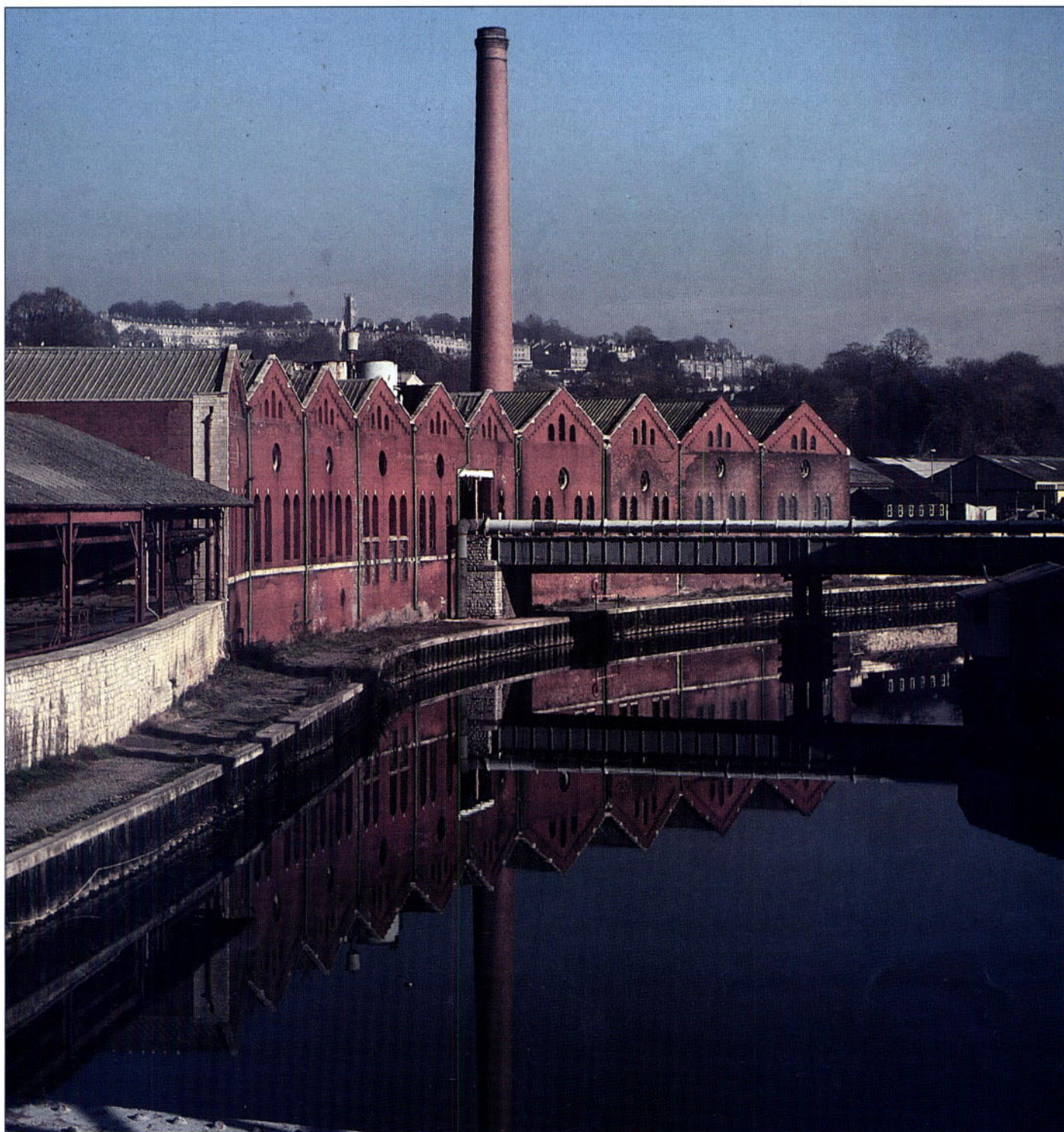


INDUSTRIAL ARCHAEOLOGY NEWS

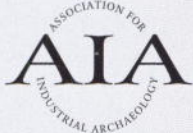
124
SPRING
2003

THE BULLETIN OF THE ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

FREE TO MEMBERS OF AIA



Greek soap • Submarine conservation • Heritage Link • Beehive award
linoleum letters • Dorset water day • Coldharbour Mill • regional news



INDUSTRIAL ARCHAEOLOGY NEWS 124 Spring 2003

Honorary President

Prof Angus Buchanan
13 Hensley Road, Bath BA2 2DR

Chairman

Mike Bone
Sunnyside, Avon Close, Keynsham, Bristol BS31 2UL

Vice-Chairman

Prof Marilyn Palmer
School of Archaeological Studies, The University,
Leicester LE1 7RH

Secretary

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

Treasurer

Richard Hartree
Stables Cottage, Sibford Ferris, Banbury OX15 5RE

IA Review Editor

Dr David Gwyn
Nant y Felin, Fford Llannllyfni, Pen y Groes,
Caernarfon LL54 6LY

IA News Editor

Dr Peter Stanier
49 Breach Lane, Shaftesbury, Dorset SP7 8LF

Affiliated Societies Officer

Prof Ray Riley
8 Queen's Keep, Clarence Parade, Southsea, Hampshire
PO5 3NX

Conference Secretary

Tony Parkes
60 School Lane, Hill Ridware, Rugeley WS15 3QN

Endangered Sites Officer

Dr Mike Nevell
University of Manchester Archaeology Unit, University
of Manchester, Oxford Road, Manchester M13 9PL

Librarian and Archivist

John Powell
c/o IGMT, Ironbridge, Telford, Shropshire TF8 7AW

Recording Awards Officer

Dr Victoria Beauchamp
3 Parsonage Court, Parsonage Crescent, Walkley,
Sheffield S6 5BJ

Sales Officer

Roger Ford
Barn Cottage, Bridge Street, Bridgnorth, Shropshire
WV15 6AF

Honorary Vice-Presidents

Sir Neil Cossons John Hume
Stuart B. Smith

Council Members

Dr Robert Carr Dr Paul Collins (co-opted)
Barry Hood (co-opted) David Lyne
Michael Messenger Dr Mary Mills
Peter Neaverson

Liaison Officer

Simon Thomas
AIA Office, School of Archaeological Studies,
University of Leicester, Leicester LE1 7RH
☎ 0116 252 5337, Fax: 0116 252 5005
e-mail: AIA@le.ac.uk

Website:

www.industrial-archaeology.org.uk

COVER PICTURE

IA News goes for colour: a nostalgic view of the gas works by the River Avon in Bath, 1975. The Editor invites readers to submit colour images for publication in future issues.

Photo: Peter Stanier

Olive Oil Soap Factory, Kardamyli, Greece

An olive oil soap factory complex at Kardamyli, 20km southeast of Kalamata in the Peloponnese, was surveyed during two brief, productive, and somewhat furtive visits in June 2000 – the total time on site being no more than two hours. The project's time-limited research goals were threefold: to identify and record standing structures and surviving plant; to investigate oral histories provided by local residents; and to produce an initial interpretation of the site.

Paul H Vigor

The Greek village of Kardamyli, with its red tiled, hip-roofed houses, Orthodox churches, shops, tavernas and kafeneons, represents a typical example of contemporary settlement in the Mani Peninsula. Kardamyli is recognised for the quality, and size of its olives. In most Manian villages the tallest structures one is likely to encounter are the region's famous medieval fortified tower houses, but in Kardamyli the loftiest, most visually dominant feature is a substantial, brick industrial chimney of the village's long defunct olive oil soap factory.

The origins and later history of the Kardamyli soap factory site appear somewhat enigmatic – an ability to converse in Greek would have helped! Apparently industrial activity commenced (date unknown) with the establishment of an olive oil mill. The site was substantially redeveloped c1932-33 and equipped to manufacture olive oil soap. Local sources suggest that a significant percentage of the factory's product was dispatched to the British market. Two explanations were proffered accounting for the plant's demise. Firstly, the factory was irreparably damaged by Italian forces during the Second World War, and subsequently abandoned. Secondly, the factory survived the hostilities only to close in the 1950s due to a combination of worn out, obsolete equipment and growing competition from modern plants in Kalamata.

In its heyday, the social and economic effect of the factory upon Kardamyli and environs must have been considerable – as both employer and consumer. It seems likely that many villagers found employment at the plant. Furthermore, the establishment of an olive oil-dependant industry must have boosted demand for the area's olive crop (a parallel between 1930s Greek olive oil soap manufacture, and the development of British sugar beet milling in the same decade?). However, the village's older residents appear to share one abiding memory of the factory – its novel introduction of electric lighting to this part of the Mani. Whilst this power source was probably confined to the factory site, many local people were undoubtedly introduced to the 'electric revolution' within the factory's walls.

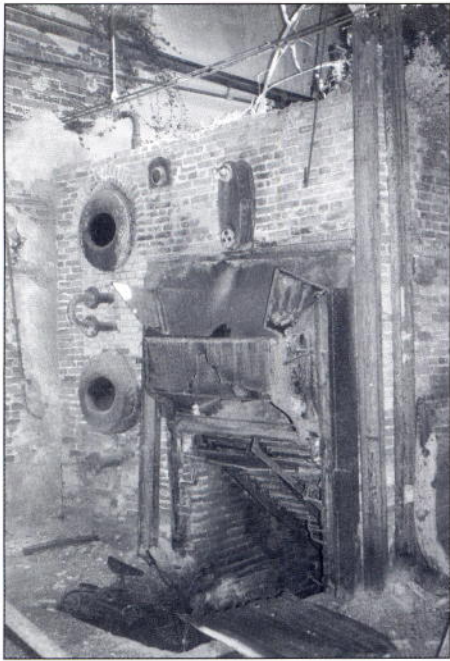
Judged by usual British standards, this twentieth-century industrial archaeological site appeared unique. Although decayed and overgrown, it displayed no obvious signs of gratuitous vandalism: no deliberate, mindless destruction; litter; graffiti; or debris indicating drug/substance abuse. Furthermore, the total absence of footprints in the dust suggested that visitors – human or animal – are few and far between (the author admits to having left one or two footprints during his visit!). The factory's buildings and structures were situated around three sides of an overgrown yard. The northern range comprised bulk storage tanks, bins and/or bunkers; the eastern side accommodated an engine house; and the southern range included a substantial boiler house with associated chimney, and soap production buildings. The western, seaward, side of the yard was undeveloped.

Preliminary investigation suggested that the factory's buildings represented two distinct phases of construction – the first rubble stone-based, the second brick and/or reinforced concrete. Roofing materials comprised either red tiles on timber framework, or corrugated iron supported by lightweight steel trusses. Stone



Kardamyli Soap Factory viewed from the west. The first phase soap preparation building is in the centre, with adjoining reinforced concrete oil fuel tank and pump house. The second phase extension (right) displays possible war damage

Photo: Paul Vigor



The smaller high pressure steam boiler, possibly an inclined tube generator of unknown make. The stoking hole, hopper, step-type grate and ash pit are clearly illustrated
 Photo: Paul Vigor

structures included part of the soap production building, and the engine house. Brick and/or concrete was utilised to construct the boiler house, the chimney, bulk storage facilities, two elevated tanks (one for fuel oil and the larger one holding water for the boilers?), and extensions to the soap production building. However, closer inspection of the buildings' fabric indicated two constructional phases, but three building styles – the use of stone being common to both phases. Whilst one stone building – the engine house – was clearly second phase (being directly related to the second phase boiler house), the stone-built portion of the soap production building appeared to represent earlier, first phase development. Thus, archaeological examination focused upon this particular building – with close attention being paid to building styles and fenestration. Observations made on site, and subsequent photographic analysis supported the two-phase, three style hypothesis.

The partially rendered, first phase portion of the soap production building appeared to predate the soap factory, displaying evidence suggesting adaptive reuse. As originally built, the structure may have featured a hipped roof, replaced (c1932-33?) with a conventional steel framed, corrugated iron clad, pitched roof. The first phase building featured segmented stone window and door arches. Conversion, and second phase extension, for soap manufacture required the blocking of certain windows, with others adapted to accept reinforced steel joists, and steel window frames. Stone-arched door openings were likewise remodelled.

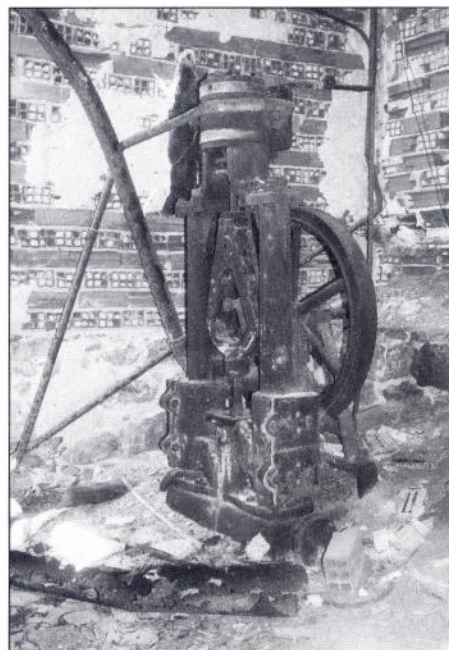
External examination of various occupied, residential buildings adjoining the factory site suggested that – stripped of its industrial additions and corrugated iron roof – the first phase structure, as originally built, may have appeared very similar. A hip-roofed building,

adjoining the southern end of the second phase portion of the soap production building, may have perhaps been a warehouse/packing shed and/or office. It is suggested that this building may indicate how the first phase soap production building might have appeared prior to conversion.

Although suffering the destructive effects of a salt-enriched, marine climate, much of the factory's machinery remains *in situ* and basically intact.

