

# INDUSTRIAL ARCHAEOLOGY NEWS

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# INDUSTRIAL ARCHAEOLOGY NEWS 107 Winter 1998

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## COVER PICTURE

Re-excavation at the Lagan Canal's lock 12 at Lisburn,  
Northern Ireland (see page 14)

Photo: NI Environment and Heritage Service

## Honduran mining complexes of the sixteenth century

Pastor Gómez

*This article (translated by Blanca Martín) outlines the historical background and potential value of studying the sixteenth-century industrial archaeological heritage of two Honduran districts: Santa Lucía Tegucigalpa and San Lorenzo Guazucarán, both of which have documented sources.*

In November 1995, the Honduran Institute of Anthropology & History (Instituto Hondureño de Antropología e Historia) carried out archaeological surveys in San Lorenzo Guazucarán, in the municipality of Ojojona, where a colonial mining complex was found. Surveys in nearby areas showed many remains of this type throughout the central region of Honduras.

The old mining districts of Santa Lucía Tegucigalpa and San Lorenzo Guazucarán are located on the high central lands of Honduras, in the outskirts of the actual capital city, Tegucigalpa. Both districts are 1,000 metres above sea level, with a warm climate and annual rainfall which assures permanent water courses that can operate hydraulic machinery. Pine trees dominate the area, and were used as construction timber for engines and charcoal for blast furnaces. The geology of the region is complex and rich in volcanic materials and mineral veins of hydrothermal origins.

During the sixteenth century, the Spanish Crown expanded its domains on the American continent through the private initiative of its subjects. This was how Honduran territory became part of the colonial empire. Although the conquest of Honduras began in 1524, it was not completed until 1550. Indian rebellions were common during

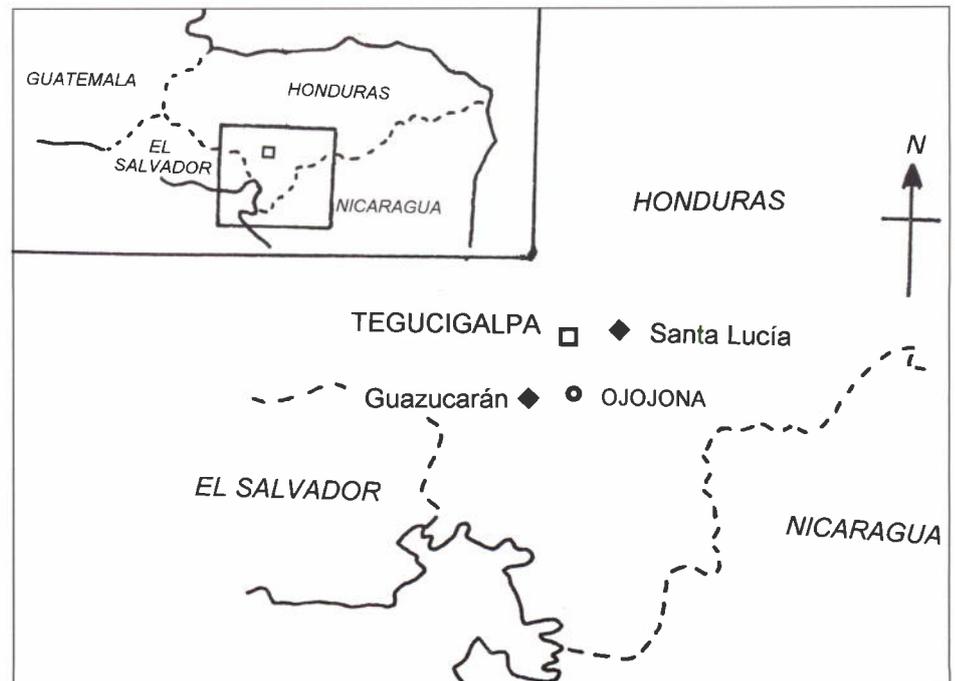
this period, which was also the time when mining exploitation started.

Mining activity was at first usually limited to washing gold in alluvial deposits, where forced native labourers used rudimentary technology. The original Spanish conquerors started to look for other income sources when alluvial deposits became over-exploited and the indigenous population, already declining, came under the protection of the Spanish Crown.

The discovery of silver deposits near Comayagua (then the seat of colonial government) marked the beginning of industrial mining exploitation in the country. It was in 1569 that the first silver minerals in the district of San Lorenzo Guazucarán were worked. Later discoveries, such as Agalteca (1576) and Santa Lucía Tegucigalpa (1578), led to the creation of the Alcaldía Mayor de Minas de Tegucigalpa (the Mining Mayorship of Tegucigalpa) which covered several thousand square kilometres, including over 14 indian villages, a Spanish town and abundant mineral deposits.

In 1590, Honduras was visited by a commission of the Spanish Crown with orders from Felipe II to find out about the possibility of transferring the Spanish Navy of the Viceroyalty of Peru from Panama to Honduras. However, they also had orders to visit the Tegucigalpa silver mines and report on their quality.

This commission documented 14 mining complexes in the country, 11 of them in Santa Lucía Tegucigalpa and three more in San Lorenzo Guazucarán. There were 172 black slaves and 79 forced native labourers employed in these complexes, each of which processed the minerals of up to five mines. All had blast furnaces and the



Location of the Santa Lucía Tegucigalpa and San Lorenzo Guazucarán mining districts of Honduras

majority had some kind of mineral processing mill. Three complexes had hydraulic mills for grinding the ore. Seven were operated by mules, in two the mineral was ground by hand, and only two complexes had no grinding mill. The machinery activated iron hammers, each weighing about 60 lb, which ground the minerals to a dust for further processing. The ground mineral was sieved and, depending on the quality, was separated from the ore by smelting or by amalgamation with mercury. This last method was first applied in Mexico after 1555.

The construction of hydraulic and animal-powered engines, furnaces and the use of the amalgamation method implied a technical knowledge that the first colonists did not have. It was brought to the area by Diego Xuárez, a master engine-maker, miner and carpenter, who arrived in Honduras at the end of the sixteenth century. A document shows that a certain Diego Xuárez, official of engines, skilled in the exploitation of gold and silver mines, left Sevilla for Peru in 1569. Though it remains to be confirmed, it seems likely that this is the same person.

In 1574, Diego Xuárez was employed to make the engines for the recently discovered mines of San Lorenzo Guazucarán, where he was also in charge of running the mining production. Before 1580, he made two other engines for the Agalteca mines. The discovery of mines in Santa Lucía Tegucigalpa around that date also demanded his services.

In 1580, Xuárez and a Spanish partner signed contracts to exploit a mining operation in Santa Lucía Tegucigalpa, both men contributing black slaves and sharing the right to exploit several mines. Apparently, these enterprises encouraged Xuárez to settle there with his family.

When the royal officials visited Tegucigalpa in 1590, Xuárez was the owner of a mining complex that included a hydraulic mill for mineral grinding, a furnace, a forge and a mill for grinding wheat. As his five slaves did not mine enough ore to utilise his hydraulic engine to capacity, Xuárez offered his services to other miners of the area, for whom he processed ore by grinding and amalgamation. This engine maker's knowledge determined the rentability of the Honduran mining industry to such an extent that the officials of the Spanish Crown referred to the province as prosperous during the 1590s.

At the beginning of the seventeenth century, mining production declined for several reasons. One was the lack of capital to invest in mines, another was the difficulty in supplying mercury from Spain due to the European wars, while a labour shortage added a third problem to the history of mining in Honduras.

Although no further documents about Xuárez's activities have been found, there is much information on Honduras' mining industry during the seventeenth to nineteenth centuries. Linda Newson, professor of King's College, London, states that in the middle of the seventeenth century some mining complexes were still worked around Guazucarán and Santa Lucía. William Wells, a North American engineer who visited Honduras in the mid-nineteenth century, documented that some



Section of the water canal, built with rubblework, at Guazucarán  
Photo: Pastor Gómez



Blast furnace of the Guazucarán complex  
Photo: Pastor Gómez

mines were still being exploited. He pointed out that a mill used by miners in Guazucarán was moved by mules, and another one in Santa Lucía had a hydraulic mill.

The ruins of a mining complex were found by the bank of the Ingenio River during the archaeological survey in Guazucarán. These ruins included a dam which altered the course of the river, canals for the water, the remains of a hydraulic mill, some processing tanks and a furnace, which the locals know as 'El Chimbo'.

The toponymy has kept the memory of the mining activities of that time in the area. An example of this is the name of the river where the ruins lie: 'Río del Ingenio' (Engine River). In addition, the historian Mario Felipe Castillo points out that the word 'chimbo' was once used for blast furnaces. The slag found around the oven of Guazucarán confirmed that its use was related to mineral processing. All the structures of the site were made of cobblestone, brick and mortar. There are no visible remains of either the machinery or the roof of these structures because most were made of wood. Other mining complexes in the area were not visited due to time limitation.

In conclusion, two facts might relate these ruins with the complexes of Guazucarán during the 1570s. The first is that the complex described and the mines of San Lorenzo Guazucarán are very similar, and the second is that the Ingenio River is the only water supply in the area with enough flow to activate hydraulic machines. In spite of that possibility, we have to remember that Newson and Wells state that some mining complexes were still working in this area in the seventeenth and nineteenth centuries. Therefore, the only way to date this site is through archaeological research.

Although research of this kind has never been done in Honduras, several elements underline its importance in these mining districts: the closeness of both districts with the capital of the country,

the historical documents related with them, and the probable existence of remains that have been preserved. Therefore, this would be a suitable area for preliminary research and a possible conservation project of Honduran industrial heritage.

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# I A in the South Atlantic

Henry Gunston

*These notes are based on a working visit to Saint Helena and Ascension Island during 1997, together with information from the Saint Helena Heritage Society and the Ascension Island Historical Society.*

Saint Helena, one of the last remaining British Dependencies, lies in the South Atlantic some 3,600 miles from Southampton and 1,700 miles from Cape Town. The island has no airfield, and it is appropriate that the ship which links it with the outside world, the 7,000-ton RMS *Saint Helena*, reflects something of the atmosphere of the Union Castle Line. Discovered (unpopulated) by the Portuguese in 1502, St Helena was claimed by the British East India Company in 1659 to provide a staging point on voyages to South Asia via Cape Town. Shipping links were later maintained by Union Castle, whose ships continued to call at Jamestown, St Helena's port and only town, until 1977. The island has a land area of 47 square miles (122 square kilometres) and a population of 5,500.

