Nottingham University, the annual AIA conference, AGM and further lectures and visits related to Derbyshire. See notice inside on page 9.

**21-23 OCTOBER 2005****THE WONDERFUL WINDMILLS OF LINCOLNSHIRE**

based at Lincoln, a weekend coach tour to take in a number of mills, some specially opened for the visit. Organised by Lindum Heritage, contact Zoe Tomlinson, ☎ 01522 851388, or visit [www.lindumheritage.co.uk](http://www.lindumheritage.co.uk)

**22 OCTOBER****WILTSHIRE IA SYMPOSIUM**

at the Wharf Theatre, Devizes, the Wiltshire Archaeological & Natural History Society's biennial Industrial Archaeology Symposium. Details, when available, from Doug Roseman, 101 Westbrook, Bromham, Chippenham, Wiltshire SN15 2EE.

**29-30 OCTOBER 2005****YORKSHIRE RESEARCH DIRECTIONS**

at the University of Sheffield, the SPMA Autumn Conference to assess the current state of archaeological work in the region, and to set the research agenda for the next decade. See page 16 for details, or contact Hugh Willmott, Department of Archaeology, University of Sheffield, Northgate House, West Street, Sheffield S1 4ET, ☎ 0114 2222940, Fax 0114 272 2563, E-mail: [H.Willmott@Sheffield.ac.uk](mailto:H.Willmott@Sheffield.ac.uk)

**PLEASE ALSO VIEW THE AIA WEBSITE'S DIARY SECTION FOR MORE DETAILS OF THE LATEST NOTICES OF CONFERENCES AND MEETINGS**

*Information for the diary should be sent directly to the Editor as soon as it is available. Dates of mailing and last dates for receipt of copy are given below. Items will normally appear in successive issues up to the date of the event. Please ensure details are sent in if you wish your event to be advised.*



**INDUSTRIAL ARCHAEOLOGY NEWS** (formerly AIA Bulletin ISSN 0309-0051) ISSN 1354-1455

Editor: Dr Peter Stanier

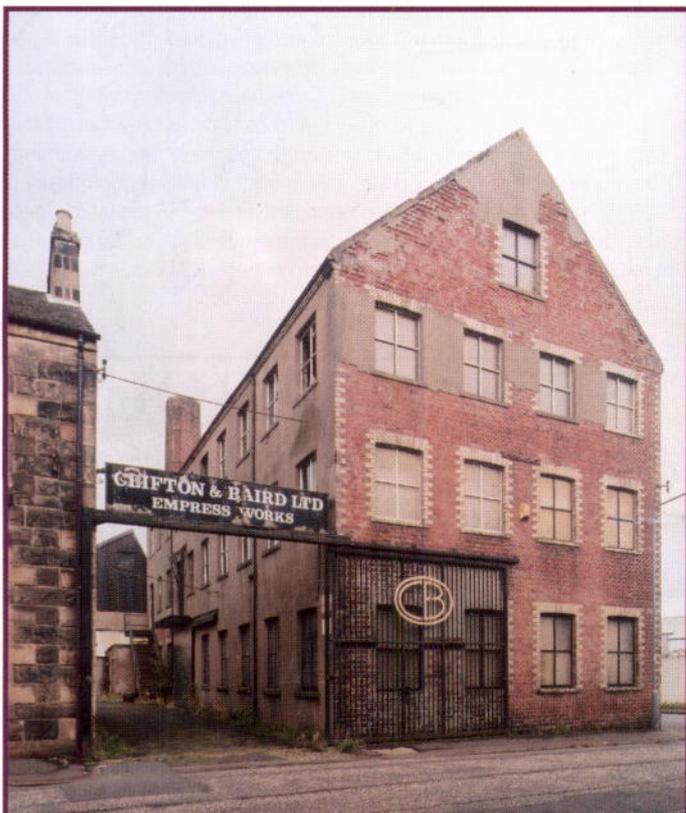
*Published by the Association for Industrial Archaeology. Contributions should be sent to the Editor, Dr Peter Stanier, 49 Breach Lane, Shaftesbury, Dorset SP7 8LF. News and press releases may be sent to the Editor or the appropriate AIA Regional Correspondents. The Editor may be telephoned on 01747 854707 or e-mail: [aianewsletter@yahoo.co.uk](mailto:aianewsletter@yahoo.co.uk).*

*Final copy dates are as follows:*

- 1 January for February mailing
- 1 April for May mailing
- 1 July for August mailing
- 1 October for November mailing

*The AIA was established in 1973 to promote the study of Industrial Archaeology and encourage improved standards of recording, research, conservation and publication. It aims to assist and support regional and specialist survey groups and bodies involved in the preservation of industrial monuments, to represent the interests of Industrial Archaeology at national level, to hold conferences and seminars and to publish the results of research. The AIA publishes an annual Review and quarterly News bulletin. Further details may be obtained from the Liaison Officer, AIA Office, School of Archaeological Studies, University of Leicester, Leicester LE1 7RH. ☎ 0116 252 5337 Fax: 0116 252 5005.*

The views expressed in this bulletin are not necessarily those of the Association for Industrial Archaeology.



*Clifton & Baird Ltd's Empress Works, Johnstone, the closure of which signalled the end of the Scottish machine-tool industry. (See the Scotland report on page 17)*

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