The factory's prime mover was high-pressure steam, conveyed to both the soap production building and the engine house. Steam was generated in two water tube-type boilers of unknown origin, although one may be a product of Babcock & Wilcox (B&W), or represent a pirated copy of one of their designs. Both boilers shared common features including: manual stoking; longitudinal boiler drums; and steel-framed, brick-built combustion chambers. However, internal arrangements – especially the layout/number of tubes etc – appeared to differ. The larger boiler (54 tubes) featured a circular drum head with fittings (including a pressure gauge, and the remains of two gauge glasses), wrought headers, and handhole fittings closely resembling B&W's W.I.F.-Type boiler. The smaller boiler featured an ovoid drum head with remains of a single gauge glass, but no pressure gauge, headers, or handhole fittings. This may prove to be a simplified form of water tube boiler known as an inclined-tube generator. It remains unclear why two differing types of boiler were supplied to the factory.

Both boilers were equipped for manual stoking. Hand-loaded hoppers fed fuel onto inclined, step-type grates placed over ash pits. The use of step grates may suggest the boilers were designed to burn lignite. Supplies of lignite may have been transported by sea from a mine at Pastrova (near Stoupa) 10km south of Kardamyli.



Vertical steam engine, originally built as a pump and here employed to drive a generator
 Photo: Paul Vigor



Pickering Combination steam governor assembly supplied for the Averly horizontal steam engine, seen inside the collapsed engine house
 Photo: Paul Vigor

This mine was managed by one George Zorbas, who was immortalised by Nikos Kazantzakis as the character 'Zorba' in his novel *Zorba the Greek*.

The soap production building was divided into two processing areas, the southern (second phase) portion housing soap mixing, and the northern (first phase) soap condensing. The building hosted three small, single cylinder, flywheel equipped, vertical steam engines (devoid of maker's plates). Inspection suggested that all three engines were built as pumps. The first engine pumped fuel oil to three boilers apparently providing low-pressure steam for condensing mixed soap. The second turned a small electricity generator via a drive belt, whilst retaining its redundant pumping mechanism. The third, its pump removed, appeared to drive two sets of line shafting powering mixing and condensing plant.

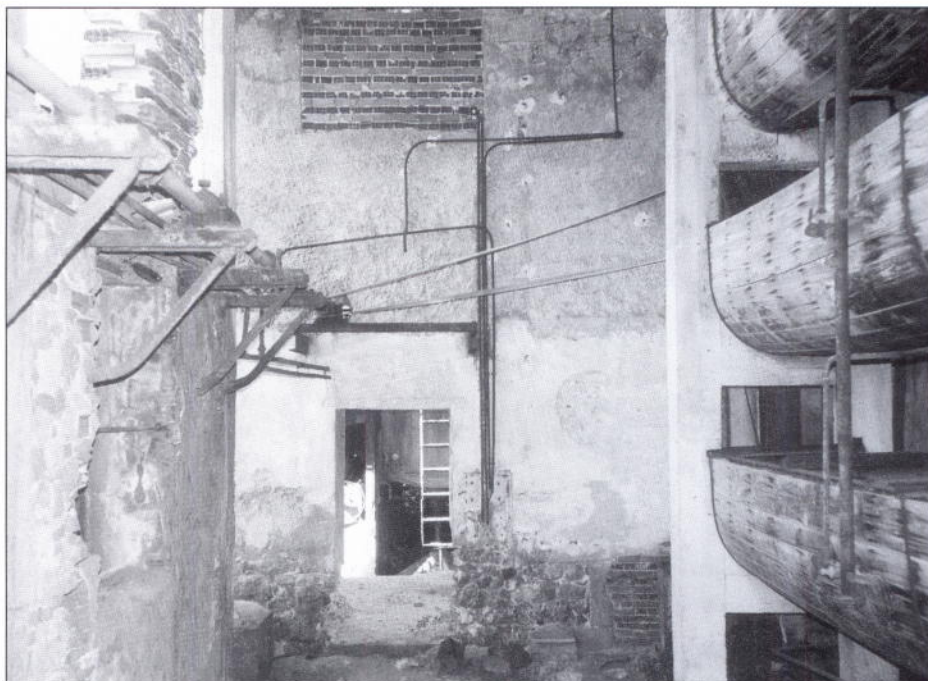
These three engines might represent products of two separate manufacturers – two engines apparently sharing common design features. For example, the cylinders of the engines driving machinery were supported on pairs of iron columns appearing to act as slidebars – guiding and supporting triangular crossheads. These crossheads incorporated gudgeon pins and coupling rods transferring drive to the flywheel axles. Rods descending from the crossheads provided drive directly to the pumping mechanisms. The cylinder of the pumping engine was supported on an iron frame. No slidebars or crosshead were provided, the piston rod simply coupled to the connecting rod via a gudgeon pin, thence rotating the end of a crankshaft driving both flywheel and pump. The smaller flywheel, and apparently shorter throw of the piston rod, may confirm the pumping engine as the least powerful vertical engine on site. However, of the three, this engine appeared technologically more

advanced. Considering the presence of such a peculiar assortment of engines, it seems likely all three may have been obtained second-hand.

The purpose-built engine house contained a twin cylinder, horizontal steam engine, mostly buried beneath the collapsed roof. The only extant works plate identified the engine as a product of one Georges Averly of Lyon, France, but with no date of manufacture or works number. However, an American steam governor was supplied by Pickering of Portland, Connecticut, numbered 511528B. This may eventually indicate a construction date for the engine. The exclusive purpose of this engine was to rotate an electricity generator via flywheel and drive belt. The generator remained *in situ* but derelict. Electricity was conveyed around the walls of the factory via a network of wires supported by ceramic insulators, and appeared limited to providing electric light.

Machinery related to soap making was housed within the first and second phase portions of the soap production building. Olive oil soap manufacture, as practised at Kardamyli, appeared to involve two principal processes: the combination and thorough mixing of ingredients; and the condensing and solidification of the resulting viscous concentrate. Machinery for both processes was powered by steam-driven line shafting. Mixing was undertaken in the second phase building. Ingredients were combined in a battery of three wooden troughs supported by a reinforced concrete frame. These troughs were fitted with mechanical mixing blades – resembling the blades of a cylinder lawn mower. The mixing process appeared to involve transferring product upwards, from one trough to the next. Upon reaching the top trough, the mixed soap was passed through the dividing wall into the first phase part of the building for condensing.

The condensing process seems to have required pouring the viscous soap mix into large, fully enclosed, riveted steel vessels. These vessels, resembling pressure cookers, were fitted with rotating paddles to agitate the contents, the paddles being driven by gearing linked by belts to line shafting. The vessels appeared to have been heated with low-pressure steam supplied by adjacent oil-fired boilers; the presence of steam



Second phase soap preparation building, with a battery of soap mixing troughs on the right and line shafting on the left with one belt in situ
Photo: Paul Vigor

may account for the vessels' strong construction. Having been condensed the soap was discharged into a trough. Presumably the soap was thence removed elsewhere in the factory to be moulded, solidified, and packaged for sale.

It is suggested that the Kardamyli soap factory site initially comprised at least two residential properties. The redevelopment of the site in the early 1930s resulted in these two properties being linked by the (second phase) production building, and the enclosure of the factory yard with ranges of buildings and structures. It was not possible to confirm that olives were milled on the site – no milling equipment was identified. However, such equipment could have been removed completely during the early 1930s. Investigation confirmed that electricity had been generated on site, and that it appeared restricted to lighting. Thus, the site effectively illustrated the transition of twentieth-century industry from steam to electrical power.

With regard to wartime activities,

examination of the fabric of the structures confirmed significant damage on the western, seaward, side of the factory. It is tempting to speculate that the factory may have been subjected to naval bombardment – the chimney providing a tempting target! However, whilst structures had been damaged, the machinery within appeared intact. It is possible that the factory remained operational throughout the war years, only to close in the 1950s. Further oral histories may provide answers.

Although the Kardamyli soap factory represented a significant departure from the author's established research interests (the early British iron industry; and the archaeological analysis of industrial landscape art) the complex proved a stimulating, and rewarding environment to visit and study. Whilst the distance separating the author from the site appears to rule out further personal investigations, it is to be hoped that the Greek chapter of TICCIH may consider the Kardamyli site worthy of detailed investigation – if not preservation.

ANNOUNCING THE THREE FIELDWORK AND RECORDING AWARDS FOR 2003

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 over a decade.

Work submitted may already have been published or, if not, entrants 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 2003

Successful Entries will be notified in August

The successful authors will be invited to attend the AIA annual conference in Cardiff to collect their award in early September

Further details from:

Fieldwork and Recording Awards, AIA Liaison Officer, School of Archaeological Studies, The University, Leicester, LE1 7RH

Conservation of the *Holland 1* submarine

A project to restore the Royal Navy's first submarine, Holland 1 – which first set sail in 1901 and lay on the seabed for 69 years – has won the UK's premier conservation prize. In a ceremony at the British Library in November, conservator Ian Clark and the Royal Navy Submarine Museum were awarded the Pilgrim Trust Award for Conservation 2002 for their work in 'placing conservation at the very heart of the museum'. The museum is in Gosport, Hampshire, and for more information visit the website at www.rnsubmus.co.uk. Here the conservation programme is described.

Ian Clark

On 6 September 1776 the first submarine attack in history took place in New York harbour when an underwater vessel invented by a brilliant young American David Bushnell, attacked the British flagship *Eagle* during the American war of independence. The first recorded successful sinking of an enemy ship was during the American civil war when in 1864 the *Hunley* sank the Federal ship *Housatonic* at great cost – losing the vessel and all crew.

It was an Irish American John Phillip Holland who was instrumental in convincing the British Admiralty that the submarine was to be an integral part of emerging modern navies. In 1900 the Admiralty placed a secret order with the Electric Boat Company in America to supply five boats to be constructed under licence by Vickers Sons and Maxim at their yard in Barrow in Furness, England. The cost of each boat was to be £35,000 and *Holland 1* was launched on 2 October 1901. Ironically Holland's early financial backing was supplied by the Irish Fenian Society in America and was to be used to develop the submarine as part of hit and run terrorist attacks on the British Navy. The important historical footnote to the *Holland* design was the innovation of marrying the internal combustion engine with the electric motor and battery to provide motive power. The engine was an American produced 4-cylinder petrol engine made by the Otto gas engine works of Philadelphia.

After 12 years of experimental service *Holland 1* was decommissioned and sold for scrap to T. W. Ward Ltd for £410. Whilst under tow to a breaker's yard in South Wales the submarine was lost in bad weather and sank near the Eddystone Lighthouse.

In 1980 a local Plymouth historian sent a newspaper cutting to the Royal Navy Submarine Museum describing the loss of *Holland 1*, and this renewed interest triggered the research and subsequent finding of the boat on 14 April 1981. In September 1982 *Holland 1* was salvaged from a depth of 63 metres and taken to Devonport dockyard where she was cleaned and treated with fertan, a tannic acid treatment very popular and widely used and promoted during the 1970s.

By 1983 the boat was on display at the Royal Navy Submarine Museum, Gosport. It soon

became evident that the submarine was subject to severe corrosion, prompting a discussion and consultation period which focused on identifying the corrosion products and projected display concerns. An extensive scientific programme established the extent of metallic corrosion present within *Holland 1*, culminating in the development of a remedial preventative conservation strategy. Laboratory tests led to the identification and status of residual chlorides within the hull.

A ground breaking conservation project led by Hampshire County Council in conjunction with the submarine museum, University of Portsmouth and the Science Museum, led to the boat being completely immersed in a watertight GRP tank filled with 800,000 litres of a 5% sodium carbonate solution dissolved in water. This solution was to leach out the residual chlorides and to reduce the level to where they would present no future hazard. This process was to take approximately six years. The redisplay of *Holland 1* was to be the high point of the submarine service's centenary year celebrations due to take place during 2001.

In 1998 I was invited to attend a steering group meeting to help formulate a practical conservation strategy within the client's projected visitor framework and logistical parameters. At this stage the group consisted of corrosion scientists, architects and civil engineers, submarine museum management, Hampshire County Council and representatives from the Science Museum, London. *Holland 1* was now at an advanced conservation soak stage and it was imperative that an acceptable conservation method statement tailored to *Holland 1* was proposed and adopted before practical conservation could commence.

I believed that such a method statement could be a rich and diverse mix of modern conservation methodology and current ideology,

underwritten by a pragmatic and ethical approach. It was one that needed to fully satisfy the project management and embrace accredited professional bodies, but not to lose sight of the fact that *Holland 1* was an integral part of a maritime collection of national importance where access and education was paramount.

The choice of conservation treatment would directly influence the visitor's initial perception and lasting memories. The modus operandi, techniques and practical procedures would also be directly proportional to the required funding. The proposed submarine conservation treatment could be divided into three categories:

1. Hull – external surface treatment.
2. Hull – internal surface treatment.
3. Propulsion unit, transmission and all integrated systems.

As part of the earlier restoration programme many of the internal operation systems had been replicated to enhance the visitor experience. All these were to be removed, thus returning her to the condition in which she sank.

At this early stage the project rationale hinged on the decision whether to allow public access inside the boat. The structure of the hull and plate geometry had been severely compromised due to the time the vessel had spent on the seabed as a wreck, with the additional strains of salvage and the more recent metallic corrosion; the integrity of the vessel and her fundamental construction had indeed been weakened.