Jamestown's small port area, to which passengers and cargo are ferried by launches and barges, features an elegant barrel-roofed Customs House dating from the mid eighteenth century. Across the steep valley within which the town lies is an amazing stairway of 699 steps, over 900 feet (270 metres) long, known as Jacob's Ladder. At the top is Ladder Hill Fort, which contains a number of interesting nineteenth-century barracks and storehouses. The Ladder follows the route of an incline, completed in 1829 for 'The St Helena Railway Company', which comprised two lines of 4-foot gauge iron-topped wooden plateway track. Powered by donkeys turning a drum at the top, a major duty for the two incline wagons was transporting waste products (both animal and human) from Jamestown for spreading on the fields above. Breakage of haulage chains produced unpleasant results below and a modified wagon design was prepared with a rigorous braking system which jammed steel spikes into the track bed of the incline when the chain broke. The incline rail system was abandoned by the 1870s.

Jamestown market is housed in a prefabricated cast iron building, made by Gwynne & Co and shipped out in 1865. Other attractions include a cast iron fountain in the public gardens, a National gas engine (from a flax mill) preserved beside the town swimming pool and a 1929 Chevrolet charabanc, which still transports visitors around the island. The town museum is the headquarters of the Saint Helena Heritage Society, which has done fine work by highlighting the island's industrial history (aspects of which feature in a number of museum displays). By Rupert's Bay, in the next valley to Jamestown, there is a well restored square brick chimney which once served a seawater distillation plant. This was built around the turn of this century to provide water at the time when over 6,000 Boer prisoners had been deported to St Helena in the wake of the Boer War. The distillation plant was apparently unsuccessful,



*Strategic dots in the ocean*

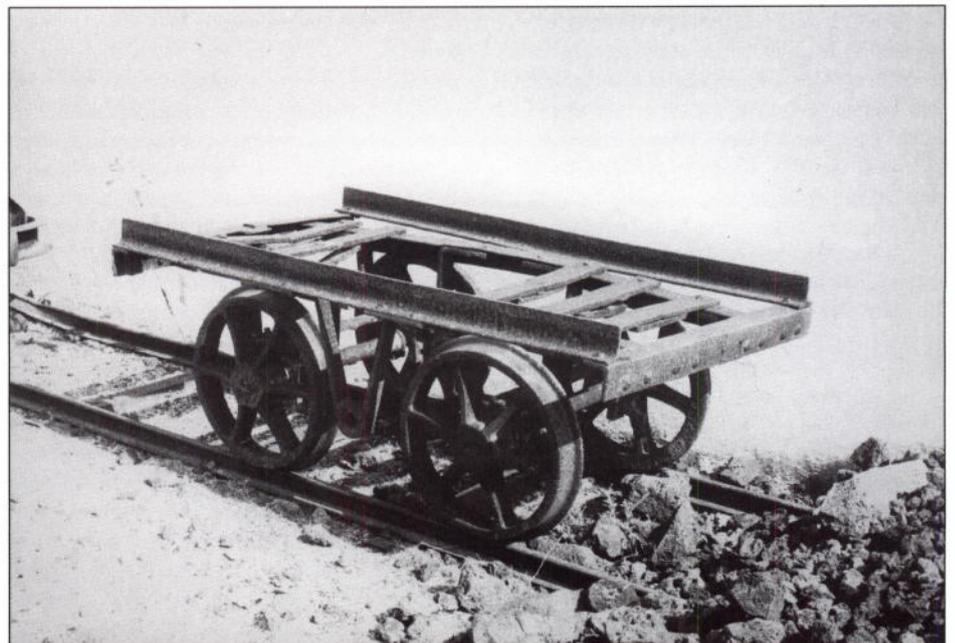
unlike two large vertical cylindrical, sectional cast iron water tanks, 20 feet (6 metres) in height and diameter, which are still in active use in the central uplands of the island. These tanks carry plates indicating that they were built in 1908 by Newton Chambers & Co Ltd at the Thornclyffe Iron Works, near Sheffield, and they store spring water prior to delivery by gravity to the Hutts Gate treatment plant. Control valves are by Guest and Chimes of Rotherham.

The central uplands were the base of what was St Helena's main industry from early this century until the 1960s. This was the cultivation of New Zealand flax (*Phormium tenax*), which produces a commercial fibre contained within long, tough leaves. Phormium is not related to the European

flax (*Linum usitatissimum*) from which linen has been produced in the British Isles. Phormium fibres are coarse, like those of hemp (*Cannabis sativa*) and jute (*Corchorus capsularis*), both of which are stem fibre plants - as is European flax. The primary use for Phormium fibre was making rope and twine and, until the arrival of polypropylene, most twine and coarse string used by the UK Post Office contained some New Zealand flax fibre from St Helena. The fibre was extracted from the leaves by a process similar to that used for another leaf fibre plant, sisal (*Agave sisalana*). Cut leaves, brought from the fields in bundles (usually on donkeys), were fed into a mechanical stripper which removed the outer leaf casing from the commercial fibre within. After scutching to remove dirt and unwanted vegetable matter, the fibres were washed in water and spread out on the ground to dry. After compression in a bailing press, most Phormium fibre was exported, although twine and light ropes were manufactured on St Helena. There were a number of small flax mills some of which were powered by National gas engines. The gas producers were presumably fuelled with wood. One mill survives with its machinery still close to operating condition, the gas engine having been replaced by a diesel.

Although there are a number of historical defence sites on St Helena, Ascension Island, 700 miles and two days' sailing away to the north, has a much stronger military presence, both past and present. Ascension, which is administered by the Governor of St Helena, achieved international fame during the Falklands War, when Wideawake military airfield was expanded to provide a staging point for RAF transport flights. Originally built by the US Air Force during the Second World War, Wideawake now has a runway long enough to land a returning U S Space Shuttle should circumstances dictate.

With a land area of 34 square miles (88 square



*A two-foot gauge trolley preserved outside the museum on Ascension Island. Probably used on the guano extraction project, it shows signs of being regauged from three-foot gauge (as used in the original harbour and trolley system)*

*Photo: © Henry Gunston*

kilometres), Ascension is much more barren than St Helena. Like the larger island, it was discovered (also unpopulated) by the Portuguese early in the sixteenth century, but as a staging point for sailing ships it was severely restricted by a serious shortage of fresh water. Sea turtles were captured by sailors to provide food, however, and there are still the remains of ponds where they were penned in sea water until taken aboard ship. Captain Cook put in for turtle meat during 1775. A major event was the deportation in 1815 of the French Emperor Napoleon into exile on St Helena. A naval base was established on Ascension to ensure that the French did not launch a surprise attack to reclaim Napoleon from captivity. The remains of a barrel-roofed powder magazine, thought to date from around 1817, survive near the turtle ponds. Taking the name Georgetown in 1829 (after King George IV), the naval base and small township expanded. A barrack block of 1832 survives in a modified form, and between 1848 and 1852 the great Main Store was built, which is still in use. Its massive stone-built structure resembles similar large naval stores built at Devonport and Portsmouth around that time.

Military activity continued during the Victorian era, and two forts were established on either side of the port area of Georgetown. On the barren volcanic slopes of Cross Hill, above the town, two large muzzle loading guns from the latter half of the nineteenth century point seaward, still mounted on their carriages. More modern armament nearby comprises two guns from HMS *Hood*, displaced from the ship during a refit before the Second World War. To counter the desperate shortage of fresh water, catchment collection areas further inland were cemented over to ensure that all runoff was collected.

A key current role for Ascension is as a



The naval warehouse at Georgetown, Ascension Island, dating from the 1840s. Volcanic Cross Hill lies beyond

Photo: © Henry Gunston

communications base. A submarine telegraph cable arrived in 1899, and the Admiralty set up a radio installation in 1915. Aerials of all shapes and sizes can be seen across the island, and in recent years the Royal Air Force, the U S Air Force, the BBC, Cable & Wireless, the French Ariane satellite programme and NASA have all had bases.

The Ascension Island Historical Society has established a fine museum complex based at Fort Hayes, and much supporting information for this article comes from their publication *The Ascension Handbook* by J. E. Packer. Amongst the 'outdoor' museum exhibits are small rail trollies which have operated on two track gauges. During Victorian

times a 3-foot gauge tramway line connected the Pierhead at Georgetown with the naval stores. In 1925 the English Bay Company was set up to collect guano (produced by large colonies of sea birds) for export from the area around English Bay and from the small Boatswain Bird island, just offshore. The Company's short-lived and shambolic activities included the use of 2-foot gauge tramways and some of the trollies from the Georgetown port tramway appear to have been 'narrowed' from 3-foot gauge. The method seems to have been to cut out centre sections from each trolley chassis cross member, much like the treatment of GWR broad gauge stock at Swindon in the 1890s.

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# Napier - a name to remember

Geoff McGarry

*The engineering history of the company D. Napier & Son Ltd is a fascinating story which spans nearly two centuries. Whilst the name of Napier is associated with aero engines of renown and veteran motor cars of the early 1900s, it has in fact far deeper roots, reaching back to the time of George III. The company is still in business and the Napier Power Heritage Trust has been formed to research, record and preserve its engineering history.*

In 1808, a young Scottish engineer, David Napier, set up his general engineering workshop in Lloyds Court, Soho. His reputation for precision engineering spread rapidly, and he was engaged to construct Daniel Treadwell's recently patented printing press, which operated by a treadle.

From Napier's practical experience on printing presses, he progressed to design his own printing machine using his brilliant inventive idea of two revolving cylinders in conjunction with his patent 'grippers'. The sheet of paper was picked up and carried round one cylinder and printed on one side, then transferred by the grippers to the other cylinder and printed on the reverse. Napier achieved this double sheet printing by the alternate rising and falling of each cylinder.

Hansard used several of these machines, named 'NAY PEER', which could print 1,000 sheets an hour, and Napier's trade was assured, progressing to larger machines such as the 'Desideratum' and the 'Double Imperial' for printing newspapers.

As the business increased, the factory became too small and Napier moved across the river to York Road, Lambeth, facing the new Waterloo station. David apprenticed his son, James Murdoch, in the business and on maturity took him into partnership creating the company D. Napier & Son in 1847. The business diversified and prospered with varieties of printing machines, hydraulic presses and cranes for the expanding Great Western Railway at Swindon. Lead bullet making machines and cannon boring machines were supplied to Woolwich Arsenal.

David Napier applied his engineering skill to solve a problem for the Bank of England, producing a delicate weighing balance to weigh

gold sovereigns with exact precision, at speed, separating light and heavy coins for rejection or acceptance. So accurate were these machines that they were soon in use in many mints across Europe.

James Murdoch was as equally inventive as his father, and produced many accurate weighing machines for gold bullion bars, among many other inventions. At his death in 1895, the business was taken over by his son, Montague Napier, who, assisted by the brilliant entrepreneur S.F. Edge, built up the famous motor car business in the first decade of the twentieth century. Their great success came in winning the Gordon Bennett Trophy for motor racing in 1902, the first international trophy to be won by Great Britain. With business rapidly expanding, they moved to a new factory site in Acton, West London.

Napier designed and built the first 6-cylinder car engine, and in 1907 S.F. Edge drove a Napier car on the new Brooklands race track for 24 hours, covering 1,583 miles at an average speed of 66 mph, a remarkable feat of endurance for both the man and Napier engineering reliability.

Under the shadow of the 1914 war effort, Napiers were directed on

to producing Sunbeam aero engines. Montague Napier, with his chief designer A. Rowledge, were prompted to design their own engine, the 24-cylinder, in three banks of four in the 'W' formation, the famous Lion engine of 475 HP. First flying in 1919, it proved to be the most successful aero engine of the 1920s, used extensively by the then expanding RAF, and winning two of the Schneider Trophy races in 1927 and 1929. Later, the Lion engine was used so effectively by Henry Segrave, Malcolm Campbell and John Cobb, enabling each in turn to achieve world land speed records, with Cobb in his Napier Railton Special travelling at 400 mph in 1947.

During the 1930s, Major Halford was engaged as a consultant designer to produce three engines for Napier, the 16-cylinder Rapier, the 24-cylinder Dagger, and then the most powerful piston engine, the 24-cylinder sleeve valve Sabre engine of 3,000 HP, powering the Typhoon and Tempest fighter bombers to distinguished war service in 1944.

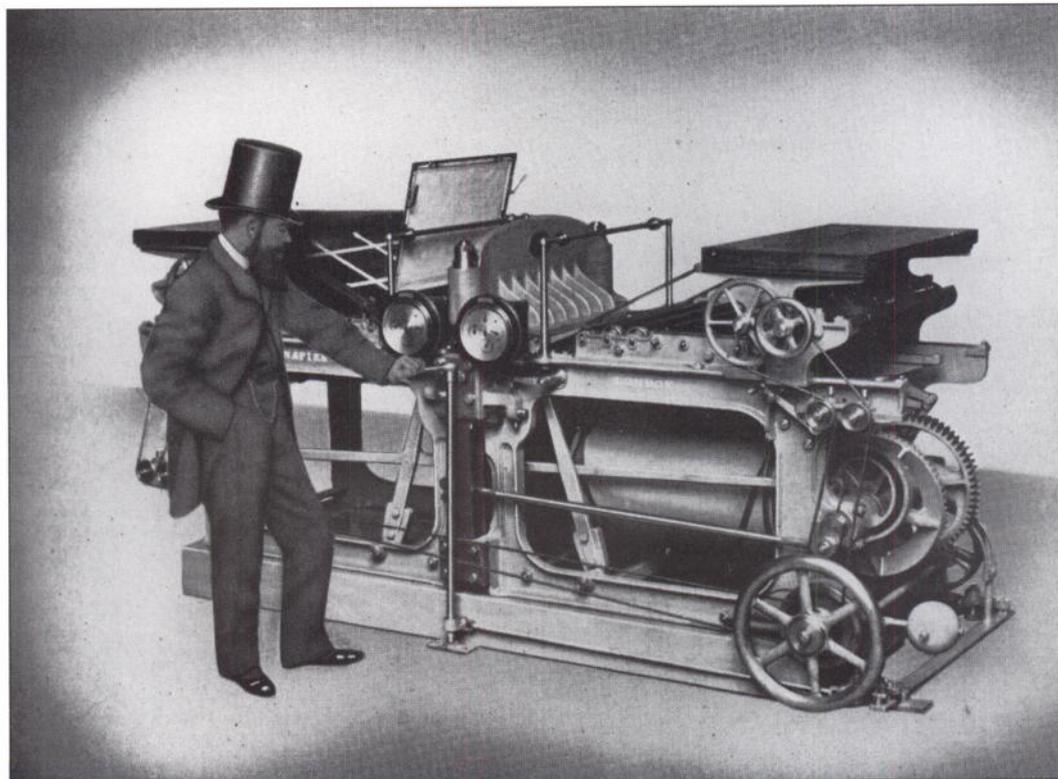
After the war came the powerful marine engine, the three bank, triangular shape, 18-cylinder opposed piston, Deltic diesel engine of 3,000 HP, used by many navies around the world. The same engine was later derated to 1,600 HP and used in a twin-engine locomotive,

most successfully on Eastern Region main line services for many years.

Napiers designed the Eland turbo-prop engine, followed by the compound Nomad, combining a diesel engine with an axial flow compressor and turbine to achieve 3,000 HP, with the lowest recorded fuel consumption. In the forefront again, Napier designers led the way with the Gazelle, free turbine engine, the first gas turbine engine to power helicopters.

Since 1947, Napiers have produced their own Turbocharger, and with a 190-year tradition for precision engineering the company is still in business successfully producing turbochargers for world-wide markets.

The Napier Power Heritage Trust was formed in 1991 by Alan Vessey with a group of ex-Napier retired engineers, with the aim to research, record and preserve the engineering history of this famous company. *Napier Powered* has been published by Chalford Co of Stroud, comprising 230 photographs showing the development of all Napier engines of the twentieth century. Copies of the book can be obtained at £10 (UK) inc P & P, or £12 sterling for overseas, from myself at 19 Richardson House, North End Crescent, London W14 8TE. I can also be contacted for further information.



James M. Napier with the Napier double platen printing machine

Photo: Napier Power Heritage Trust

## Postgraduate courses at the Ironbridge Institute

Contrary to reports of its demise, training and teaching in Industrial Archaeology continues and thrives here at Ironbridge, under the title of Industrial Heritage. Now a part of the Department of Ancient History & Archaeology at The University of Birmingham, for three years the Ironbridge Institute has offered a postgraduate Diploma and MA in Industrial Heritage. Based upon its almost 20 years' experience of teaching Industrial Archaeology at postgraduate level, the new qualification starts from the viewpoint of Industrial Heritage being 'managed Industrial Archaeology', and acknowledges the widespread use of this term in many parts of the world, and in the name of such bodies as TICCIH. The recent 'high-profile' demise of some industrial museums has also emphasised a need for training in the highest standards of professional practice for those working with the Industrial Heritage.

Entry level on the courses is determined by a student's first degree, although, significantly, all of those entered for Diplomas have changed to Masters degrees and been awarded these, some with distinctions. The teaching strikes a balance between Industrial History, Industrial Archaeology, and Heritage Management, and covers a wide range of topics from pre-industrialisation through to twentieth-century industries and their remains. Practical skills are covered too, from surveying and research techniques, through to professional practice and conduct in consultancy

work. In addition to their end-of-year examinations, students are also required to produce four pieces of assessed work, and a dissertation. Through these assignments students are able to develop their skills and to widen their interests as they apply a given approach or question to a case study or example of their choice. In this way study extends way beyond the confines of the Institute's surroundings, and, over the years, an impressive body of work is built up for the benefit of successive students.

In its first three years the Industrial Heritage course has scored some notable successes, including the work of Paul Vigor, who won the AIA's Student Award for Fieldwork and Initiative Award for Fieldwork in 1997 for his reassessment of Bedlam Furnaces; and Penny McKnight, whose 'Hats off in Stockport' article in *IA News 105* was based upon her Ironbridge Institute dissertation. Of more lasting benefit to past students, a number have now secured positions working in posts directly relating to the recording and long-term preservation of the Industrial Heritage. These include Anthony Coulls, who is the Co-ordinator for Railway World Heritage for ICOMOS, based at the National Railway Museum.

Through its innovatory Industrial Heritage teaching the Ironbridge Institute has built upon its international standing. Each year overseas students feature prominently; recent intakes have included students from Greece and Zambia, with current enquiries from

Australia, Holland and Hungary. For the last two years Institute personnel have been invited to teach a Masters Industrial Heritage course at the University of Madrid. The Institute is also represented at most major international conferences, including recent ones in Poland and Greece; with Dr Paul Collins also acting as UK Co-ordinator of a major European Union Raphael Cultural Heritage project: Iron-in-Man, or ININ for short. After a very successful first year of joint work with Spanish and Finnish colleagues, this project has just secured a further two years' funding and is set to expand to include other European partner nations. Overseas students also make study visits to the Institute.

Students attending the Industrial Heritage course in the academic year 1998/99 will be able to take advantage of new developments and initiatives at the Ironbridge Institute. Notable amongst these is access to the John Harris Collection of books and papers relating to Industrial Archaeology and Economic History. A key part of the personal library of the late Prof. John Harris, one of the Institute's founders, the collection was bequeathed for use by students following Prof. Harris' death in March 1997.

Within a year of becoming a part of the Department of Ancient History & Archaeology at The University of Birmingham, the Ironbridge Institute has been called upon to develop second and third year undergraduate teaching modules in IA. These will be taught by Dr Paul Collins on the University's main campus at Edgbaston from September 1998. This is seen as an important development in the teaching of IA, and a vital step if the subject is 'trickle-down' the education system to A-Level.

The Institute's association with Birmingham's Department of Ancient History & Archaeology brings many opportunities for its students to work with some of the best archaeological practitioners in the UK. Students of the Department regularly take part in summer training schools in archaeological fieldwork, and the Institute welcomes this new opportunity to apply advances in field techniques to professional practice in IA and Industrial Heritage. This move has also increased opportunities for

closer ties and collaboration with the personnel in the Birmingham University Field Archaeology Unit (BUFAU). One of the foremost archaeology units in the country, with many years' experience of professional practice in field archaeology.