The cylindrical hull design of *Holland 1* had its own inherent strength and appeared to be in a fair and stable condition. The actual physical condition of the hull plating would directly influence the final choice of surface treatment and protective coating. An abrasive cleaning system able to comply to standard S.A 2.5 and above would be extremely aggressive. Such a robust solution applied to the hull could result in further perforations. We also needed to consider



Holland 1 cruising on the surface

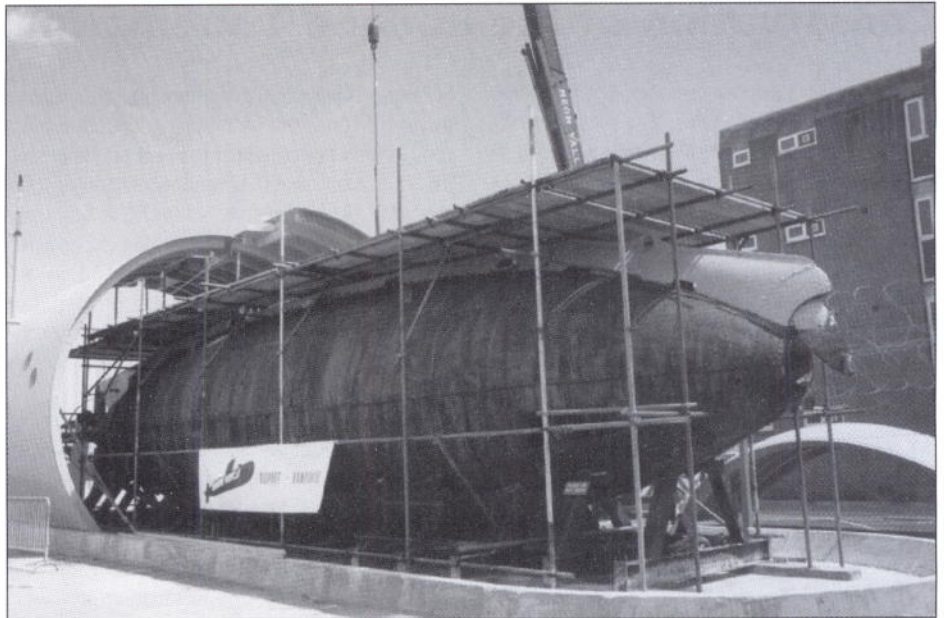
Photo: RN Submarine Archive

an exit strategy relating to any future paint removal for continuing plate condition assessment.

Surface preparation was to utilise a sensitive blast system. The flash blast was a copper slag abrasive graded 0.7mm to 0.2mm delivered using a combination of 260 cubic feet a minute of dried compressed air at 8 bar producing a low profile. Surface treatment was completed using a wax oil type product capable of carrying a vegetable based pigment to achieve the desired colour. Such a system has a proven technical performance, was very cost effective and quickly reversible if required.

From photographic evidence it was discovered that the upper section of the hull and areas of the superstructure were originally painted a different colour to the hull. Due to the particularly good condition of these areas it was decided that they would happily support a cosmetic finish. No corroded or perforated areas of plate work would receive this treatment. It was therefore proposed to enhance these specific areas by painting, and the results could be used in a successful interpretative role showcasing contemporary camouflage experiments.

A section of the hull interior is the point at which a mix of surface coatings could be used to enhance visitor enjoyment and aid interpretation. The internal frames and plating at the amidships section were in exceptionally good condition. This particular area contained very few original artefacts and would inevitably become the natural muster point for visitors. Forward and aft of this section, due to the sensitivity of the objects to be conserved, the hull plating and frames would be hand prepared and wax sealed. The conservation of the propulsion unit, transmission and all integrated systems throughout the vessel were directly influenced by five key factors: metallurgical microstructures; identification of



Constructing the special soak tank for treating the Holland 1

Photo: Ian Clark

material product; sensitivity of object; accessibility; and inclusion or exclusion as part of any Health and Safety implications.

All components of a sensitive nature, those suffering from severe graphitisation, high levels of metallic corrosion and/or fatigue fractures would be hand prepared and wax sealed in-situ. Carefully identified objects may if practicable, be removed for conservation treatment outside the vessel. This development of rationale and ethical framework was to form the backbone of the condition survey and conservation report. Supported and complimented by the scientific research, architectural designs and gallery interpretation, this became the foundation of the project submission to the Heritage Lottery Fund.

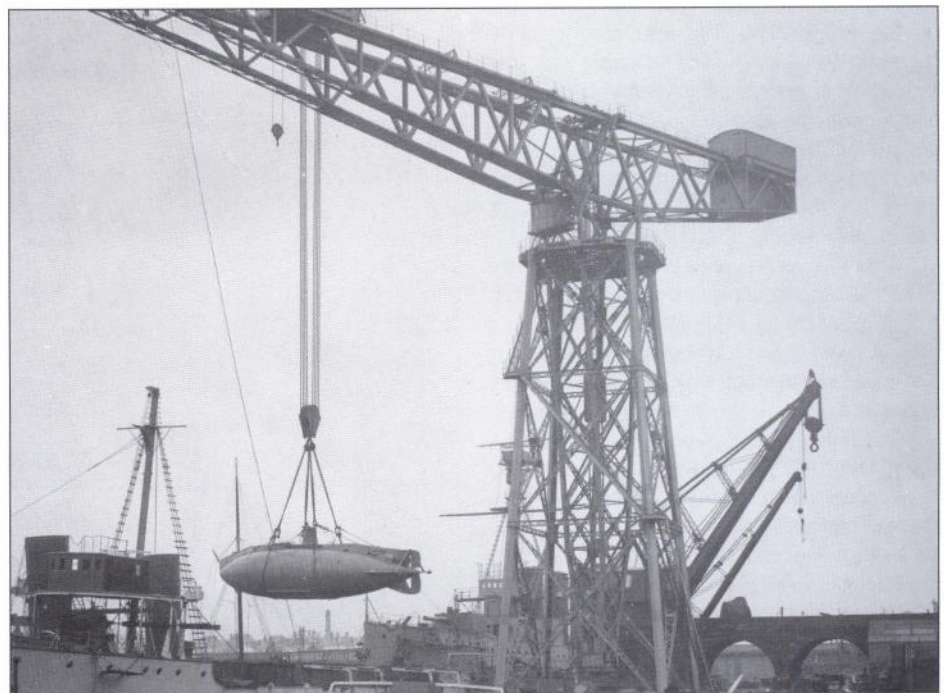
After six years of conservation treatment the soak tank was finally drained down and became

redundant. The end product of air abrasive cleaning on an industrial scale is mass fallout of spent abrasive medium. The soak tank now became the controlled environment in which all dirty work could take place. The logistical restrictions offered up by the display site, a narrow strip of land formerly the approach to the Royal Haslar Hospital, meant that the proposed construction site was very close to the submarine museum's public areas. All primary surface preparation was completed within the sealed space of the soak tank.

The prominent construction material used throughout the engine was grey cast iron complimented with smaller components produced in possibly wrought iron, steel and copper/zinc alloys. Most engine components pertaining to the valve gear, ignition, lubrication

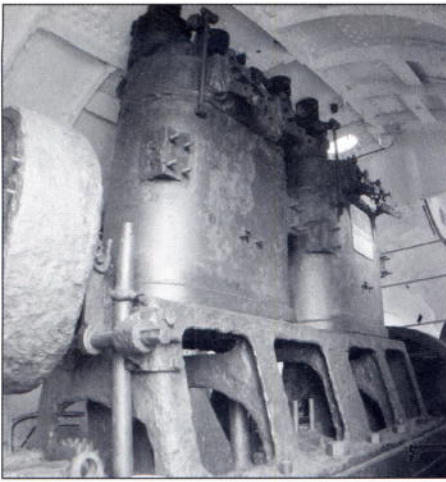


The conserved Holland 1 is displayed in a purpose-built gallery at the Royal Navy Submarine Museum at Gosport



High and dry: the submarine Holland 1 is seen being lifted by a dockyard crane during its operational days

Photo: RN Submarine Archive



The 4-cylinder gasoline engine conserved in-situ
Photo: Ian Clark

and cooling systems have been lost. The grey cast iron had graphitised to a depth in excess of $\frac{1}{4}$ of an inch. The chloride levels at this point prior to conservation soaking were found to be 1.34%. X-ray analysis of the rust layers showed that the main corrosion products present were consistent with artefacts recovered from other marine sites within the Solent region. The engine castings had become more brittle than expected for this grade of iron resulting in the integral mechanical strength becoming severely compromised.

The entire transmission system was manufactured using the same component materials as throughout the main engine. Although the iron castings were considerably smaller, similar graphitisation had taken place resulting in brittle conditions and loss of material

mechanical strength. The electric motor cast iron cage appeared to be in good order, as did the commutator and armature core. The field coils and poles seemed to have escaped any serious damage. The commutator shaft main bearings were missing as were numerous major components forming the transmission system.

The proposed conservation treatment used on the propulsion unit and transmission systems was chosen and executed with great sensitivity. Although many of the components to be considered were large in actual physical size their chemical make-up and metallurgical microstructure has been radically altered due to their own specific corrosion state.

The hull plating consists of steel plates approximately $\frac{1}{2}$ -inch thick laid in eight strakes. The top, bottom, port and starboard strakes are laid tight against the frames, and the other four lapped on the outside of these and connected by two rows of staggered rivets. The internal framing is manufactured from approximately 3 x 3-inch angle iron fastened at 18-inch centres.

The metallurgical microstructure of the hull plating is typical of a mild steel with a carbon content of between 0.1 and 0.17%. The grain size average diameter is probably characteristic for hot rolled steel plate. A Vickers hardness test gave a value of 152VPN, which is consistent for mild steel. Other elements found to be present were silicon, sulphur, phosphorous and manganese. Detailed examination of the rivets showed a higher carbon content of approximately 0.18% and a smaller grain size as compared with the hull plating. A higher hardness value was also recorded of 239VPN.

The hull plating was generally pitted between 30 – 50%, which was consistent with past environmental exposures. There were numerous pockets of advanced surface corrosion, some resulting in complete perforation. There was good evidence of end grain corrosion highlighted in the total loss of rivet head form. The majority of exterior hull plating riveting has utilised counter-sunk rivets; these were used where a flush surface was required – caulking rings were very prominent.

To enhance public enjoyment and to aid interpretation it was decided that the interior of the submarine be opened up as part of the visitor experience. To enable public access a load bearing deck area was constructed using a pressure treated soft wood sub frame, which was fully suspended on an inert conservation foam interface barrier. The deck was finished in Burma teak and laid recreating original construction details and physical form. Traditional access hatches were formed in the deck to facilitate future hull space monitoring. The deck area covers the battery space.

An integral part of *Holland 1's* conservation strategy was the design and construction of a purpose built display gallery. The gallery, with a projected volume of 800 cubic metres and surface area of 470 square metres is fully environmentally controlled, constantly monitoring ambient temperature and relative humidity. This controlled atmosphere is pivotal to the long-term conservation of the submarine. The powerful dehumidification system keeps the humidity below 40% relative humidity to prevent moisture from setting off the corrosion cycle.

Mystery iron shoe discovered

Can anyone throw any light on this shoe-shaped design cast iron tank?

The tank has been uncovered during evaluation work by Pat Frost for Earthworks Archaeology on the site of a former steam mill in Chester. The tank may sit in the former condenser pit of a c1780s Bolton & Watt steam engine.

The tank however is more likely to date to the nineteenth century. The open area of the tank measures 52 inches square to which an iron lid appears to have been fitted. The lid may have been removed to level the area to the height of the enclosing eighteenth-century brick wall. The covered sloping section extends for 28 inches across the full width of the tank giving the tank a 'shoe-like' appearance. The east side of the shoe has a bolted rib and the west side has a plate bolted along the top. A total of 22 hexagonal bolts secure the 'shoe' upper plate, which is in one piece. The body of the tank is riveted / bolted together with a ribbed plate on the interior. The style of the bolts and rivets give a post-Whitworth date to the tank. The semi-circular dip c.0.8m diameter in the west section suggests something may have rested on the tank in this position. If the tank had a fully fitted lid then this feature could only have been semi-circular.



Photo: Earthworks Archaeology

Given the unusual shape of the tank, it is hoped that a reader may have seen a similar example. If you have any suggestions please contact the Editor or Pat Frost, 6 Castle Ring, Pontesbury Hill, Pontesbury, Shrewsbury, Shropshire. SY5 0YA

Power at the AIA Ironbridge Weekend

'Power in Corn and Textile Mills' is the theme of the annual Affiliated Societies Weekend at the Ironbridge Institute, Ironbridge, on 12-13 April 2003, and a booking form is enclosed with this issue of *IA News*.

The corn and textile industries were once among the key manufacturing activities, the one producing a central element of the staple diet, bread, and the other clothing, the export of which was a principal source of funds underpinning the British economy. Both industries may be viewed from a number of different standpoints: economic, social, architectural, and technological, for instance. The latter area is of particular interest to the industrial archaeologist who is concerned with machinery and the means adopted to power it.

In the early industrial era power limitations were an important constraint on scale, leading to much experimentation with waterwheels, windmill sails and winding mechanism, water turbines and steam power. There was inevitably much overlap, and indeed steam power was being applied in textile mills a century before water turbines were generally introduced in corn milling. All this endeavour was effectively a search for efficiency, and by extension a search for means of a reduction in costs.

Speakers at the weekend will examine both the general principles involved in the application of particular technologies at particular times to suit individual mill requirements, and at the same time consider regional practices and events at specific sites.

While the study of historic practice is unquestionably useful, another way of appreciating technology is through repair work on mills. This applies above all to corn milling where the small size of operation makes repair a financial possibility. Two speakers involved in repair work will show how the issue of technology may be approached from a practical point of view.

*Ray Riley
Affiliated Societies Officer*

**Advertise in
IA News**

AIA Award for the Beehive at BAA 2002

The presentation of the biennial British Archaeological Awards last November was held in the magnificent 200 years old Liverpool Town Hall. Sir Neil Cossons presented the awards and we were grateful to also have the presence of Councillor Jack Spriggs, Lord Mayor of Liverpool. Lord Montagu of Beaulieu, President of the British Archaeological Awards, also participated as usual.

Of interest to industrial archaeologists, among the finalists were the Anderton Boat Lift restoration by British Waterways (Heritage in Britain Award – highly commended), tourist visits to view the German High Seas Fleet, underwater at Scappa Flow, Roving Eye Enterprises (Virgin Holidays Award – highly commended) and the CBA Defence of Britain Project (WWII military remains) winner of the IFA Award.

The shortlist for our own **AIA Award** contained three entries:

1. The conversion of the former St Cuthbert's Co-operative store, Bread Street, Edinburgh EH3, adapting a 1937 extension to become the Point Conference Centre – architects Andrew Doolan.
2. The conversion of the former derelict blowing engine house at Parc Tondu, South Wales, to provide serviced office accommodation – Groundwork Bridgend & Neath Port Talbot.
3. The revitalisation of the Beehive, Gatwick Airport, the world's first circular airport terminal building completed in May 1936. It was cut off from the redeveloped airport c.1958 by the diverted London to Brighton A23 main road but is once more in viable airline use by GB Airways, for headquarters. BAA Lynton (part of



Gatwick passengers boarding a DH86 aeroplane in 1936 by means of a telescopic corridor

the airport company BAA) completed a major renovation retaining almost all original features.