The Ironbridge Institute is keen and proud to acknowledge its continuing commitment to professional practice in Industrial Heritage, and has recently strengthened its team to include contributions from the best available practitioners. Joining the team is David de Haan, Deputy Director of the Ironbridge Gorge Museums. Formerly of the Science Museum, David brings many years of experience in curating an industrial collection of world significance, and he is also very active in the European industrial museums movement. Also working with the Institute as a Research Associate is David Cranstone, with many years' worth of experience of research and investigation in IA, and who has been a major influence behind the Monuments Protection Programme work for English Heritage.

Marion Blockley is the Ironbridge Institute's Programme Director. A founder member, and former Committee Member, of the Institute of Field Archaeologists, Marion also edits the journal *Interpretation* for the Society for the Interpretation of Britain's Heritage, and has an international profile in the protection and development of World Heritage Sites and sustainable heritage-based tourism.

Dr Paul Collins is Lecturer in Industrial Heritage at the Ironbridge Institute. A former graduate of the Institute, Paul is an acknowledged authority on railways, tramways and waterpower, and specialises in twentieth-century technology. He has played a leading role in a number of major IA projects in recent years, from the motor industry to the Royal Arsenal West at Woolwich.

Further details of the Industrial Heritage courses can be obtained from: The Programme Administrator, Ironbridge Institute, Ironbridge Gorge Museum, Ironbridge, Telford, Shropshire TF8 7AW ☎ 01952 432751, Fax: 01952 432237, e-mail: [Ironbridge@bham.ac.uk](mailto:Ironbridge@bham.ac.uk); Web page: <http://www.bham.ac.uk/IRONBRIDGE/>



Course students line up on the steps of the Long Warehouse at Coalbrookdale, where the Ironbridge Institute is based  
Photo: John Powell

## Council changes and a new President

The AGM was held on Sunday 6 September 1998 during the annual conference at Seale Hayne, Newton Abbot. Hilary Malaws retired after her three-year term as President, and other retiring officers were Amber Patrick, who has served as our Secretary for many years, and David Alderton, our Conference Secretary. David Perrett has also stepped down as Membership Secretary, a duty now undertaken by the AIA Liaison Officer at Leicester. We owe a debt of gratitude to all these officers who, as other Council members will know, have worked very hard behind the scenes to further the interests of the AIA.

The AGM elected Michael Harrison as our new President, with Marilyn Palmer as Vice-President. The new Secretary is Paul Sillitoe, while Janet Graham takes over as Conference Secretary. David Alderton, Bob Carr, John Powell and Stuart Warburton were re-elected to Council, along with a new face, Tony Parkes.

Next year's AGM will be held at the Medway Campus at Chatham, Kent, on 12 September 1999.

## Devon Conference

September's annual AIA conference, which included the announcement of the Fieldwork and Recording Awards (see below), was followed by a programme of field visits and lectures covering much of the large county of Devon. A full report should appear in the next issue of *IA News*.

## AIA Office at Leicester University

Members will be sorry to learn that Morwenna Dissado has resigned as AIA Liaison Officer to take up a place at the University of Southampton on the MSc course in Archaeological Computing. She has put into place for the AIA several new office systems, including the membership database; undertaken an institutional mailing to widen circulation of our publications; begun to create a database of IRIS sites; and started a pilot project on the production of an industrial museums handbook for teachers in the Midlands. The latter reflects her concern to bring younger people into the Association for Industrial Archaeology. The Association thanks her for her pioneering efforts and wishes her

well for the future.

Morwenna has been replaced by Isabel Wilson, a graduate in the History of Art and English from Leicester University. She will be in the AIA Office during weekday afternoons from 13.45 to 17.15 and will continue the projects already in hand. Isabel will only be with us for a year, as she has a place at Loughborough University to undertake an MA in Women's Studies. She will be meeting members of Council at their working weekend in late October and members of the AIA at the Ironbridge weekend in the Spring. Do contact her about general AIA matters and the IRIS project. Her telephone number is 0116 2525337, Fax 0116 2525005, or e-mail: AIA@leicester.ac.uk.



Isabel Wilson

## 1997 President's Award

The 1997 award was presented to Killhope Lead Mining Centre in Weardale on 20 August, on a typical(?) Pennine day of unremitting rain; totally different to the brilliant sunshine which greeted delegates on their visit during the Newcastle conference last year. The welcome more than made up for the weather and the presentation was duly made to Councillor Jim Macintosh, Chairman of Durham County Council's Arts, Libraries and Museums Committee, by the AIA's President Hilary Malaws, in the presence of Patrick Conway, Director of Arts, Libraries and Museums for Durham, and Ian Forbes, the Manager of Killhope. The wet weather could not dampen the enthusiasm of staff and the many visitors, who were wholeheartedly participating in ore separation demonstrations on the dressing floors throughout our visit. Killhope has deservedly won a number of national awards in recent years, but Ian Forbes

said it was 'particularly pleasing when the recognition comes from the national body representing professionals in your field of work.' It is believed that this was also the first award to have been made at the centre itself.

The annual AIA award is made to the site visited during the annual conference, which the President considers best helps the public to understand its historical, archaeological, technological and industrial importance, through a high standard of interpretation and presentation.

## TICCIH membership

Here's how *you* can join the International Committee on the Conservation of the Industrial Heritage as an individual member (see page XX) Because of concern about the costs of transferring money for overseas subscriptions, it was suggested that national representatives should collect subscriptions and forward them in bulk. Your representative has agreed to this for UK members; send the application form as directed, with the words 'paid to national representative', but send your cheque/money order to John Crompton, c/o National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF. Meanwhile, TICCIH will investigate the potential for payment by credit card.

## Fieldwork and Recording Awards

Five entries were submitted for this year's award and these varied in both subject matter, geographical scope and date. They included two commissioned investigations from professional archaeological units, a publication from a national voluntary group and two student dissertations. Brief summaries are given below:

Canterbury Archaeology Trust - the Tankerton Copperas Works and the Copperas Industry in the South of England. Little archaeological research has been undertaken on this seventeenth-century industry and coastal erosion culminated in an English Heritage sponsored project on the Tankerton foreshore in 1997. Although the results were limited to the cleaning and recording of exposed deposits, the report clearly identifies the archaeological potential of the buried remains. The history, technology and geographical scope of the industry is described in

considerable detail together with the archaeological remains in two areas along the foreshore; the resulting report will act as a national reference work for the subject.

Having examined the results, English Heritage appreciated the threat posed to the resource by continued erosion and coastal defence works, which culminated in open area excavation during 1998. Significant remains of structures were revealed and a summary will be published in the next *IA News*, with greater detail in a future issue of *Industrial Archaeology Review*.

Exeter Archaeology - Archaeological Recording at the Malthouse, Haven Banks, Exeter. An exemplar which demonstrates how Central Government Planning Guidance can be used to secure adequate records of historic buildings in advance of conversion works. Constructed c.1789, the buildings have a complex structural history and ceased malting in 1949; the site is to be re-used as a public house and restaurant. The report is well written, but its strength lies in the quality of the illustrations and in particular, the conjectural reconstructions.

D. Roemmele - The Industrial Archaeology of Tweed and Hosiery Textile Mills of Harwick between 1820 and 1930. This MA thesis from the Ironbridge Institute collates an enormous quantity of documentary information on Harwick's textile buildings. Although the approach is essentially historical it provides an important benchmark from which detailed site investigation can be undertaken.

Scottish Vernacular Buildings Working Group - The Ruins of the Craibstone Limekilns, Deskford. Undertaken by group members during a weekend recording exercise in 1995, this nineteenth-century works was inaccessible to the public and slowly deteriorating. Photographs and scaled plans of three limekilns, a safe house, grinder and silo shed, wheel pit and embankments are attractively reproduced in a small publication [reviewed in *IA Review*, XX, 1998, 119]. Although the future of the site remains uncertain, the survey acts as an accurate record of the works in the 1990s.

R. Turner - Stratford and Moreton Tramway. Undertaken as an MA dissertation at Ironbridge, a detailed investigation is made of the history, development and operation of a nineteenth-century rural horse-drawn

tramway. Although much of the physical evidence has been destroyed, the surviving bridges, wharves, embankments, cuttings and buildings are described.

Once again the entries were all of a high standard, with few marks separating the eventual winner; having collated the results the following individuals and organisations have been successful:

*Main Fieldwork and Recording Award for 1998:*

Canterbury Archaeology Trust.

*Student Fieldwork and Recording Award for 1998:*

R. Turner.

It was felt that the Initiative Award, which considers an outstanding methodological and/or theoretical approach, should not be given this year. Our thanks to Keith Falconer and Amber Patrick for once again acting as judges. Entries for the 1999 award should be sent to me no later than 1 May 1999. For details see the advertisement in this *IA News*.

Shane Gould

## Helping your correspondents

*IA News* is only as good as the news it receives! Our Regional Correspondents provide a most valuable service, which can be helped greatly by input from local members. Perhaps you may feel your area is missing out somehow, so it is up to you to make a difference by helping your local correspondent to gather items of interest for publication over the year. Please make contact and ask how you can help (addresses of

Correspondents are given on page 10).

Readers will note that the post of Regional Correspondent for South West England is vacant. I would be pleased to hear from anyone who might wish to take on this task - it is not too difficult, you will be provided with guidelines and you will see your name in print!

Editor

## LETTERS

*Readers are encouraged to write to the Editor with their views on matters raised in IA News, or other current issues.*

### Machinery for free!

The Museum of London wishes to dispose of a number of working history items. These include industrial machinery and large workshop equipment, including a steam-powered travelling crane and Lancashire boiler; other stationary steam, gas and diesel engines; various late 19th/early 20th century machine tools (including mortising machine, bandsaw, lathe/grinder, heavy industrial lathe, sheet metal working machinery); blacksmith's forge and leg vices; heavy ship repairing hydraulic press; air hammer and Ingersoll Rand horizontal compressor, with associated equipment, warehouse winches; hydraulic jiggers; crane jibs; loose boxes; beam scales; platform scales.

These items are being offered as gifts, preferably to museums or charitable organisations such as preservation societies.

For more information, please contact: Karen Fielder, Assistant Curator, Department of Later London History, Museum of London, London Wall, London EC4 5HN. ☎ 0171 600 3699, Fax: 0171 600 1058.

### Early Australian steel trusses

We are currently involved in the preparation of a conservation plan for a sheep shearing shed at a property named Afton Downs, located near a town called Hughenden in central northern Queensland, Australia. The shed was erected in 1887 for the prominent pastoral family of Armytage.

The roof framing of the shed is comprised of 21 metal trusses, spaced at 3.05 metre (10 ft) centres, which have curved principal rafters of 76 x 76 cm (3 x 3 inch) steel angle with the ties, hangers and braces consisting of approx 30 mm (1 1/4 inch) diameter rods of wrought or cast iron. The purlins are of 51 x 51 mm (2 x 2 inch) steel angle. Rolled into the principal rafters, in relief, is the name 'Dorman Long and Co Middlesbro'.

We have been corresponding with Dr Miles Lewis of the University of Melbourne, an authority on steel and iron structures, who has expressed a deal of interest in the age of the trusses. It is his opinion that the steel in the trusses would have to be some of the earliest imported into Australia, his previous earliest example being German steel, also of 1887.

There are examples of other steel trusses in Queensland of later vintage, but these are all out of steel angles. Therefore, we wonder if the trusses in the shearing shed may not only be an example of early steel importation into Australia, but also an example of the transition from iron framing to steel generally. Why the trusses came to be used in a shearing shed, which used local timbers for all their framing, remains a curious mystery.

We seek your assistance towards finding more information on Dorman Long and Co in general, and whether there is anyone we could contact who may have records of that company which may assist with such questions as who ordered the trusses, to where they were delivered in Australia, why they came to be ordered, etc. There

have been suggestions that the trusses may have come from the State of Victoria to Queensland, perhaps from another, even temporary, building, which would be feasible as the Armytage family did have a number of pastoral properties in Victoria at the same time as the erection of the shed.

Any assistance anyone is able to provide will be gratefully received and properly acknowledged in our work.

Geoff Morton

Geoff Morton and Associates  
Built Cultural Heritage Consultants  
47 Marti Street  
Bayview Heights  
Queensland  
Australia 4868

### Education

I was interested in Stafford Linsley's letter in *IA News 106*, which referred to the teaching of industrial archaeology in the Universities of Leicester and Newcastle upon Tyne. It is a source of great regret to me that the Department of Archaeology in the University of Southampton can no longer be included. Industrial archaeology was introduced there in 1971\* and lapsed in 1988. Credit for establishing it as a degree subject should go to Professor Barry Cunliffe. When he was lured away to Oxford, his successor, Professor Colin Renfrew (now Lord Renfrew) maintained the teaching of IA until he was persuaded to move to Cambridge. Unfortunately, his replacement, Professor Peter Ucko, did not share the enthusiasm for IA shown by his distinguished

predecessors, and when I retired in 1988 it was allowed to lapse.

Industrial archaeology was included in the general introductory course to archaeology, and was examined in the same way as other branches. This was important, as it led to a number of students studying the subject for their final year Special Option. I note that in 1988, the last year in which the Special Option was available, there were 12 students, one of whom applied to join the post-graduate course at Ironbridge.

On a happier note, all was not lost as the Department of Civil Engineering's History of Technology continued until 1996 and the Extra-Mural Department offered IA lectures until 1995. Residential field visits had begun in 1965 and, as noted in *IA News 106*, the final visit took place in 1998.

In my darker moments, it seems that industrial archaeology is being offered mainly by hotels in the form of leisure breaks, so it is a relief to know that at Leicester and Newcastle upon Tyne it is still the subject of dedicated teaching.

Dr Edwin Course  
(formerly Senior Lecturer in IA  
and Transport Studies, University of  
Southampton)  
18 Craven Road  
Chandlers Ford  
Hants SO53 2HD.

[\* Editor's note: I should know, I was there]

## TICCIH in Barcelona

It's difficult to visit Barcelona without coming into contact with Antoni Gaudi. In Britain and elsewhere, the Victorian resurrections of classical and gothic gave way to Arts and Crafts and Art Deco; in Barcelona they gave place to modernism and to Gaudi. Drawing from nature, Gaudi's sinuous and naturalistic forms punctuate the landscape with strange spires and colourful mosaics. It was whilst he was preoccupied with his greatest building in progress (the cathedral of Sagrada Familia) as he crossed the road that he was knocked down by a tram - a victim of what is now part of Barcelona's industrial heritage.

National representatives to the International Committee on the Conservation of the Industrial Heritage gathered in Barcelona for the last weekend in June, most taking an extra day or so to see the city itself. The Saturday was a full working day at the Museu Nacional de la Ciència y de la Technica de Catalunya at Terrassa, some 20 km from Barcelona. The museum occupies a restored woollen mill built in 1907/8 in the modern style, with a stupendous north-light roof of undulating thin brick vaults supported on slender cast columns. On Sunday morning, delegates met at the Museu de la Historia de Catalunya in Barcelona, housed in a turn of the century dockside warehouse which again provides magnificent spaces for exhibitions.

Delegates from Finland, Argentina, Russia and western Europe (others sent their apologies) concentrated on the implementation of last year's proposals for individual membership and the issues surrounding it. At present there are two classes of subscription: national as paid on behalf of Britain by AIA, and individual which currently includes those who attended the last major TICCIH conference. The meeting decided that these individual membership will run to the end of 1998, and after that new annual subscriptions (\$20 US, or £12.00 at today's exchange rate) will be invited on the basis of calendar years. Application forms for 1999 membership will be circulated with *IA News*, and a web site is to be set up. Incidentally, members will be able to propose and vote on national representatives, though the weighting between individual and national committee votes has yet to

be decided.

The *TICCIH Newsletter* has been recast as a *Bulletin*, A4, 8 pages in the first issue, and this and a second issue will be sent to current (1998) members during the remainder of the year. The first issue of an international journal is also in preparation, but since TICCIH cannot afford to finance it without a sound membership and financial base, this Number One issue is independent but will of course be advertised through TICCIH.

TICCIH already has several specialist sections, whose objectives are to promote study and comparisons on a worldwide scale. Two papers have already been produced jointly by TICCIH and ICOMOS (International Council on Monuments and Sites) for the World Heritage Convention, on *Bridges and Canal Monuments*, the latter compiled by Stephen Hughes of RCAHMW. There was considerable discussion on further themes and on how approaches might be standardised so as to provide a framework for advice to ICOMOS on potential World Heritage sites. TICCIH's strengths will be on encouraging worldwide links, and to this end a membership directory is planned for publication in January 1999. One of the pressing requirements is to build up a database on the re-use of industrial buildings, to aid and encourage novel solutions worldwide. Groups will be announced and will report from time to time in the *Bulletin*.

A note in *IA News 105* said that subscriptions entitled members to free attendance at TICCIH conferences. This does not mean free lunches - just that individual members will enjoy a rebate equal to the membership subscription.

Many other ideas were floated and discussed, including the exchange of information on industrial tourist trails, a seminar on industrial heritage and education, prizes for the best re-use of industrial buildings, and the success of some European countries in gaining EU Raphael grants for co-ordination of initiatives across national boundaries (something this insular nation is not very good at!). There was much stimulus and *IA News* and the *TICCIH Bulletin* will report as the ideas develop. Finally, our thanks to Eusebi Casanelles, Jaume Matamala, James Douet and all the team at Terrassa (including the Mayor for a

magnificent lunch) for their organisation, hard work and hospitality. The sun shone too!

John Crompton

## Parys is old

Recent radio-carbon dating has established a date of c.3,000 years BP for underground workings at Parys Mountain on Anglesey, which puts the history of copper ore mining there back into the later Bronze Age.

## Brighter future for piers

The origin of piers could be said to date back to the earliest man-made harbours: that at Caesarea reputedly had the first free-standing breakwaters, in 13BC. However, the modern history of piers did not begin until the development of towns such as Scarborough as 'seaside watering places' in the late eighteenth century. It became the fashionable thing for the rich to go to the coast, walking on newly-constructed wooden jetties over the water itself. Jetties were also built with a more functional purpose in mind, namely the landing of boats. Inland transport left a lot to be desired before the building of railways, and thus many visitors to these growing resorts came by sea, landing at a jetty.

The first true seaside pier was arguably that at Ryde, Isle of Wight, constructed in 1813-14. Far more famous was Brown's Brighton Chain Pier, dating from 1823. Not only did it act as a terminus for packet boats, its attractions included shops, kiosks, shower baths and a camera obscura.

In the 1830s, English piers were built at Southend, Walton, Herne Bay, Southampton and Deal. Wales gained

a pier at Beaumaris in 1846, whilst north of the border, Leith Trinity Chain remained in being, famed as Brown's template for his Brighton masterpiece.

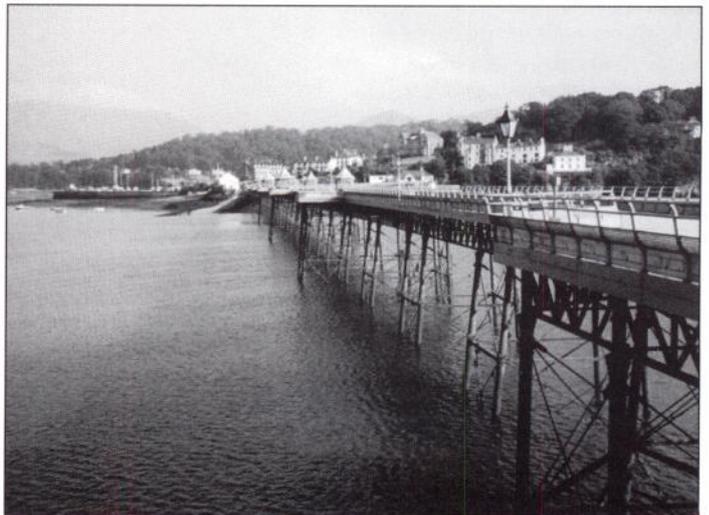
The peak decades for English and Welsh pier-building were the 1860s and 1870s, though right until Fleetwood (1910), piers opened at a rate of over one a year. Following Margate (1855) and Southport (1860), many were constructed using iron rather than wood, with Birch gaining a reputation as the supreme engineer.

Factory Acts, the Bank Holiday Act (1871), and an expanding railway network all helped to make piers 'people's palaces', and inter-war modernisation saw the erection of many fine pavilions. However, not all piers were so lucky, with the Second World War sometimes hastening their decline, causing years of neglect. On top of this, the advent of cheap breaks abroad and increased prosperity meant that individuals were no longer automatically holidaying in Britain.