For the AIA Award the judges chose BAA Lynton, for their reinvigoration of the Beehive, Gatwick Airport. The basic design concept for the Beehive (as the name suggests) was for an 'island' airport terminal entirely surrounded by aeroplanes, the only method of access being subterranean through a tunnel. At Gatwick this was a foot tunnel from a nearby railway station specially built to the east on the London to Brighton line. Broadly speaking the basic Beehive 'island' concept was used for Terminals 1,2 & 3 at Heathrow where the scale is much greater so there is more than one building. The Gatwick Beehive building listed Grade II* in 1996 is additionally remarkable in being itself circular. After 1936 the air terminal circular design concept was lost to civil aviation for about 20 years, re-emerging in North America. The 'island airport terminal' can be compared with island platform railway stations (although for aerodromes footbridge access is of course inadmissible). At Gatwick the Beehive of 1936 might now be regarded as the result of combining two design ideas – the island

terminal plus a circular building. At the time it was a neat and compact solution.

At the Gatwick Beehive cover from the cold and rain for passengers boarding their aircraft was provided by means of telescopic radial corridors running on rails which could be extended out to the waiting aircraft. Remains of the rails can still be seen today. The control tower was situated on top of the building and is still present. The Beehive was a remarkably advanced design for its time, conceived by civil engineer Morris Jackaman (also a private pilot) who engaged three young architects – Frank Hoar, Bill Lovett and Alan Marlow to interpret his ideas. Today the restored building positively oozes the excitement of the heady days of airline flying shortly before World War II. It is surprisingly youthful for something nearly 70 years old.

It is hoped to arrange a visit to the restored Beehive, Gatwick Airport, for AIA members and friends. This is likely to be on a Friday afternoon allowing time for travel from a distance. Those interested in taking part should send a first-class stamped addressed envelope to Dr Robert Carr, 127 Queen's Drive, London N4 2BB for further details and a booking form when available.

Robert Carr



Elevation of the Gatwick Beehive – east to west section

AIA Library

Many newer members of the Association will be unaware – and older-established members might need reminding – that the AIA has a library which is accessible to all members. Books and journals which have been donated to the Association over the years have been deposited with the Library at the Ironbridge Gorge Museum Trust, which itself has one of the finest collections of material on industrial archaeology and associated subjects anywhere in the country. Coverage ranges from most of the standard texts of the eighteenth and nineteenth centuries, such as Rees's Cyclopaedia, through virtually all of the David & Charles and other publications of the 1960s and 1970s, right up to modern material such as the Monuments Protection programme reports which are deposited with the AIA as they appear.

The Library is situated in the Long Warehouse, adjacent to the Museum of iron in Coalbrookdale. Visitors are welcome (and admission is free), but must make an appointment in advance and proof of identity should be provided on a first visit. ☎ 01952 432141 or e-

mail: library@ironbridge.org.uk).

A current project under way in the Library is to build up a complete collection of all local IA society publications together in one place. Many are held already, but any AIA member who is clearing out old journals, newsletters, etc, might like to consider contacting Ironbridge before disposing of unwanted material, even if it is only the odd single issue. In due course, a 'wants list' will appear in IA News in an attempt to round up copies, or photocopies, of missing issues.

John Powell

*Librarian & Information Officer,
IGMT, and Honorary Librarian AIA.*

Catalonia: Advance notice

The AIA is planning a visit to Catalonia to visit that region of Spain's rich industrial heritage. A programme and possible dates are being explored with local organisers and the visit is likely to be scheduled for late 2003 or April, May or June 2004. Those interested can register their interest now and their preferred month by dropping a line to Paul Sauter, 80 Udimore Road, Rye, Sussex TN31 7DY.

New members

The AIA welcomes the following new members:

A. Bailey, Leeds
A.R. Davies, Cirencester
P. Hankard, Huntingdon
N. Harries, Holmfirth
Mr & Mrs A.P. Harvey,
Welshpool
Mr P. & Mrs M. King, Leicester
Lock, London
R.G. Martin, Brighton
Mr & Mrs K.N. Mclver, Scotia,
USA
C. Moore, Sturminster Newton
Mrs J. Moore, Rowington
B.J. Moran, Stoke-on-Trent
T.J. O'Meara, Castlepollard,
Ireland
W.M. Patterson, Ormesby
Mr N.C. & Mrs C.E. Peppitt,
Newbury
Perks, Bendley
A.E. Rout, Middlesbrough
Ms K. Taylor, Ilford
I. West, Leicester
Dr R. White, Telford

Prepare for 2006!

The AIA is backing a campaign for 2006 to be designated European Industrial and Technical Heritage Year. The idea behind the campaign is to promote increased awareness

and appreciation amongst the public, public authorities and institutions, and non-government organisations, of the urgent need to save the industrial and technical heritage of Europe and to accord it the importance it deserves.

It should also draw wider attention to the huge number and variety of sites throughout Europe already preserved or under restoration. Associations and sites are invited to plan a special event as part of the programme for the year.

It is also intended to highlight anniversaries of those who have played an important role in producing the industrial and technical heritage being celebrated. The 200th anniversary of I. K. Brunel's birth on 9 April 1806 has been proposed as one such.

Obtaining past issues of IA Review

Back-numbers of Industrial Archaeology Review down to volume XX are always listed in our 'AIA SALES' advertisement. Any reader wishing to obtain copies of volume XXI (1999) onwards is requested to contact Maney Publishing, Hudson Road, Leeds LS9 7DL.

News from Upper Cwmtwswg

Dear Mr Editor

I was really pleased to hear the Conference is coming to South Wales in 2003, but I'd like to clear up a misconception. Although it's been called the Cardiff Conference that is only to make it sound posher. In fact we are having the conference here in Upper Cwmtwswg.

The whole community is rallying round to make it a really tidy conference. Dai Sponge (the Colliers Arms) has promised to stop watering his beer and Fred Dedd (the Dedd Bus Co) is getting in gallons of chewing gum solvent.

Of course, we don't have any university or even big hotels here but it was the same at that place in West Wales we went to in the seventies. Penzance was it? Everybody is keen to take in a delegate and spare bedrooms are being dusted. In fact the whole of Tram Road has offered to take somebody. Not that we'd let anybody stay with No 7, or No 9, and come to that not with No 2 either. There's a space for the Yowards' van between the public conveniences and the rec, so that's all right.

We've got the chapel schoolroom and if we clear the sheep off the rugby pitch we can get a small marquee up, or a large tent anyway, on the level bit. Catering won't be a problem. Auntie Bron and the WI started cutting sandwiches a couple of weeks ago. Lucky really, as Auntie Megan the Spar has a surplus of cucumbers at present. For the conference dinner we'll cut a deal with Sweaty Betty of Pontypridd, and if there's any pies left over they'll come in useful for packed lunches the following week.

There is plenty to see, of course. The old mill has gone but there is a really tidy Spanish style hacienda there now. We can walk the old railway track, although we'll have to detour around the old people's bungalows and the sewage works. Up on the colliery site there is a unit making little statuettes out of resin and coal dust; a real local craft.

So there we are. It'll be the biggest thing in the Twswg valley since the Diamond Jubilee (1897) and we are all looking forward to it. As it says in the songs, there'll be a welcome in the hillsides, and we'll do it our way.

Yours fraternally

Jones the brush

Linoleum letters

It is a bit disappointing to note that KIRKCALDY is consistently misspelt in both the report of the Conference and the item from Mary Mills in *IA News 123*. Kirkcaldy is, after all, the principal town of Fife, has a population of 60,000 and is the home town of such distinguished people as Adam Smith (The Wealth of Nations), the Adam family (architects), Gordon Brown and me. AIA should do better!

Mary Mills seems to have some puzzles after her visit to Forbo-Nairn. I don't think they're quite so backward as she thinks. No doubt Frederick Walton, who received his patent on linoleum manufacture in 1863, had boundless ingenuity. But how successful was he in the linoleum business? Apart from Staines and Greenwich, he turned up in the USA too according to the Nairn book I have. Members of the Nairn dynasty all spent 40 or 50 years with the Company and died full of good works and a lifetime of prudent management of the Company's economy. Must be something in the Kirkcaldy air.

When Walton's patent expired, Michael Nairn, who had been manufacturing floor-cloth since 1845, took up linoleum as a more up-market product. He developed a machine that could make it in roll form 4 yards wide and to a higher quality and Nairns prospered from then on. They had factories in France, Germany, Australia, USA and Canada. In the early days, the pattern was applied by block printing. With use the pattern wore off and the solution was 'Inlaid Linoleum'. In this assorted semi-finished coloured linoleum pieces are applied direct to the canvas backing to form the pattern. Thus, in spite of wear, the pattern remains. Initially the plain linoleum pieces were cut by hand and fitted together. This is an expensive option. Nairns developed a technique in which the different coloured raw materials were applied to the canvas through perforated trays, the perforations forming the pattern. The blobs of raw linoleum were spread by roller and cured.

Yes, the large machines at Greenwich existed. Walton developed a machine for inlaid work in which the pattern was applied to the canvas on a very large roller.

Small rollers around the large one received the various colours of linoleum in sheet form, cut out the required shapes and applied them to the canvas backing on the large roller. The intricate machinery had taken many years to perfect and an essential feature was that the raw materials had to be absolutely pure, otherwise there was an injurious effect on the cutter blades. The machine was capable of cutting as many as 16 individual pieces from one square inch of material. The account in the Nairn centenary book, published in 1956, says that 'the machine was nothing less than a miracle of ingenuity.'

A second machine, even larger and more elaborate than the first, was then constructed. The great cylinder (or roller) was 18 feet in diameter and weighed 20 tons. The resultant inlaid linoleum was characterised by designs with sharply defined straight lines. The inlaid linoleum from Kirkcaldy was still made by the perforated tray system which allowed for more intricate patterns demanding more delicate shading.

After the First World War, the Greenwich firm had financial problems and, in 1922, merged with Nairns through a holding company, Michael Nairn and Greenwich Ltd. It was profitable for some years but when another linoleum company in Kirkcaldy with premises adjacent to Nairns folded in 1933, Nairns closed down manufacture in Greenwich and moved the large machines to Kirkcaldy. They were re-erected in the North Fife factory which was altered and extended to accommodate the Wallton straight-line inlaid goods production. Labour and overhead costs were lower in Kirkcaldy.

The Forbo-Nairn factory visited by AIA this year was described as a 'north' factory but I think any plant north of the railway had 'north' in its name. The remaining premises are but a small fraction of the great complex that was Nairn's on both sides of the railway and stretching to the sea on the south side. There has been extensive re-development in this area. While I can not be sure, I very much doubt if the factory we were in was the North Factory of the original Fife Linoleum Company. The Walton machines must have been quite difficult to maintain and there

has been no demand for decades for the quantity of that type of inlaid linoleum that they were able to produce. I suspect that the North Fife factory closed many years ago and the machines scrapped.

What we did see in Kirkcaldy was the specialist, one-off inlaid work. Company logos for the entrance hall of a HQ building are an example of the product. The complete poem 'The Boy on the Train' with the refrain 'Ye ken right well by the queerlike smell, the next stop's Kirkcaldy' is reproduced in inlaid linoleum in Kirkcaldy station. Until recently, this work was carried out by a skilled craftsman with a Stanley knife but my group, at least, were shown much more sophisticated computer controlled cutting machines. I think the final work was still laid up by hand. Large scale production of inlaid linoleum by a modernised version of the tray method still takes place, I believe. It was unfortunate that the factory was suffering a mechanical breakdown during our visit and we didn't see the process properly.

I am now arranging the visits for the Newcomen Society Summer Meeting in Fife and Angus in July 2003. A visit to Forbo-Nairn is planned, one of only two to repeat the AIA visits. This will be an opportunity to catch up on these questions and, I hope, see the plant in action. I, for one, want another whiff of the queerlike smell.

John Porter
18, Sherborne Gardens
London W13 8AS

I worked for some 30 years in the remains of the James Williamson linoleum factory in Lancaster. My first job as a young chemist was research into the linoleum production process. James Williamson & Son Ltd merged with Michael Nairn in the 1960s and linoleum production was transferred to Kirkcaldy. I lived through the demolition of much of the original Lancaster factory and rather belatedly became interested in keeping a record of what had gone on there. I managed to rescue a good photographic and documentary archive on linoleum production in Lancaster. I have felt for some time that I should write up the IA of the linoleum industry in Lancaster, an industry which was a

major employer in this small city for almost 100 years and of which virtually all trace has now disappeared.

I would be pleased to learn of anyone else with an interest in this somewhat esoteric subject!

George Niven
Edencote, Whinfell Drive
Lancaster LA1 4NY

The Derby Silk Mill and other first factories

I wonder if any AIA members can shed any light on the following question. It is often quoted that the Silk Mill set up in Derby by the half-brothers John and Thomas Lombe was 'the first successful ... factory in England' (S.D. Chapman, *The Early Factory Masters*) and, by extension, the world. We would be interested in hearing if this view is contested.

The Derby Silk Mill (although built adjacent to an unsuccessful and much smaller mill of 1702) was constructed between 1717 and 1723. The claim to its 'first factory' status is based on the process of production of a finished good (i.e. silk thread) from a raw material (hanks of silk) on one site, the application of a single source of power (water), and the size of the workforce (between 200 and 400 depending on account and date). The latter is taken to indicate the scale of production, along with the sketchy details we have of turnover of raw material.

In this context we are trying to establish whether other industrial sites in the country would have approached or exceeded this size at this point in time, and if relevant, how soon after this kind of scale would have been reached. Dockyards and breweries might be alternative contenders, although obvious caveats are the impact of seasonality or war, and the question of whether these establishments carried out all their work on one site.

The debate is given some topicality by including the Derby Silk Mill within the Derwent Valley Mills World Heritage Site. I look forward to readers' views with interest.