Formed in 1979, the National Piers Society has helped to fight for those piers still remaining - supporting structures needing grant aid, and promoting the commercial successes. For piers do have a role to play in today's competitive leisure industry, and are of undoubted architectural merit to deserve assistance. What with Lottery awards, the future now looks a lot brighter!

To obtain information on the National Piers Society, contact the Secretary, Anthony Wills, 14A Elizabeth Mews, London NW3 4TL.

Tim Mickleburgh



Bangor Garth pier, North Wales, dates from 1896. Closed on safety grounds in 1971, the 1550 ft long pier was repaired and re-opened in May 1998 Photo: Tim Mickleburgh

## New Lanark conference to honour John Hume

A conference 'Visions of Scotland's Past: Looking to the Future' is to be held on Saturday 27 February 1999. Its purpose is to take stock of Scotland's built heritage, and to consider its future in anticipation of the expanding opportunities offered by the new Millennium. It is especially intended to pay tribute to the work of John R. Hume, one of the AIA's Honorary Vice-Presidents, who is retiring from his post of Chief Inspector at Historic Scotland. The conference will also celebrate the recent opening of the new hotel at New Lanark's Number One Mill.

Themes of the conference will include industrial heritage in particular, but will embrace other building types, as well as the importance of records and archives.

The event will take advantage of the newly-opened conference facilities at New Lanark, and will be followed in the evening by a gala dinner in honour of John Hume. Delegates will have the opportunity to stay the Saturday night in the hotel at preferential rates, and places on a special tour of New Lanark (to include rarely seen parts) will be available on the Sunday morning.

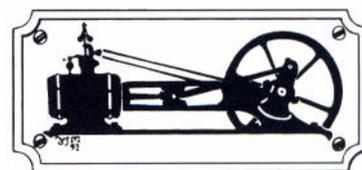
Enquiries and requests for booking forms can be made by contacting 'Visions Conference', c/o Architectural Heritage Society of Scotland, The Glasite Meeting House, 33 Barony Street, Edinburgh EH3 6NX, or Miles Oglethorpe at RCAHMS, 16 Bernard Terrace, Edinburgh EH8 9NX (e-mail: mileso@cahms.gov.uk).

## Disappearing cattle markets

The small town cattle market was until recently a common feature of the farming industry but new regulations, low prices and a desire to achieve economies of scale via larger markets serving a wide area, mean that the majority of traditional markets if not already closed and redeveloped will be closing soon. In Hereford the cattle market continues but Kidderminster closed earlier this year. At Ashford in Kent the town centre market moved to a new out-of-town site in April. Banbury closed on 4 June 1998 and Northampton, which shut in the autumn of 1996, is already a Morrison supermarket. Here the cattle market was moved out of the town. Only the fine market entrance in Victoria Promenade has survived redevelopment. The site of Northampton St John's station was close by and the appearance of the cattle market was reminiscent of Midland style.

The traditional market often has buildings and surviving features which date from the late nineteenth century and will be of interest to most industrial archaeologists. As above, their architecture often reflects that of railway stations of the period and cast-iron columns, slate roofs and iron roof trusses, etc, are still to be seen here and there.

The examples mentioned are mostly from the South Midlands, but they are representative of the situation nationally. The pressure to close town-centre cattle markets is great. They occupy valuable sites and more space is now needed to park



## Heritage Engineering

Consultants and contractors in the restoration of historic engineering including feasibility studies for Heritage Lottery Fund and ERDF funding. Recent projects have included restoration work on P.S. Waverley, a Victorian Underground Car, PS Maid of the Loch, a scheduled Bascule Bridge, various wind and watermill work, and a successful HLF/ERDF study for the Scottish Mining Museum.

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Demolition at Cambridge cattle market, February 1997

Photo: R J M Carr

lorries and cars. Knowledge of the existence of a local cattle market is often confined to those associated with farming and in larger towns a common response from the man or woman in the street is that 'the cattle market went years ago.' A little personal investigation can often be worthwhile. About 200 cattle markets have closed in the last 20 years.

Robert Carr

## Rocket return

Pressure groups in the North East have recently asked for the Lindisfarne Gospels to be returned to their regional birthplace. London is not keen on this idea. So, how about returning the 'Rocket' instead? Sir Neil says no. Well, he would, wouldn't he? Perhaps the Liverpool and Manchester interests might care to have it? My own view is that 'Rocket' should be returned to where it spent its old age, on the Earl of Carlisle's railway which served coal mines near Brampton in Cumbria. It would look nice on a plinth in

Brampton market place. Last summer, a replica of 'Rocket' made of flowers stood in Carlisle's town centre to mark the 150th anniversary of the Citadel station.

Fred Brook

## Wortley Top volunteers

It was reported in *IA News 106* that Ken Hawley has received an MBE for services to industrial conservation. He is mostly associated with Wortley Top Forge, where he is Hon Custodian and his commitment, energy and leadership have been largely responsible for the restoration work. The site was visited during the AIA's Sheffield conference in 1995. The volunteers at Wortley Top, as at many other sites, are declining in numbers and increasing in years. We would welcome enquiries from anyone who might be interested in working as a volunteer at the Forge, as a guide to visitors (Sundays and occasional evenings) or in other ways. Please could they contact me at ☎ 0114 230 7693.

Derek Bayliss

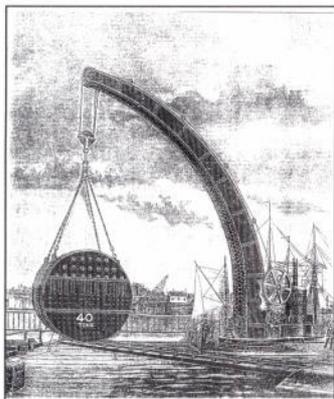
## Davis & Primrose Ltd

During the winter of 1984, the National Museums of Scotland acquired an early steam hammer made by Davis and Primrose, a firm probably unique in the east of Scotland for including such items on its production list. The hammer is of the cross-head type, with twin parallel standards, set so that a bar can pass through. It can be seen today at Sunmmerlee Heritage Park, Coatbridge, where it is on loan.

Davis & Primrose were established as engineers and machine-makers in 1866, although their first mention in the *Edinburgh & Leith Post Office Directory* appears in the 1867-68 edition. From the works at 33 Duke Street, Leith, there issued a wide range of steam engines and machine tools; according to an advertisement in the 1868-69 directory, this included 'printing machines - hydraulic presses, embossing machines, steam hammers, portable and fixed steam engines, lathes, planing machines and engineers' tools, sawing and planing machines and turning lathes for coopers. Repairs were also undertaken.

By 1875, Davis & Primrose were to be found at 35 Bangor Road, Leith, the site of their Etna Iron Works. From 1882-3 until their demise in 1932, they were at 49 Bangor Road. They became a limited company in August 1914, with Robert Elliot Davis, senior, and his son as first directors. The share capital of the company was £10,000, divided into ordinary shares of £1 each, but 18 years later the firm was wound up voluntarily.

Some of the firm's successful products can be seen in the fine engravings from late nineteenth and early twentieth century editions of *The Engineer* and *Engineering*. They are mostly bevelling, punching, and shearing machines intended for shipbuilders and boiler-makers. One of the most interesting items from the Etna Works was a 40-ton wharf crane set up at Messrs William Allen & Co's works at Sunderland in 1890, as shown in the illustration. This was used mainly for lifting marine engines and boilers in or out of ships. Massive foundations, mostly of concrete and using nearly 350 tons of material, were necessary to ensure stability. Under official tests, a load of 40 tons was raised, lowered and slowed with the greatest of ease. The engine cylinders had a 7-inch bore and 10-inch stroke, and employed Spence's



40-ton crane built by Davis & Primrose in 1890, as illustrated in *Engineering*

patent reversing motion. When running at 200 rpm, loads up to 7 tons could be raised at a speed of 13 ft per minute, and heavier loads at 4 ft per minute. The brake was worked either by hand lever or screw.

Ian Gentle

## Ferranti at Manchester

The Museum of Science & Industry in Manchester acquired the collection of archives and objects of the Ferranti International group of companies in February 1995. The collection, consisting of 300 linear metres of archives and about 1,500 objects, is the largest single acquisition ever made by the museum. The archives are held in the environmentally controlled Library and Record Centre, while the objects are in a recently acquired off-site store.

Museum staff have completed a detailed listing of the objects, which include electric meters, transformers, avionics and radar equipment, electronic components, radios, televisions, electric fires and electric clocks. The sheer number of records meant that the museum had to employ a temporary archivist, helped with grants from the British Library and North West Museums Service.

The collection reflects the growth and diversification of the company. From the late nineteenth and early twentieth centuries, when the core of the business was heavy electrical engineering, there are the original engineering drawings of the Deptford Power Station, early share registers, alternators, cables and meters. From the inter-war period, when Ferranti expanded the Domestic Appliances Department and created an Aircraft Equipment Department, there are product catalogues, the correspondence files of Sir Vincent Ferranti, and many domestic appliances. In the post-war period,

Ferranti moved into new areas of research and development, such as computer technology and industrial lasers.

The collection is a valuable resource for social historians. The archive is rich in photographs, ranging from photograph albums of victory celebrations, general factory views, Ferranti hydro-electric projects in South America and India through to annual dinner dances and company golf matches. They paint a vivid picture of life in the industrial North West and the activities of Ferranti employees in Britain and abroad. The many Ferranti domestic appliances reflect changing consumer tastes and demands.

The collection has already generated much interest from researchers. A PhD student from the University of Manchester is using the records to research the link between industry and education. Some images from the collection will soon be accessible on an experimental site being set up by the museum on the World Wide Web.

For further information, please contact the Curatorial Services Department at the Museum of Science & Industry in Manchester, Liverpool Road, Castlefield, Manchester M3 4FP, ☎ 0161 832 2244 Ext 256.

## Wey barges award

The magnificent work done by the National Trust in restoring the important heritage site of Dapdune Wharf, Guildford, was recognised by the Surrey Industrial History Group in September. The Trust was awarded the group's annual conservation plaque to mark the rescue of the former heart of the Wey Navigation, one of the first canalised waterways

in Britain. This was once a thriving barge-building centre of the Stevens family, among whose famous vessels were the *Reliance* and *Perseverance IV*, both of which have returned to their birthplace.

*Perseverance*, built in 1934-37, remains afloat and is owned by the Museum of London. *Reliance*, dating from 1931-32, plied her trade between Guildford and London Docks until she was sunk in collision with Cannon Street Bridge in July 1968. As business was by then in decline, she was not repaired but patched and towed to Leigh-on-Sea for use as a store barge. She was discovered here by the National Trust in 1989, badly vandalised, but was towed back to Dapdune Wharf to start the long process of restoration to display condition in the former graving dock.

Beside the vessels, many other parts of the working yard are on public view, including the steam chest, paint store, stable, barge repair shed, crane and carbide store. A superb interactive exhibition in *Reliance* and the carbide store explains the functioning of the waterway in way which can be easily understood by young and old alike. Dapdune Wharf is located in Wharf Road, Guildford, and further information about opening hours can be obtained from the Navigations Office, ☎ 01483 561389.

The SIHG Conservation Award is presented annually by the group, a part of the Surrey Archaeological Society, to a group or individual who has been active in preserving or restoring the county's industrial past for future generations to enjoy. The group is always interested in receiving nominations, which can be sent to SIHG, c/o Castle Arch, Guildford, Surrey GU1 3SX.



Wey Navigations Manager John Gibson (right) receives the 1998 SIHG Conservation Award from Surrey Archaeological Society President Richard Muir  
Photo: SIHG

## Flemish website

The Vlaamse Vereniging voor Industriële Archeologie (Flemish Association for Industrial Archaeology) was established in May 1978, when IA was almost unknown in Flanders, and industrial buildings and sites were rarely considered to be important. Thanks to the continuous efforts of the VVIA, the industrial heritage has now gained respect, industrial buildings are protected, and more and more local

associations and volunteers take care of industrial sites.

At present the VVIA acts as a forum for some 40 local and thematic groups, and the association has about 500 individual members. In each province the association has a provincial chapter who actively organises visits, meetings, conferences, etc.

To celebrate its 20th anniversary, the VVIA has launched its website. The webpages use in the first place

Dutch, but efforts are made by volunteers to translate the site gradually into as many languages as possible. There is information on the VVIA, associated societies, IA in Flanders, and much more.

Look up the VVIA at: <http://www.conservare.be/vvia/vviahome.htm>

## Daymark for £1

A prominent red and white daymark on Gribbin Head outside Fowey

harbour in Cornwall has been sold by Trinity House to the National Trust for just £1. The Trust already owns the headland and will make the top of the 84-foot Greco Gothic style structure accessible on certain days. The Gribbin Daymark has guided thousands of sailors (including your editor) since it was erected in the 1830s.

## PUBLICATIONS

### Short Notices

**Industrial Heritage: The People and Places of Industry** (National Trust, 1998)

A fold-out map, with selected colour photographs and descriptions, locates 58 industrial sites of all types owned by the National Trust. Sponsored by Green Flag, this leaflet can be obtained from the Trust's Information Centre, The National Trust, PO Box 39, Bromley, Kent BR1 3XL. ☎ 0181 315 1111.

**Manx Mines and Minerals**, presented by Charles Guard (Duke Video, 1998)

A video documentary which takes an in-depth look at the history of mining on the Isle of Man, from remote Bronze Age sites to the Laxey Mine's great waterwheel and a spectacular journey deep underground. £14.99 incl. P&P, from Duke Video, PO Box 46, Douglas, Isle of Man, IM99 1DD.

### Books Received

The following books have been received for review in *Industrial Archaeology Review*:

**Rural Water Supply in Somerset**, by Derrick Warren (SIAS Survey Number Ten, 1998) 40pp, 50 ills, ISBN 0 9509776 9 1.

This book deals with examples of supply systems in both Somerset and Dorset, and highlights the part played by private benefactors providing for smaller communities until the advent of Urban and Rural District Councils.

**The Buildings Conservation Directory** (Cathedral communications Ltd, 1997) 184pp, ills, ISBN 0 9520080 9 2.

A guide to specialist suppliers, consultants and craftsmen in traditional building conservation, refurbishment and design.

**Buildings at Risk: a new strategy** and **Buildings at Risk: The Register 1998** (English Heritage, 1998) 36pp and 124pp.

The first of these booklets sets out to define English Heritage's policy on buildings at risk which is firmly rooted in the experience gained by them in saving much of England's built heritage and funding others to do the same. The register brings together information on all the Grade I and II\* listed buildings and scheduled ancient monuments known to be 'at risk' through neglect and decay, or vulnerable to becoming so.

**Harbour Lights**, by John Hume (Scottish Vernacular Buildings Working Group, 1997) 64pp, 66 ills, £6.00, ISBN 1 901971 00 7.

This book provides a comprehensive survey of Scotland's harbour lights, including a gazetteer. It is fully illustrated with maps and line drawings.

**Taking stock of Ireland's industrial heritage**

The proceedings of a conference held at Tailor's Hall, Dublin, on 30 November 1996.

**Civil Engineering Heritage: Ireland**, by R.C. Cox & M.H. Gould (Thomas Telford Publications, 1998) 296pp, 250 ills, £12.50, ISBN 0 7277 2627 7.

A welcome volume on Irish civil engineering sites in the whole of the island. Following a general introduction, seven geographical chapters provide brief information and illustrations for over 200 sites.

**The Lewisham Silk Mills and the History of an Ancient Site**, by Sylvia Macartney & John West (Lewisham Local History Society & GLIAS, 1998) 113pp, 24 ills, ISBN 0 9508262 5 1.

A corrected and enlarged edition of a book published in 1979 which presents the story of armour, small arms and silk manufacture and also of gold and silver wire drawing.

**Studies in the History of Civil Engineering, Volume 6: Port and Harbour Engineering**, ed. by Adrian Jarvis (Ashgate Publishing, 1998) 416pp, 125 ills, £85.00, ISBN 0-86078-755-9.

The sixth volume in the series of reprints includes 17 articles published between 1925 and 1993. They encompass a wide range of locations, from harbours in use up to the early days of the Roman Empire to harbours of Port Natal, Freemantle and the Indian Ocean. Articles on British ports and installations cover Grimsby, Sunderland, Ramsgate, Hull, Plymouth, London Dock, Millwall Docks, Bristol and Liverpool.

**The Cumbrian Industrialist**, Volume One, ed. by Graham Brooks & Blake Tyson (The Cumbrian Industrial History Society, 1998) 56pp, 9 ills, £4.50, ISBN 0 9533799 06.

This is the first of a series of occasional papers to be produced by the Society. It includes papers on William Brownrigg, a pumping engine for Isabella Pit, Reake Wood tile kiln, and a list of Cumbrian iron mine and smelt sites.

### Local Society and other periodicals received

Abstracts will appear in *Industrial Archaeology Review*.

**BIAGscope**, 39, Summer 1998

**Context**, No.58, June 1998

**GLIAS Newsletter**, 176, June 1998; 177, August 1998

**Institute of Historic Building Conservation News**, 4, February 1998; 5, May 1998

**PHEW Newsletter**, No.78, June 1998

**Sussex Industrial Archaeology Society Newsletter**, No.99, July 1998

**TICCIH Bulletin**, No.1, July 1998

**Triple News**, Nos.2-4, Spring-Autumn 1997

**Wind and Water Mills**, No. 17, 1998

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**Northern Ireland**

I have reported previously on proposals for re-watering canals (*IA News 95 and 99*). There have been more recent developments.

Will it be 'third time lucky' in the application for grant aid for re-watering part of the Lagan Navigation? The first scheme, which proposed a complete re-watering between Belfast and Lough Neagh, failed to secure the necessary funding from the Millennium Commission, as it was considered to be too large. The second scheme - revised downwards, to just re-water the navigation between Belfast and Lisburn - was rejected by the Heritage Lottery Fund.

Now, Lisburn Borough Council aims to reopen to navigation a short stretch of the waterway, including lock 12. The proposal forms an integral part of the council's scheme to build a new council chamber, council offices and a civic centre. The site, known locally as 'The Island', is bounded on three sides by the River Lagan and on the fourth by a canal cut (currently infilled) incorporating lock 12.

Because the precise extent, structural stability and physical condition of the lock chamber were unknown, the council authorised a 're-excavation' of the lock, under archaeological supervision. A small portion at the north end, below and beyond an access bridge, was left infilled to avoid disturbing high voltage cables which cross nearby.

The infilling has been removed, recording taken place and a series of trial pits and core drillings made. A large mooring bollard was retrieved from the infill and has been set aside for reuse. The lock survives throughout its entire length, and the walls are straight and vertical. Most of the stonework - a local red sandstone - is in surprisingly good condition, particularly for a lock built in the 1750s-60s. However, much of the facework that was repeatedly wetted and exposed to the air during locking had been replaced with brick.

Most surprising is the survival of a timber floor of uncertain, but relatively recent (twentieth century) date. This consists of planking, placed parallel with the walls of the chamber, secured to large timber baulks laid across the width of the lock and built into the lower courses of the wall.

The consulting engineers have developed a scheme to stabilise the walls and to replace the brick infill



*Mason's mark on the sandstone wall of lock 12, Lisburn  
Photo: NI Environment and Heritage Service*

with new stonework. The timber baulks in the floor will be retained, but the planking will be removed and a new concrete floor and sills inserted.

The restoration of this historical lock is technically feasible, but it will be costly. Here's to hoping that funding will at last become available for this first phase in the re-watering of the Lagan Navigation.

Meanwhile, an application for a Heritage Lottery grant for the Newry Canal is currently under consideration. The future of this sensitive scheme for re-watering hangs in the financial balance. Watch this space for further information!

Consultants have completed a (cross-border) study and reported on the options for re-watering the Ulster Canal, the final missing link in the chain of navigable waterways between the great Shannon/Erne system and Lough Neagh. There were two options: to keep this as the narrowest major canal in Ireland, or reconstruct the canal with wider locks and reaches. Conservationists favoured the former, the charter boat lobby the latter.

The consultants' recommended option is a compromise scheme, with aspects to suit conservations and others to suit commercial/pleasure boat users. It proposes widening most of the lock chambers but retaining the historical bridges, and working from only one side of the reaches so disruption to wildlife will be minimised. Two by-passed sections of reach and associated locks, at either end of the canal (ie. one in the North and one in the South) would be retained at the original width, hopefully 'in water'. In addition, detailed appraisal will be made of the most important historical structures along the waterway. If

alteration is deemed inappropriate, then by-passing will be considered, again retaining these historical features 'in water'.