Roger Shelley
Keeper of Industrial & Social History
Derby City Museums
The Strand, Derby DE1 1BS

A water day in Dorset

'A liquid: water and its applications' was the title of a one-day seminar held in Dorchester in October, organised by DIAS and the county archaeology dept. AIA chairman Mike Bone led the proceedings with some West Country brewing history. In former times water in towns was often polluted or expensive, so the drinking of beer by the poor was a much safer option. The trend from domestic brewing, through public houses and local breweries to the modern large breweries was explained. Some results of Mike's research were seen, including old plans and surviving brewery remains in Exeter, Bath and Dorset.

Mike Tigh is interested in a very uncommon use of water – powering cliff railways. It was the development of cliff-top seaside resorts that gave rise to the cliff railway; until electricity came along, most were water operated. Examples of existing water-balanced railways include the inland one at Bridgnorth. The Lynton-Lynmouth cliff railway was noted as emptying water out of the bottom car to achieve motion, whereas all the others added water to the upper car. There have been no fatalities in the history of cliff railways in Britain.

A seminar about the use of water could not miss water mills for

long, and who better to talk about the subject than Martin Watts. Confining himself to Dorset or the immediate surroundings, he noted that Dorset millwrights produced some high-class engineering in mill machinery and this was as important as the building. Examples of many Dorset mills were seen, from the early Christchurch corn mill through those whose use changed over time to activities such as flax and fulling. The work of millwrights such as Maggs of Bourton, Coombes of Beaminster, Hossey of Dorchester and Sampson of Bridport in the interior and exterior of mills was not forgotten.

Alan Stoyel was involved in a survey of textile mills in the South West by the RCHME. Most were water-powered at some time. 962 sites were investigated and on 590 structures were extant, dating from the fifteenth century to 1910. As well as woollen, flax and fulling mills, there were lace mills, drying stoves, rope walks, horsehair factories and handle houses. Examples of changed and shared use were noted and the speed with which important examples could be destroyed, e.g. where papers for listing were posted on Friday, a fire occurred on Sunday and the mill was demolished (for safety reasons) on Monday and Tuesday!

Mildred Cookson, who has been at Mapledurham Mill on the Thames for the past 20 years, gave an account of the life of a miller. On a Domesday site, this estate mill ground local grain, sending much of the flour and bran down the river to London until 1936 by which time one wheel was replaced by a turbine to generate electricity. In 1977 the mill was restored to its last working condition. Many problems confront a traditional mill in today's climate; the wooden waterwheel needs renewing about every 20 years, the paddles lasting only half as long; getting the right wood and the cost being significant. Stones are dressed with bills tipped with tungsten carbide, with the demise of blacksmiths who knew how to temper bill steel correctly. Floods are another problem.

The last speaker, Steve Capel-Davies reminded the audience of those who gained employment from the River Thames. In the upper reaches, cutters harvested rushes for mats. Osiers for basket-making needed cutting, bark stripping and merchandising before use. Fish and eels could be caught and sold. Innkeepers provided board, lodging and stabling for boatmen. Photographs of lock keepers, toll collectors, dredgers and maintenance boats were seen, not forgetting ferrymen. There were also builders of boats for commerce, leisure or sport.

All in all, a very enjoyable and informative day for all that ably demonstrated that Dorset can put on a 'cracking' seminar.

Rodney Hall

Pilgrim Trust awards submarine conservation

The project on the submarine, *Holland 1*, described on page 5, won the prestigious Pilgrim Trust Award for Conservation 2002 against competition from a very strong shortlist that included entries from the National Trust, the Wallace Collection and the Museum of Science and Industry in Manchester. The award judges considered how the entrants used their scientific, technological, aesthetic and historical knowledge to conserve materials and reveal their significance to a wide audience.

The Pilgrim Trust Awards are also supported by key organisations in conservation and restoration – English Heritage, the National

Preservation Office (based at the British Library), Resource: The Council for Museums, Archives and Libraries and the United Kingdom Institute for Conservation. The Pilgrim Trust was founded in 1930 by Edward Stephen Harkness of New York to award grants for some of Great Britain's more urgent needs and to promote the country's future well-being. In 2000, the Trustees made 137 grant commitments totalling £2.9 million, to projects involved in social welfare, art and learning, preservation, cataloguing and conservation of records and the repair of historic churches.

Archiving our mills

As reported in *IA News 123*, the Mills Archive is an initiative to save and organise our Milling Resources. With many of the most active members of the Mills Section of the SPAB growing older, it seemed the time had come to safeguard their collections of material relating to their interest. So often, papers are thrown away and items sent to the nearest car boot sale when the family have to turn the house out.

So discussions have been held and the Mills Archive Trust (Reg. Charity no 1091534) formed. The basis of this collection will be the milling material which has been donated to SPAB over the years, combined with that of the three Foundation Trustees, Alan Stoyel, J. Kenneth Major and Mildred Cookson, all of whom will be known to many of you as the leading experts in the field. Twenty other collections have been promised and this considerable mass of material is far more than the SPAB has room or capability to house.

To enable all this to be kept together, a grant has been obtained from the Heritage Lottery Fund and a small office rented in Reading where the catalogue can be prepared and researchers can study the material. The catalogue is already under way and will be added to our Internet site, which is available at www.millarchive.org if you want more details. It is not difficult to imagine the vast amount of information which will be held here – a unique combination of building, machinery and history related to milling, along with artefacts, photographs, field notes, measured drawings and other documents – over half a million already.



Powering the Lynton & Lynmouth cliff railway in north Devon is one unusual application of water described in last year's Dorset water conference

But, as always, there is a snag – more money is wanted to bring these plans to fruition. I hate asking for money, but as one of the Trustees of the Archive, could I please ask for your financial support for this idea. The whole concept will produce such a worthwhile result and be such a fantastic source for the Industrial Archaeology of Milling that it must not fail.

Have you researched mills, photographed them and recorded their history? What will happen to all this information? Why not donate or leave it to the Mills Archive and know that all your efforts will not be lost but will be a valuable contribution to the Industrial Archaeology of Mills in the future? Do visit the web site for further information and you can offer contributions either via that or direct to the Mills Archive Trust, whose holding address is 13 Littlestead Close, Caversham, Reading RG4 6UA.

Tony Yoward

Chesapeake's timbers

A study at Chesapeake Mill at Wickham, now owned by Hampshire County Council, has revealed significant features in its timbers. The *USS Chesapeake* was captured after a short battle by *HMS Shannon* in 1813 and taken back to England to study its design and construction. The ship was then scrapped and much of the timber was bought to build the mill. Archaeologists from St Andrews University, led by Dr Robert Prescott, found stresses in the beams caused by the *Shannon's* broadsides. From the deck beams used at the mill it has been possible to draw an accurate plan of the *Chesapeake*. Timber not used at the mill is probably scattered in early nineteenth century houses in the Portsmouth area.

London news in brief

In Greenwich the former Merryweather fire engine manufactory building in Greenwich High Road is about to be demolished. It is unlikely that any of the façade will be retained. Following substantial bomb damage during World War II much of the works was rebuilt. The building now contains little from the Merryweather occupancy and presently houses a number of small businesses which will be relocated in a new building on the same site.

The products of the factory are widely distributed and numerous museums worldwide proudly display a Merryweather fire engine.

Lots Road power station ceased generating on Tuesday 8 October 2002 and has been officially shut down. This makes the former LCC tramway generating station on the riverside in Greenwich the oldest working power station in the country (see *London's Industrial Archaeology* no. 7, pp 3-12). The first part of the station at Greenwich was opened in 1906. It is likely that the obtrusive white concrete reserve coal bunkers added on the west side in the late 1920s, immediately next to the alms houses, will be demolished. Some people find the appearance of the coal bunkers disagreeable although their brutism may shortly become fashionable.

At Blackheath the mysterious hole which opened up quite suddenly in the main A2 trunk road has finally been filled after eight months of disruption and consternation. The precise reason for the hole has remained somewhat obscure but a plausible explanation is that it was the result of mining subsidence, probably from chalk extraction. Local residents have had to be rehoused.

To the north east of the St Pancras main-line-station train shed a new station designed by Lord Foster is being built rapidly. Midland main line trains will be transferred here as from Sunday 26 January 2004 and will completely cease to use the original station. The new station at present under construction will later accommodate trains to Gravesend and Kent via the new CTRL tunnels and Midland main line will be transferred again to a station yet to be built just to the north west of the great 245 feet clear span William Barlow roof.

Further north construction work is being hampered by the number of graves encountered in the old St Pancras churchyard. The intended archaeological work here may not be completed as planned and this matter has become controversial. Have we heard something like this before?

Next door at King's Cross 150 years of railway operation was to be celebrated on 14 October 2002 with staff dressed in period costume and in the preceding period a peripatetic exhibition. Built for the modest cost of £123,500 King's Cross was the



Platform 8 at King's Cross in the 1890s, looking north. The Flying Scotsman will depart shortly

largest station in Britain when opened and has long been admired architecturally. William Cubitt was engineer with Lewis Cubitt architect.

Robert Carr

Heritage Link launched

Heritage Link was launched on 12 December 2002 and is supported by the AIA as well as more than 100 other organisations representing the historic environment. It aims to be a catalyst for change for the sector, sharing information and resources identifying areas of common concern and pushing the historic environment up the political agenda. Members are keen to demonstrate that heritage is important for its own sake and to articulate its value in improving the quality of life, releasing economic and educational potential and promoting social inclusion.

The formation of Heritage Link comes at a time when public interest in history is burgeoning, bolstered by a string of TV programmes. Heritage Link has received a three-year grant of £138,000 from English Heritage and the National Trust is financing the secretariat for the first year. Total membership of the different

Heritage Link organisations is 5.8 million. Chairman Marcus Binney says that the historic environment is very diverse, representing thousands of individual organisations from giants such as the National Trust to societies for the preservation of sundials. This plurality is a great strength but it can also be a weakness if it prevents the sector from speaking and acting in a concerted way.

Heritage Link comes in the wake of the government's State of the Historic Environment report, the first ever national audit of all aspects of heritage. It also draws on experience gained by voluntary organisations coming together for the compilation of the Power of Place heritage report, produced in December 2001.

For information, contact Chris Catling, Director of Heritage Link, ☎ 07986 541831, E-mail: chris.catling@dial-house.co.uk, or Wendy Akers (National Trust Press Office), ☎ 020 7447 6753, E-mail: wendy.akers@nationaltrust.org.uk.

E-FAITH

The year is being promoted by the European Federation of Associations of Industrial and Technical Heritage (E-FAITH), in which the AIA is

represented. E-FAITH is a non-profit making organisation whose objectives are to promote the study of and research in, the recording, conservation, development, management and interpretation of Europe's industrial and technical heritage and to facilitate co-operation between those in Europe engaged in these activities. Membership is open to non-profit and non-government associations who share these objectives and associations who support museums of science and industry. Other organisations, and individuals, who wish to support E-FAITH'S objectives may apply to be supporting members.

In addition to promoting the I & T Heritage Year, E-FAITH took part in the Salon du Patrimoine in Paris this year, for which the theme was industrial heritage; is investigating a project to attract funds from the Culture 2000 project; has set up a web-site <http://www.e-faith.org> (the hyphen is important!), which is intended in time to become a focal point for associations seeking co-operation with similar associations elsewhere in Europe; will be a channel of communication for seeking support throughout Europe for endangered sites; and a medium for exchanging views, advice, and contacts, for example in seeking solutions to problems, at minimum cost and administration.

More information can be obtained via the web-site, by e-mail from info@e-faith.org, by fax to 00 32 56 255173, or from the E-FAITH secretariat at Vredelaan 72, B-8500 Kortrijk, Belgium.

There is an annual event to provide an opportunity for members and others to meet. In 2003, this will be in London over the weekend of 16-18 May. Details from Paul Saulter, 80 Udimore Road, Rye, Sussex TN31 7DY.

Montreal industrial heritage 2003

The Association québécoise pour le patrimoine industriel (AQPI) and the Canadian Railway Historical Association (ACHF/CRHA), co-organisers of the 32nd Annual Conference of the Society for Industrial Archeology (SIA), invite you to a rendezvous in Montreal from 29 May to 1 June 2003.

Montreal's industrial infrastructure really began to

flourish after the 1850s, but its origins date to the first decades of the nineteenth century, when its privileged location at the heart of a transportation network led to the establishment of several manufacturing sectors. The city's industrial heritage includes railway and port installations, bridges, canals, power plants, engineering works, thoroughfares, tunnels, viaducts, and the metro, as well as a number of factories for the manufacture of textiles, food products, rolling stock, iron and steel products.

Guided tours of Old Montreal, the Lachine Canal, the Port installations, as well as various residential, commercial, and industrial neighbourhoods, will emphasise the evolution and diversity of the city's industrial heritage and its contribution to the cultural enrichment of the urban landscape through the recent recycling of several buildings and structures. Presentations may be given in French or English, as simultaneous translation will be offered in most sessions. For general information, contact James Bouchard, ☎ (514) 251-5148, Fax: (514) 251-5126, E-mail: jamesb@aei.ca. General information will be updated regularly on the SIA web site www.ss.mtu.edu/IA/sia.html.

Japan to host mining congress

Japan is the first Asian country to host an International Mining History Congress. Akabira City, Sorachi Coal mining district, Hokkaido, will be the host city for the Sixth International Mining History Congress in September 2003.

Previous meetings have been held in Australia (1985), followed by Germany (1989), USA (1994), Mexico (1998), and Greece (2000). The goal of the IMHC has always been to gather specialists from private, government, and academic sectors involved in mining history to present and discuss their latest research. A wide range of topics includes problems related to the social and economic history of mining development in different countries and regions.

Japan's mining history starting 500 to 600 years ago but a noteworthy change in the mining industry happened in the last



HERITAGE ENGINEERING

Preserving Our Heritage For Future Generations

Our dedicated 35 strong team provide turnkey solutions in the Heritage including

- Mechanical Engineering**
- Architectural Metalwork**
- Timber Engineering**
- Technical Consulting**
- Conservation Workshops**



Recent projects : 2001/2002

- restoration of world's oldest working steam engine
- 15m timber waterwheel construction
- newcomen engine technical assessment
- design & build of largest cast iron structure erected in the last 80 years

22-24 Carmyle Avenue, Glasgow, Scotland, G32 8HJ
Tel +0044 141 763 0007 Fax +0044 141 763 0583
sales@heritageengineering.com www.heritageengineering.com

Incorporating Walter MacFarlane & Company Ltd

century after Japan opened its gates to the Western World. Despite the fact that the Japanese mining industry and community played a crucial role in the development and modernisation of the country, there is not enough academic and government attention paid to research regarding its contribution. Currently, almost all mining companies in Japan have stopped domestic mining operations and have moved toward importing metals and coal resources.

Mining communities in Japan do not know how to utilise their mining heritage and are gradually becoming depopulated. There is no strong government support to maintain the heritage, nor enough academic enthusiasm to preserve it. Mining heritage is now disappearing due to environmental reasons, and at this rate all mining communities and their rich heritages will disappear from the archipelago.

The hosting of the International Mining History Congress in Japan is timely in raising the awareness of mining heritage in Japan and around the world. The congress

should be a window of opportunity to establish the importance of mining history in Japan. The hosts consider the encouragement of mining history studies and the promotion of preserving and restoring mining regions through corporate and personal archives and files, photographs, films and memoirs to be one mission of the International Mining History Congress.

A pre-congress tour that covers Japan's representative tourist spots (e.g. Kyoto and Nara) and a post-congress tour visiting the nation's representative mine-related historic sites (e.g. Kyushu and Tohoku region) will be organised.

For details, please see the website www.imhc2003.com and the Diary page.

Heritage Information: Making Heritage Happen

Heritage Information, the only national online database bringing together appropriate consultants, contractors, craftsmen, products,

services and information relating to the repair, restoration and conservation of the historic environment, launched to the trade on 20 November 2002.

With the mission of 'Making Heritage Happen', Heritage Information will consolidate everyone and everything involved in the heritage world: skilled craftsmen, experts, consultants, training courses, products, books, news, and jobs, as well as information involved in all aspect of conservation and repair.

A vetted register of contractors, craftsmen and consultants will ensure that anyone looking for the right people for the job will always find them, while the sophisticated web technology matches users' demands with appropriate registrants. To date, 100 leading conservation consultants and specifiers have applied to be registered.

Heritage Information is the brainchild of director Dorian Crone, formerly of English Heritage, and himself an architect. He sees Heritage Information as oiling the wheels of conservation, putting people in touch with each other, making information easy to find, and simplifying the whole process, and to ensure Britain's buildings and gardens are repaired and maintained in the best possible way, by involving the right skilled and experienced people. Key supporters include English Heritage, the Heritage Lottery Fund, the Department of Trade and Industry, the National Trust, The Crown Estate, and the Council for the Care of Churches.

Prior to the public launch in Spring 2003, Heritage Information is currently seeking specialist consultants, contractors, architects, craftsmen, products and services to join the register.

For further information please contact Alison Dean, Jago Dean PR

Ltd, ☎ 020 7228 5464, e-mail: adean@jagodean.co.uk, or Dorian Crone, Heritage Information, ☎ 020 7243 5888, e-mail: info@heritageinformation.org.uk.

Fieldwork Course at City University

Starting on Tuesday 6 May 2003 and extending to mid August an evening fieldwork course on the industrial archaeology of Greater London based at City University – lecturer Dr Robert Carr. To secure a place and for further information contact Courses for Adults, Department of Continuing Education, City University, Northampton Square, London EC1V 0HB. ☎ 020 7040 8268, e-mail conted@city.ac.uk.

Maritime museum opens

The National Maritime Museum Cornwall has opened at Falmouth in a £28m development set to complement the St Ives Tate Gallery and the Eden Project. Displays concentrate on small craft of all types.

Brighton's West Pier collapses

High seas in late December brought the partial collapse of the West Pier at Brighton. The future of the pier, already suffering from years of neglect, now looks even more bleak.

Baltic Centre

The former 1950s Baltic Flour Mill at Gateshead opened in July 2002 as a £46m international contemporary arts gallery, with 3000 square metres of floor space the largest of its type outside London. This is part of a major cultural redevelopment beside the Tyne at Gateshead. Information on the Baltic Centre and its changing exhibitions and events can be found at www.balticmill.com.

Coldharbour steams again

After 3½ years' work, volunteers have refurbished a boiler at the Coldharbour textile mill in Uffculme, east Devon. A 300 HP cross compound Pollit & Wiggzell engine and Galloway boiler were installed at the mill in 1910 to replace two beam engines. The engine remains in good working order, with the

flywheel carrying ropes which powered the five levels of the mill. When the mill's 1888 boiler was withdrawn from service in 1999, an inspection of the 1910 boiler, which had not been steamed for about 20 years, revealed an advanced decay of the supporting brickwork and flues.

Having secured a grant from P.R.I.S.M. for materials and a professional bricklayer, the project involved removing the side wall, supporting the boiler shell in a steel cradle while the supporting brickwork was removed and replaced with new engineering brick with a firebrick lining. The boiler setting has been completely rebuilt by a small dedicated team of volunteers who donated 4,300 man hours. After a boiler inspection and hydraulic test, a boiler certificate was issued for a working pressure of 70 psi.

The first steam weekend using the renovated boiler was on 23-24 November 2002. In future it is hoped to steam the engines at Coldharbour on the Sunday and Monday of bank holiday weekends. For more information, please contact Coldharbour Mill, ☎ 01884 840960.

John Babb

National Archaeology Days

Each year the Council for British Archaeology runs National Archaeology Days. NAD 2003 will take place over the weekend of 19-20 July, and it is hoped that more industrial archaeology organisations will be involved.

The aim of this annual event is to encourage young people and

their families to visit sites of archaeological/historical interest or museums/heritage and resource centres, to see archaeology in action and take part in activities on-site. Over the years, it has been recognised as an important event in increasing public awareness and interest in archaeology. It also provides an excellent opportunity for the promotion of venues and for encouraging people to join in the work of their local societies.

All the 161 events held in July 2002 are listed on the website www.britarch.ac.uk/nads, which gives a good idea of their variety, ranging from seeing a megalith being raised on the Isle of Man, tours of excavations, sites, buildings, hand on activities, archaeological quizzes and lots more. These events attracted over 90,000 people.

Participants can decide whether to organise a single open day, or a whole weekend of activities. NAD is organised and promoted by the CBA and the Young Archaeologists' Club (YAC), who are happy to promote all the NAD venues, although any contributions towards the costs of advertising posters, press releases, etc would be appreciated.

For guidelines and an application form please contact: Jan Cox, Marketing & Events Officer, CBA, Bowes Morrell House, 111 Walmgate, York YO1 9WA, ☎ 01904 671417
E-mail: jancox@britarch.ac.uk.

Geoffrey D. Hay

Geoffrey Hay, whose death was reported in *IA News 123*, was born in 1922 and not 1992 as printed on page 11. The editor apologises for this mistake.



*Coldharbour Mill at Uffculme in Devon is under steam again. Meanwhile, a giant water-wheel awaits restoration at this site
Photo: Peter Stanier*

ADVERTISE IN IA NEWS

IA News reaches a wide readership through direct subscriptions, circulation to affiliated organisations and use in libraries.

Advertising rates range from as little as £30 to £170 for a full page.

Inserts may be mailed with IA News at a charge of £25.

For further details, contact the Editor.

Yorkshire & Humberside

Yorkshire's early iron industry is being increasingly studied, and while it does not offer such a concentration of sites as the Weald or the Forest of Dean, there is growing evidence that it was important and widely distributed. One centre was the Cistercians' Rievaulx Abbey near Helmsley, and a team from Bradford University has found ironworks there and to the north in Bilsdale. At Rievaulx they have built an experimental bloomery based on the evidence from Bilsdale. By the dissolution of the monasteries there was a high bloomery or early blast furnace at Laskill in Bilsdale. They are analysing slag samples for information about changes in smelting methods, and studying the effects of the iron industry on the monastic economy and the local landscape. Excavations by English Heritage at Whitby Abbey have revealed an industrial area close to the abbey walls, with evidence of lead smelters, slag heaps and glass working.

Recent work by Huddersfield & District Archaeological Society, with help from Bradford University, has revealed two furnaces, large deposits of bloomery slag and other evidence of iron making at Myers Wood, Storthes, Hall, Kirkburton. If they are medieval there may be a link with the Cistercians' Roche Abbey near Rotherham, which had a grange at Thunder Bridge just to the south. The Society held open days at Myers Wood in September, and further excavations are planned. In the group of iron-working sites along the Don at Wortley, Barnsley, the site of Wortley Low Forge has been scheduled as an Ancient Monument, more for its archaeological potential than for its standing buildings, and students from the University of Sheffield have surveyed the site of Wortley Tin Mill. Downstream the long empty Oughtibridge Forge is now surrounded by new housing, and there is a proposal to convert it to apartments; while excavations at the former Wadsley Bridge Steel Works before redevelopment



Crucible holes at the Wadsley Bridge steelworks site

Photo: D. Bayliss

DOROTHEA RESTORATIONS LTD

Incorporating Ernest Hole (Engineers) of Sussex

CONTRACTORS AND CONSULTANTS IN THE CONSERVATION OF HISTORIC METALWORK, MACHINERY AND WIND/WATER MILLS

Recent contracts include designs for an atmospheric railway, and a replica steam locomotive, restoration of 18C lead sculptures, repair and gilding of the Albert Memorial bronze decoration, conservation work on Turbinia, Lion, Sans Pareil and Locomotion, and even the restoration of an hydraulic catafalque!

Over 100 man years experience

Northern Works: New Road, Whaley Bridge, via Stockport, Cheshire SK23 7JG. Contact: Dave Hodgson
Tel: (01663) 733544 Fax: (01663) 734521

Southern Works: Riverside Business Park, St Annes Road, St. Annes Park, Bristol, BS4 4ED. Contact: Geoff Wallis
Tel: (0117) 9715337 Fax: (0117) 9771677

revealed two well preserved rows of crucible steel furnaces, 24 in all, dating from the 1850s. The impressive (1880s?) engineering shop by Fox Hill Road is being converted to apartments.

In Nursery Street, Sheffield, the first clay pipe kiln site found in the city, probably dating from c1790-1830, has been excavated by the University of Sheffield's archaeological consultancy ARCUS. English Heritage has made a photographic record of the Swinden Technology Centre (ex-British Steel) at Rotherham, with its wealth of unusual experimental and testing equipment, before it closes. With the help of Lottery money, a National Archive of Oral Railway History has been established at the National Railway Museum, York, to collect recordings of people like Driver Duddington and Fireman Bray from Doncaster, who still hold the world steam speed record for their 1938 run with 'Mallard'. At Kelham Island Museum, Sheffield, a novel Women at Work project is collecting memories from women who worked in the city's industries and teaching

them IT skills. In Sheffield's Rivelin Valley conservation volunteers have launched the Ponds Project to care for the watercourses, ponds and other remains of water powered sites such as cutlery grinding wheels, and provide footpaths and waymarkers.

The closure of T. & F. Firth, Clifton Mills, Bailiff Bridge, just north of Brighouse, one of the largest textile firms left in the Halifax area, was announced at the start of the year. They had made carpets, rugs and blankets there since 1866, and the buildings included multi-storey spinning mills and large single storey weaving sheds. They were a family firm and contributed greatly to the local community. When Buxton Opera House was refurbished a couple of years ago, Firths found the carpet pattern they had supplied when it was built in 1903, and wove a replacement as a special order. Another milestone was the closure of Prince of Wales Colliery near Pontefract on 30 August because of geological problems. It was sunk by John Rhodes Ltd 140 years ago, and

was the last ex-British Coal pit working in West Yorkshire.

Unlisted but interesting buildings continue to be lost without a detailed record. In South Yorkshire the year's losses included the long derelict blowing engine house (1874 and later) of Holmes iron works, Rotherham; the back block of the Brown Firth research laboratories in Princess Street, Sheffield, built jointly by two leading steel firms in 1908 and the place where Harry Brearley discovered stainless steel in 1913; the eponymous Britannia Works, Love Street, Sheffield, built c1845 for the Britannia metal (improved pewter) trade; and Thorncliffe viaduct, Chapeltown, built by the Midland Railway in 1894 to bring Midlands ironstone to the Newton Chambers blast furnaces in competition with North Lincolnshire ore brought by the MSLR. The formerly water powered Wisewood Forge in the Loxley Valley, Sheffield, was closed over ten years ago but its archaeology has only been studied this autumn, after the demolition of almost all the buildings, because of a particularly tangled tale of development plans and planning applications.

The designation of Sir Titus Salt's mills and model village at Saltaire Bradford, as a World Heritage Site is a great encouragement to the conservation of historic industrial buildings. Much of the huge mills has been sympathetically reused as shops, an art gallery, a restaurant, offices and flats. A public-private partnership, the Little Germany Urban Village Company, is working to regenerate the area of late-nineteenth century

wool merchants warehouses in Bradford known as Little Germany.

Springhead pumping station, Anlaby, Hull, became the Yorkshire Water Museum for a period after it closed, with visits by arrangement, but was unable to meet its costs. Plans by a local businessman to reopen the museum have sadly been rejected on security grounds. There is concern about the future of a surviving, unlisted, Hoffman brick kiln in Heeley, Sheffield, built in 1878 by the Sheffield Brick Co. and later used (1919-21) to manufacture the Richardson light car. It is now used for storage by a firm making windows, but there are plans to redevelop the site. The plan to demolish two or three arches of the Grade 2* Wicker Viaduct (built in 1849 to carry the MSLR across the Don valley) for a slip road from a planned extension of the Sheffield Inner Ring Road has been reconsidered and it now seems likely that the slip road will instead go through the embankment at one end of the Viaduct, which remains on the Buildings at Risk Register. On the same railway line, the listed 1845 station building at Oughtibridge remains derelict but an application to build houses around it has been turned down, partly in case the little used railway line is ever revived as part of a trans-Pennine route or for Sheffield's Supertram.