At present, the chances of achieving this ambitious scheme appear to be quite slim. However, following the *Good Friday Agreement*, which includes specific reference to 'Waterways - Inland Waterways' (page 13, ANNEX, item 5) and the planned development of cross-border co-operation, the scheme may yet receive the necessary support.

*Michael Coulter*

**South East England**

Possibly the single most significant IA news from Surrey this year has already been reported in these pages: the purchase of the Victorian Farnham Pottery by a local trust to prevent its demolition and replacement by housing (see *IA News 105, 11*). Work has started to provide reduced and modernised accommodation for the pottery business of A. Harris and Sons which originally founded the site back in

1873. An application for listed building status is going ahead and work on weather proofing the rare surviving wood-fired bottle kiln is about to start. It is hoped that this will one day form the nucleus of a small on-site museum of the pottery's production. An appeal is to be launched for funds to help complete the restoration of the buildings.

Also in Surrey, and indeed also in Farnham, sympathetic conversion of a bank of six listed hop kilns into luxury housing has just been completed. Built in the 1880s, this was a very early use of mass concrete in an industrial scale agricultural building. Hops entered on one side of the building, passing through the width before exiting in carts on the far side. Part of this 'production line' process utilised Hetherington's patent hop kiln floors made in Alton.

Other Surrey projects include the restoration, for arts use, of the first multi-story car factory in the world at Guildford. This is Rodboro Buildings built for Dennis Brothers around the end of the first world war. Having stood empty and dilapidated for many years, work is underway and the building is presently shrouded in polythene.

Lowfield Heath windmill is now fully restored on its new site at Charlwood (see *IA News 106, 12*), while the future of nearby Outwood still seems uncertain. On a smaller scale, but nonetheless a superb restoration job, is the conversion of the former railway goods shed at Farnham to a tyre and exhaust centre. Despite being in constant occupation by a succession of businesses, the fabric had been allowed to decay badly. Now it is restored to almost pristine Southern Railway condition, only with cars frequenting the loading bays instead of rail wagons.



*Workers outside the Farnham Pottery around the turn of the century. The buildings and kiln have been saved  
Photo: Chris Shephard*

A new use for a former railway building is also news in Hampshire. At Hythe, the former railway station stood in the centre of a proposed housing development, but the local authority and housing association were persuaded to allow it to survive as the Waterside Heritage Centre on a long lease. This will include an exhibition area, lecture theatre, workshop/preparation area, dark-room, archive store and study area.

The Bursledon Brickworks Trust has completed the first phase of the restoration programme. An appeal has been launched, including an application for lottery funding, to rebuild the inclined plane that fed clay to the brick extruding machines, and improve facilities for the Centre for the Conservation of the Built Heritage here.

At Wickham, Hampshire County Council have purchased the 1820s Chesapeake Mill. Although listed grade II, it had been on the buildings-at-risk register. The building, constructed partly of timbers from an eighteenth-century American frigate, is to be restored and re-opened by the millennium. Power sources here changed over the years, originally a breast shot waterwheel but later utilising electric power to drive roller and crusher animal feed plant and a turbine to drive the mixer and hoist.

At Weyhill, near Andover, concern has been expressed at the state of the remaining cob walls of the booths from the famous fair. This was a traditional hiring and selling fair at the junction of a number of early roads. Held in October, the site was once owned by Chaucer. Hops were particularly important, with loads arriving from as far afield as Surrey and Kent. Prices fetched set those for much of the country and were even quoted in the *Edinburgh Gazette*. Studies are being undertaken to find the best method of stabilising and preserving the remaining booths.

On a sad note, a piece of printing history was sold to the scrap man for £35 per ton during the year. This was the HOE rotary letterpress press for the *New Milton Advertiser*. Despite attempts to donate it to a museum, no takers could be found for this 1903 giant.

Hampshire's 'dirt' archaeologists have been at work at Buckler's Hard on the Beaulieu River. It was the site of a shipyard responsible for building 55 'ships of the line' in the eighteenth century, including the gunship

*Agamemnon*. It appears that the whole slipway lies preserved below the surface of the mud, not just the quay edge as previously thought.

The Sussex IA Society received a Heritage Award during the year for the work they had done, since 1982, in restoring to working condition one of the swing bridges on the Chichester Canal, originally built in 1820. The bridge, located at Hunston but now moved one mile upstream, served for farm access and was cast by C.H. Tickell of Southampton. Hopefully, the restored bridge will become the start of a heritage area centred on the canal basin.

The new owner of Haxted water mill in Surrey has been given permission to convert part of the structure to domestic accommodation. Previously this had been a milling museum, so most of the equipment was still *in situ*. Some of the museum items have been transferred to the Sussex Mill Group's Ifield Mill for future use. Work is currently in progress on the cross boarding of the waterwheel and restoration of a Eureka scouring and separating machine of c.1886 acquired from Battle.

Unfortunately, I have received no news from Kent this time.

Chris Shephard

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## REGIONAL CORRESPONDENTS

Please support your Regional Correspondent by sending relevant material which may be of interest to our readers.

### Region 1: SCOTLAND

Dr Miles Oglethorpe, Royal Commission on the Ancient and Historical Monuments of Scotland, John Sinclair House, 16 Bernard Terrace, Edinburgh EH8 9NX

### Region 2: IRELAND

Michael Coulter, Department of Environment, Historic Monuments and Buildings, 5-33 Hill Street, Belfast 1

### Region 3: NORTHERN ENGLAND

Cumbria, Northumberland, Tyne and Wear, Durham and Cleveland  
Fred Brook, Hartland, Redburn, Hexham, Northumberland NE47 7EA

### Region 4: YORKSHIRE AND HUMBERSIDE

North, South and West Yorkshire, and Humberside  
Derek Bayliss, 30 Muskoka Avenue, Bents Green, Sheffield S11 7RL

### Region 5: NORTH WEST ENGLAND

Lancashire, Merseyside, Greater Manchester and Cheshire  
Mrs Edwina Alcock, 5 Friars Walk, Formby, Merseyside L37 4EU

### Region 6: WALES

Stephen Greuter, 16 Ffordd Trem-y-Foel, Parc Bryn Coch, Mold, Clwyd CH7 1NG

### Region 7: WEST MIDLANDS

Shropshire, Staffordshire, West Midlands, Warwickshire, Hereford and Worcester

John Powell, Ironbridge Gorge Museum Trust, The Wharfage, Ironbridge, Telford, Shropshire TF8 7AW

### Region 8: EAST MIDLANDS

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David Lyne, 10 Somerville Road, Leicester LE3 2ET

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David Alderton, 48 Quay Street, Halesworth, Suffolk IP19 8EY

### Region 10: GREATER LONDON

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Hampshire and Isle of Wight, Surrey, Sussex and Kent

Chris Shephard, Rose Cottage, 22 Ridgeway Hill Road, Farnham, Surrey GU9 8LS

### Region 13: WEST OF ENGLAND

Somerset, Avon, Gloucestershire, Wiltshire and Dorset

Mike Bone, Sunnyside, Avon Close, Keynsham, Bristol BS18 1LQ

### Region 14: SOUTH WEST ENGLAND

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13 January 1999

**HYDRO-ELECTRICITY IN NORTH WALES 1880-1948**

at Savoy Place, London, free lecture by Dr Gordon Woodward. For further information, contact Helen Pope, IEE, Savoy Place, London WC2R 0BL. ☎ 0171 344 5439, Fax 0171 497 3633, e-mail hpope@iee.org.uk

27 February 1999

**VISIONS OF SCOTLAND'S PAST: LOOKING TO THE FUTURE**

at New Lanark, to take stock of Scotland's built heritage and to pay

tribute to the work of John Hume. See inside for more details. Booking forms available from 'Visions Conference', c/o Architectural Heritage Society of Scotland, The Glasite Meeting House, 33 Barony Street, Edinburgh EH3 6NX, or Miles Oglethorpe at RCAHMS, 16 Bernard Terrace, Edinburgh EH8 9NX (e-mail: miles@rcahms.gov.uk).

27-28 March 1999

**AIA IRONBRIDGE WEEKEND**

at the Long Warehouse, Coalbrookdale, on 'Raising funds, including Lottery money - steps to

success'. Details from David Alderton, 48 Quay Street, Halesworth, Suffolk IP19 8EY.

**10 April 1999 SOUTH EAST REGION IA CONFERENCE**

at the University of Reading, hosted by the Berkshire IA Group, a programme including cinemas, Brede Waterworks and importance of geology and groundwater to industry. Details from Dennis Johnson, 20 Auclum Close, Burghfield Common, Reading, RG7 3DY.

17 April 1999

**30TH SOUTH WALES & WEST REGION IA CONFERENCE**

at Shaftesbury Upper School, hosted by the Dorset IA Society. Conference, followed by optional visits to a local mill or the RN cordite factory site at Holton Heath. Details from Tony Innes, 10 Gold Hill, Shaftesbury, Dorset SP7 8HB.

*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.*

# AIA

Association for Industrial Archaeology

**Announcing the three Fieldwork and Recording Awards for 1999**

The AIA Fieldwork Award scheme exists to encourage recording of the physical remains of the industrial period to high archaeological standards. The awards are open to both amateur and professional field workers, and have been operating successfully for many years.

Work submitted may already have been published or, if not, may be encouraged to publish.

As well as the main award there is also the Initiative Award for innovative projects, e.g. those from local societies; and to encourage the future industrial archaeologists, a Student Category.

**THE CLOSING DATE FOR ENTRIES IS 1st MAY 1999**

Successful Entries will be notified in August

The successful authors will be invited to attend the AIA annual conference in Kent to collect their awards in September 1999

Entries should be sent to:

Shane Gould, Archaeological Advisory Group, Planning  
Essex County Council, County Hall, Chelmsford, Essex CM1 1LF

**FURTHER DETAILS WILL ALSO BE AVAILABLE FROM THE ABOVE ADDRESS**



**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.*

*Final copy dates are as follows:*

- 30 March for May mailing
- 30 June for August mailing
- 30 September for November mailing
- 30 December for February 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.



*The 1880s hop kilns at Moor Park Farm, Farnham, before conversion to housing. The later added verandah and balcony, from which the hops were loaded into the six kilns, are the only parts of the structure to have been removed (see page 14)*

*Photo: Chris Shephard*