The 32-mile Rochdale Canal from Sowerby Bridge to Manchester was reopened throughout in July after the remaining works at the Manchester end were completed. At Wakefield the eighteenth-century Navigation Warehouse is being

refurbished as a catalyst for the regeneration of the waterfront, with a grant of £1.5m from the European Regional Development Fund and £260,000 from English Heritage. The Commissioners of the little-known Driffeld Navigation in East Yorkshire are carrying out a restoration programme including a new swing bridge at Brigham, between Driffeld and North Frodingham.

The National Coal Mining Museum at Caphouse Colliery near Wakefield opened new galleries and other facilities in the summer. The new Coal Interface Gallery, on two floors, explains the dangers of working underground and the role of new machinery in improving safety, and covers the effects of the industry on the mining regions. Entrance is now free. Kelham Island Museum, Sheffield, has created a new library and store with a £200,000 lottery grant, to keep small exhibits, books, archives and a collection of 250,000 images in better conditions. The displays are being updated and will open in the spring.

We recently marked the 100th birthday of Arthur Clayton, the historian of Elsecar and Hoyland and particularly of the 1795 Newcomen atmospheric engine at Elsecar, and we are sorry to report that he died on Thursday 3 October at the age of 101. He worked as a coal miner down the pit all his life, and had to take a day off work to read his paper on the Engine to the Newcomen Society. He will be fondly remembered in the area and among historians.

Derek Bayliss and David Cant

East Anglia

I fear the loss of important sites in the region continues, often through general decay and attrition rather than any positive action. While Eastern England was for perhaps 20 years the home of obsolescent but still surviving industries and derelict but still complete sites, in recent years demand for land, concerns about safety, opportunities for adaptive reuse and the general recession have led to significant losses, and the surviving sites are mostly consciously preserved, usually through local initiatives. The limits of this approach have become evident in 2002.

In Norfolk, the trust set up to restore and preserve the unique New Mills air compressing station (used until the early 1970's to provide air for the Schone ejectors which helped move Norwich's sewage) became moribund, with all its trustees in their 80's, and has been wound up. However, the Norfolk IAS has been applying pressure and there is some hope that the City Council or Norfolk Museums may step in to preserve this Grade 2* listed site. In Suffolk, brewing has stopped at the Tolly Cobbold heritage brewery on Cliff Quay in Ipswich, with production moved to Ridley's Brewery in Essex, and the future of the museum operation looks very insecure despite the listed status of both buildings and plant. However, not all such activities are failing. At Gunton Sawmill in Norfolk, the small 110-year-old crane has been restored and re-erected. Modern crane regulations banning the use of cast

OBITUARY

John Harvey Bennett (1937-2002)

AIA members in the north of England will be saddened to learn of the sudden death of John Bennett.

John was born in Huddersfield and educated at Almondbury Grammar School. He first developed a love of railways as a small boy holidaying with his grandparents in South Yorkshire. His grandfather wielded a shunting pole in the sidings of the coal fields and John was allowed to ride the locomotive footplate as they shunted wagons in the sidings.

He qualified as a pharmaceutical chemist in 1962, having served his apprenticeship and studied at Huddersfield Tech, and was selected from his final year colleagues to manage the

pharmacy of a senior lecturer and future president of the Pharmaceutical Society, T.G. Booth, and held this position for many years.

Although toned down in later life, John's spirit of fun remained and his organisational skills benefited the many local societies with which he was involved. He retained his interest in railways and was a working member of the Keighley & Worth Valley Railway for many years, with duties ranging from restoring buildings and carriages to ticket collecting and crossing keeper. In the early 1970s the business was sold and John moved into hospital pharmacy.

John achieved his second ambition when he moved to Cumbria in 1983 to manage a community pharmacy in Barrow, meeting many people through his interests in railways, industrial archaeology and wildlife. John was long serving

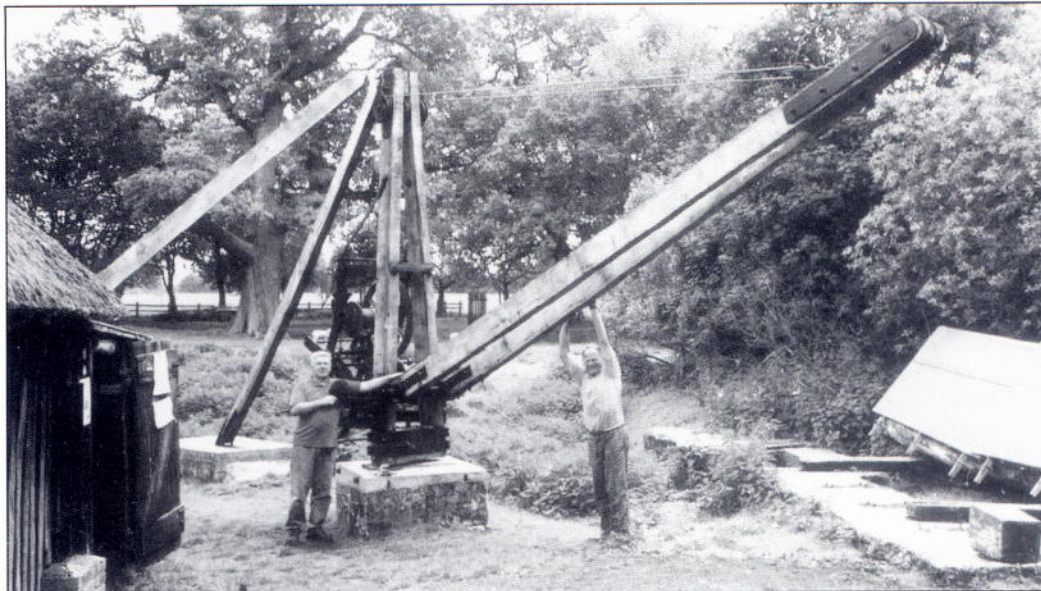
member of the Cumbria Industrial History Society and member of the AIA. He had a major part in organising the 1993 AIA Conference at Ambleside, and was joint author of the Cumbria gazetteer. He was a member of several preserved railways and belonged to many wildlife and nature conservation groups (he was as passionate about the environment as he was about IA).

John left full time employment in September 2001 to help his wife Jan's fledgling business and enjoyed part-time work in an old-fashioned pharmacy. He finally finished work in March 2002. In his last week he had enjoyed taking the family to the Ravenglass & Eskdale Railway. He died as he would have wished, quickly, in his own garden, reliving happy memories.

iron for working parts mean that it can only be used for demonstration purposes. The main volunteers here are fairly elderly too, but at least the site is leased and backed by the Norfolk Mills Trust.

Fakenham Gasworks has a new keen director and things are looking up, but there are problems with the last steam drifter, the *Lydia Eva*, which needs urgent and expensive hull repairs. Very definite losses include the demolitions of the Tillitson Cardboard Box works at Burwell, the largely wooden superphosphate factory at Kings Lynn, the 1840s beer store of the King Street brewery in Norwich and the Caley chocolate factory in Norwich. Giving considerable cause for concern is the large wooden drying shed at the tannery of Hutchins and Hardy in Sawston, which is being allowed to decay, with both the owners and the local authority claiming they have no funds available to make it safe. It could be they are waiting for the next gale. I have mentioned this site in the past, and still hold the view that the only practicable answer is demolition, subject to a full survey being made first.

Concern remains about the Colman's Mustard site in Norwich, which seems to be in limbo, and



The restored timber crane at Gunton Park saw mill in Norfolk

Photo: Barré Funnell

across the river, the Kerrison Road maltings are liable to be demolished to allow for the expansion of the South Stand at the Norwich City ground. Although almost the last recognisable malting structure in the city, the interior has long been stripped out. The Letheringsett maltings/brewery complex is now in the hands of a second developer who seems to be rather more sympathetic in his approach, though his first scheme has been rejected by the planning authority.

In Cambridge, the largely 1930s airport and its buildings are under threat, with moves to relocate the airport further from the city because of concerns about safety and noise. Since it has already been shifted once, in the thirties, and housing development was then allowed to fill the space between the new site and the city, this seems a bit rich. At the moment there is interest in the site of the Gisleham brickworks near Lowestoft, which only closed in the 1990s and has three post WW2

downdraught kilns in pretty good order, and even more interesting, a very large (about 7 metres high) piece of plant for extruding pipes for field drainage by Wootton's of Coalville – can anyone provide information about other surviving examples? In Ipswich, approval has been given for a large redevelopment of the dockside Cranfields Mill and adjacent buildings into the usual offices, shops and housing mix. Industry closures include the North Walsham canning factory and Webers, the last working foundry in Great Yarmouth. However, Capp's foundry in Thurton flourishes, and the new manager, John Capp's son, was awarded the title of Young Ironfounder of the Year. Sadly, the last deep sea trawler in Lowestoft has tied up, bringing to an end an industry created by the two main engineers of the harbour, William Cubitt and Morton Peto.

A sad loss to the knowledge of milling history and technology has been the death of Peter Dolman, but mills in general are well looked after. Particularly notable has been the restoration work at the Drinkstone mills by the Haywards. To end on a more cheerful note, some of the medieval buildings at Isaac Lord's warehouse on Ipswich Dock have been restored, the Aldeburgh brickworks may reopen, the last working maltings in Suffolk, the 1960s Albion maltings, has got a contract to supply Beck's brewery on the continent, the malt going by sea, and Southwold has both a new pier and a new 1920s-style cinema, complete with organ.

David Alderton

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
Graham Brooks, Coomara, Carleton, Carlisle, Cumbria CA4 0BU

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
Kevin Wade, 82 Bishopgate Street, Liverpool L15 1AW

Region 6: WALES

Pat Frost, Castlery Archaeology, 6 Castle Ring, Pontesbury Hill, Pontesbury, Shrewsbury, Shropshire SY5 0YA

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

Derbyshire, Nottinghamshire, Lincolnshire, Leicestershire and Northamptonshire

David Lyne, 10 Somerville Road, Leicester LE3 2ET

Region 9: EAST ANGLIA

Cambridgeshire, Norfolk, Suffolk and Essex

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

Region 10: GREATER LONDON

Dr R.J.M. Carr, 127 Queen's Drive, London N4 2BB

Region 11: HOME COUNTIES

Oxfordshire, Bedfordshire, Berkshire, Buckinghamshire and Hertfordshire
Phil Morris, 71 Van Diemens Road, Stanford in the Vale, Oxon, SN7 8HW

Region 12: SOUTH EAST ENGLAND

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

Devon and Cornwall
VACANT

Local Society and other periodicals received

Abstracts will appear in *Industrial Archaeology Review*.

- Archaeology in Wales*, 41, 2001
- BW Monthly*, September, October & November 2002
- BIAGscope*, 55, Autumn 2002
- Cleveland Industrial Archaeology Society Newsletter*, 81, September 2002
- Conservation Bulletin*, 43, October 2002
- Context*, 76, September 2002
- Cumbria Industrial History Society Bulletin*, 51, December 2001
- Dorset Industrial Archaeology Society Newsletter*, 4, September 2002
- GLIAS Newsletter*, 202, October 2002
- Greenwich Industrial History*, 5/4 & 5, September & November 2002
- Industrial Heritage*, 28, Summer 2002
- Journal of the Norfolk Industrial Archaeology Society*, 7/2, 2002
- Manchester Region Industrial Archaeology Society Newsletter*, 101, November 2002
- Nottinghamshire Industrial Archaeology Society Journal*, 27/2, October 2002
- PHEW Newsletter*, 95, September 2002
- SAVE Britain's Heritage Newsletter*, October 2001
- Scottish Industrial Heritage Society Bulletin*, 24, December 2002
- Search: South Wiltshire Industrial Archaeology Society Bulletin*, 75, March 2002
- Suffolk Industrial Archaeology Society Newsletter*, 79, October 2002
- Surrey Industrial History Group Newsletter*, 129 & 130, Sept. & Nov. 2002
- TICCIH Bulletin*, 18, 2002
- Yorkshire Archaeological Society, Industrial History Section Newsletter*, 56, Autumn 2002
- Yorkshire History Quarterly*, 8/1 & 2, August & November 2002

Books Received

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

Birmingham's Industrial Heritage 1900-2000, by Ray Shill. Stroud: Sutton, 2002. 200 pp, illus. ISBN 0 7509 2593 0. £14.99.

This book aims to give an insight into the industrial heritage of Birmingham, looking at the development of the metal, electrical, bicycle and automotive industries that became the lifeblood of the city. The production of steel pens, buttons, coins and medals, jewellery, railway rolling stock, rubber, glass, lamps and guns and ammunition are also included. Fifteen well-illustrated chapters deal thematically with the various trades and emphasise the skills and resources of the workers.

Dorset in the Age of Steam: a history and archaeology of Dorset Industry c.1750-1950, by Peter Stanier. Tiverton: Dorset Books, 2002. 160 pp, 276 illus. ISBN 1 871164 90 7. £19.95 hardback.

In 24 chapters the author outlines the varying industrial activities found in rural Dorset over 200 hundred years, the wide scope covering such areas as farming, brewing, railways and tramways, ports and shipping, housing and military remains. The traditional industries include hemp and flax, stone quarrying, and potters' clay, and the whereabouts of many of the county's industrial remains are detailed. The book is profusely illustrated with photographs, maps and plans, while a list of selected further reading and an index are also useful. The book will be of particular relevance to those with an interest in industrial history and archaeology, but it is also recommended to all who are interested in Dorset's history as it is written in a friendly, but authoritative, style. This book is a definite purchase for your collection.

Greenwich and Woolwich at Work, by Mary Mills. Stroud: Sutton Publishing, 2002. 128 pp, illus. ISBN 0 7509 3000 4. £12.99.

Maritime Greenwich and military Woolwich have a long industrial tradition. Along the riverside were many wharves and a vast acreage devoted to armaments manufacture and research at the Royal Arsenal. These were complemented by numerous heavy engineering works. In addition, undersea telecommunications equipment and cables were manufactured along with precision instruments. This book illustrates some these industries and the people working in them.

North Derbyshire Tramways, Chesterfield, Matlock & Glossop, by Barry M. Marsden, Stroud: Tempus, 2002. 128 pp, 190 illus. ISBN 0 7524 2398 3. £12.00.

In the heyday of trams, no fewer than seven systems operated in Derbyshire, including horse-drawn, cable and electric systems. This book covers three systems: the Matlock cable tramway, the gift of the publisher Sir George Newnes in 1893; the system at Chesterfield, initially horse-drawn from 1882, but electrified in 1904/5; and the second electrified system in Derbyshire, that at Glossop which operated from 1903 to 1927. An introduction to the county tramways and chapters on each of the three systems describe their inception and history. Many photographs, along with layout plans and maps, illustrate not only their construction and rolling stock, but also the contemporary streetscapes of the towns.

Short Notices

Boston by Gaslight, by Neil R. Wright. Boston: Richard Kay, 2002. 46 pp, 25 illus. ISBN 1 902882 44 X. £5.00.

Boston was one of the first towns in Lincolnshire to be lit by gas. The Boston Gas Light and Coke Company was established in 1825 by local merchants and shopkeepers. The author describes the gradual expansion of the works until nationalisation in 1949. A large new gas works was opened in 1954 which was to cease production in 1970 following the availability of natural gas from the North Sea reserves.

London's River, by Chris Thurman. Stroud: Tempus, 2002. 96 pp, 175 illus. ISBN 0 7524 2379 7. £14.00.

This landscape format book contains a collection of photographs by the author taken over many years. The book is provided with sketch maps and the contents are divided into twelve chapters covering sections of the River Thames from Westminster to Woolwich. The results show the massive economic and social change that has taken place over 40 years.

Anne Jones Booksearch Service

'Bryher' Barncoose Terrace
Redruth, Cornwall TR15 3EP
Telephone 01209 211180

A selection of secondhand and out of print books for sale
Industrial Archaeology:- Canals, Railways, Bridges, early
Engineers, Steam and Engineering interest
Please phone or write for list

**Free book search also available
Details on request**

**TBC PRINT SERVICES LIMITED
MORE THAN JUST ANOTHER PRINTER!**

We provide a complete in-house service for all kinds of print work, including large format posters, transparencies for overhead projection presentations, perfect binding for dissertations etc, saddle stitch binding for pamphlets etc, single and full colour printing from 5 to 50,000 copies, business stationery (including NCR forms) – the list is pretty much endless.

**3c Sunrise Business Park, Blandford Forum, Dorset DT11 8ST
Telephone 01258 453178/488990 Facsimile 01258 488992
Email: tbcpre@globalnet.co.uk**

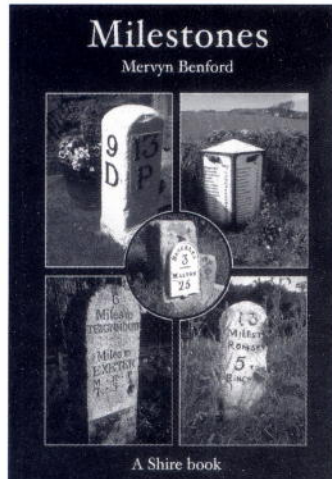
A MILESTONE FOR SHIRE

2002 was an exciting year for Shire Publications who celebrated 40 years of publishing and published their 1000th title, appropriately titled *Milestones*. Shire are one of the few remaining small, privately owned publishing houses in Britain. The popular Shire Album series now runs to over 400 titles, and many have proved valuable starting points for studying a wide variety of industrial archaeological topics.

The 40th year has also brought changes to the design of new Albums, introducing colour illustrations and extending some to 48 pages, bound with a spine. *Milestones* and *Piers* are two of the first in this new format.

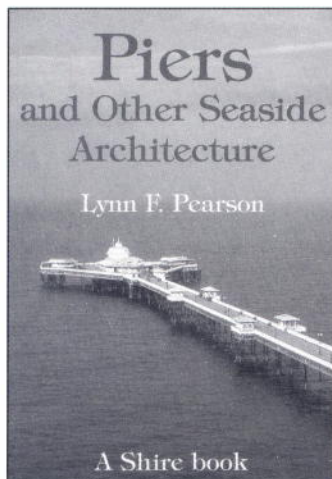
Milestones, by Mervyn Benford (Shire Album 401, 2002). ISBN 0 7478 0526 1, 48 pp, 137 colour illus. £4.99.

This handsome little book in the new style Shire Albums is filled with good quality colour photographs which clearly demonstrate the fascinating and rich diversity of mile-markers. Milestones are found throughout the kingdom and there are brief notes on their origins, their association with turnpike trusts, and how they have fared in modern times. A gazetteer summarises the types of milestones to be found in many counties where they have often been superseded by modern road signs and therefore neglected, damaged or removed.



Piers and Other Seaside Architecture (Shire Album 406, 2002). ISBN 0 7478 0539 3. 48 pp, 99 colour illus. £4.99.

Architecture at the seaside is colourful, inventive and fun, its buildings created in pursuit of profit from pleasure. The author outlines the history of pier and pavilion construction, with examples illustrated from all around the country. Places of entertainment ashore include the Blackpool Tower, the Winter Gardens and other 'pleasure palaces'. Attention is paid to architectural details, with styles from the Victorian period to the modern era, including the 1930s Saltdean Lido and Bexhill's De La Warr Pavilion. Even beach huts and waste water treatment works are not forgotten. The author has also written *Lighthouses* in the Shire series.



Traction Engines and other steam road engines, by Derek Rayner (Shire Album 404, 2002). ISBN 0 7478 0525 3. 40 pp, 79 illus, many in colour. £4.50.

This book describes traction engines from their development in the 1860s, how they worked and what they did. There are sections on agricultural engines, ploughing engines, road locomotives for heavy haulage, smaller steam tractors and the mighty showman's engines, as well as steam rollers and the related portable engines. Working practices and engines are profusely illustrated in historic photographs or at modern-day steam rallies. Derek Rayner has written *Road Rollers* in the series.

Road Signs, by Stuart Hands (Shire Album 402, 2002). ISBN 0 7478 0531 8. 32 pp, 93 illus. £3.50.

Just how can you date those familiar twentieth-century road signs that are now fast disappearing? Importantly, this book is a great help by describing the various Ministry of Transport regulations with their reasoning and dates. Sections cover warning, mandatory and prohibitive signs, direction signs and boundary or location signs. All the main types and varieties are illustrated; one memorable photograph shows scores of redundant Devonshire wooden finger posts stacked together in a yard before being burnt. Places to visit include the Dingles Steam Village in Devon, where many signs collected by the author are displayed.

A textile trio of Shire Albums was also reprinted in 2002. They are *Framework Knitting*, by Marilyn Palmer (ISBN 0 85263 668 7), *Looms and Weaving*, by Anna P. Benson and Neil Warburton (ISBN 0 85263 753 5), and *Textile Machines*, by Anna P. Benson (ISBN 0 85263 647 4). Their price is only £3.50 and these fully illustrated 32-page titles also list places to visit.

All titles are available from booksellers or Shire Publications, Cromwell House, Church Street, Princes Risborough, Bucks HP27 9AA. Website: www.shirebooks.co.uk. The free Shire books catalogue gives a full list of titles.

OVERSEAS DIARY

29 MAY – 1 JUNE 2003

MONTREAL INDUSTRIAL HERITAGE: A CONTINENTAL AND TRANS-OCEANIC TURNTABLE, 1850-2000

at Montreal, the 32nd annual conference of the Society for Industrial Archeology. Details on SIA website (www.ss.mtu.edu/IA/sia.html), or contact James Bouchard, ☎ (514) 251-5148, Fax: (514) 251-5126, E-mail: jamesb@aei.ca.

10-17 JULY 2003

TICCIH XII INTERNATIONAL CONGRESS: THE TRANSFORMATION OF INDUSTRIAL CENTRES & THE ROLE OF INDUSTRIAL HERITAGE

at Moscow, Ekaterinburg and Nizhny Tagil, Russia, the XIIth International Congress of TICCIH, on the study, conservation and re-use of national industrial heritage, with emphasis on transforming and rehabilitating old industrial centres. Details from Congress Secretariat, Mrs Natalia Krasnogor, IHMC, PO Box 65, Ekaterinburg, B-109, Russia 620109. Details and on-line registration form on website www.ticcih2003.ur.ru.

24-26 SEPTEMBER 2003

ARCHAEOMETALLURGY IN EUROPE

at the Museo Nazionale della Scienza e della Tecnologia 'Leonardo da Vinci', a conference on all aspects of the history of iron and copper metallurgy in European countries. Further information is obtainable from website: www.fast.mi.it/aim/archeo.htm or at Associazione Italiana di Metallurgia, P.R. Morandi 2 – 20121 Milano, Italy, ☎ + 39 02 76397770, Fax: + 39 02 76020551, E-mail: aim@fast.mi.it.

26-29 SEPTEMBER 2003

6TH INTERNATIONAL MINING HISTORY CONGRESS

at Akabira, Hokkaido, Japan, a programme of papers and events. Organiser is Koko Kato, and her e-mail address is kokokato@tkd.att.ne.jp. See also website www.imhc2003.com and page 13.

THE BOOK HOUSE

The leading industrial archaeology booksellers since 1963 – books on all aspects of technology & transport

LISTS ISSUED – FREE SEARCH SERVICE

Our new shop is now open, near the top of the village street, adjoining Fallowfield

The Book House, Fallowfield, Ravenstonedale,
Kirkby Stephen, Westmoreland CA17 4NG
Telephone and Fax: 015396-23634
e-mail: mail@thebookhouse.co.uk

Open daily except Sunday & Tuesday: 9am–5pm
or visit our bookstall at many IA conferences

**8 MARCH 2003
DORSET'S BEST KEPT
INDUSTRIAL SECRETS**

at Sutton Poyntz Water Museum, Weymouth, an event organised by DIAS and Wessex Water as part of National Science Week. Brief talks on Dorset's IA highlights, museum tour and visit to the site of Brunel's Great Eastern funnel. Prior enrolment is essential. For details send SAE to: John Willows, Water Supply Museum, Sutton Poyntz Pumping Station, Weymouth, Dorset DT3 6LT.

**5 APRIL 2003
SERIAC**

at the Old Royal Naval College, University of Greenwich, London, the South East Region Industrial Archaeology Conference, on the theme 'The Thames - The Waterway of the World' and hosted by GLIAS. SAE for booking form to F. Morton, 84a Kingston Road, Luton, Beds LU2 7SA. For general conference info. call 020-8692-8512 or visit www.Glias.org.uk.

**12-13 APRIL 2003
AIA IRONBRIDGE WEEKEND**
the annual Affiliated Societies Weekend at the Ironbridge Institute,

Ironbridge, on the theme of 'Power in Corn and Textile Mills'. Further details are on page 8 and a booking form is mailed with this issue.

**26 APRIL 2003
CUMBRIA SHIPPING AND
SHIPBUILDING**

at Ambleside, the 18th annual Spring Conference of the Cumbria Industrial History Society with lectures on shipping and shipbuilding, followed by the AGM of CIHS. For details send SAE to CIHS Bookings, Broombank Cottage, Lindal-in-Furness, Cumbria LA12 0LW.

**10 MAY 2003
SWASWRIAC**

at Devizes, the South West and South Wales Region Industrial Archaeology Conference hosted by the IA Committee of the Wiltshire Archaeology & Natural History Society. Further information can be obtained from WANHS at The Museum, 41 Long Street, Devizes, Wiltshire SN10 1NS.

☎ 01380 727369. E-mail: wahns@wiltshireheritage.org.uk.

**10 MAY 2003
INDUSTRIES OF SOUTH
YORKSHIRE**

at Grenoside, a day school to mark the 70th anniversary of the South Yorkshire Industrial History Society and its forerunners. Details from Chris Morley, ☎ 0114 246 2629.

**16-18 MAY 2003
E-FAITH MEETING**

in London, to provide an opportunity for members of E-FAITH and others to meet. Details from Paul Saulter, 80 Udimore Road, Rye, Sussex TN31 7DY.

**17 MAY 2003
EMIAAC 65: 400 YEARS OF
RAYLES IN NOTTINGHAM**

at New College, Nottingham, the 65th East Midlands IA Conference on the theme of railway developments hosted by the East Midlands branch of the Railway & Canal Historical Society. Lectures on early railways and street tramways, followed by a visit to the Nottingham Express Transit. SAE for details from EMIAAC65, 141 Allestree Lane, Allestree, Derby DE22 2PG.

**7 JUNE 2003
EERiac 13**

at Huntingdon, the 13th Eastern England Region IA Conference. For full details and booking form when available, please send SAE to: Mrs Brenda Taylor, Crown House, Horsham St Faiths, Norwich, NR10 3JD.

**3-7 JULY 2003
MANCHESTER REGION IA
SOCIETY SUMMER STUDY
WEEKEND**

at Van Mildert College, University of Durham. Detail and booking from Jill Champness, 108 Woburn Drive, Hale, Altrincham, Cheshire, WA15 8NF. Tel:0161-980 7612. E-mail: bernard.jill.champness@tinyworld.co.uk.

**13-16 JULY 2003
LEAD AND THE LEVELS:
EXPLORING INDUSTRIAL
ARCHAEOLOGY FROM
ROMAN TO VICTORIAN
TIMES**

at Dillington House, Somerset, a course combining lectures and field visits to explore the Mendip Hills lead mines and the varied industries of the Somerset Levels. Details from Dillington House, Ilminster, Somerset TA19 9DT. ☎ 01460 52427, Fax: 01460 52433.

**5-11 SEPTEMBER 2003
AIA ANNUAL CONFERENCE
IN SOUTH-EAST WALES**

at Cardiff, with a full programme of lectures, awards and field visits. Details are mailed with this issue.

**For Overseas Diary
see page 19**

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.

A fuller diary can also be viewed at www.industrial-archaeology.org.uk



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: aianews@stanier49.freeserve.co.uk.

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.



*Water turbine pump of 1857 at the water museum at Sutton Poyntz near Weymouth, one of Dorset's best kept industrial secrets featured in a forthcoming day event (see Diary above)
Photo: Peter Stanier*