

THE CHALLENGE OF CRUMLIN VIADUCT

The demolition of Crumlin Viaduct 27 years ago was one of the great losses of British industrial heritage, comparable perhaps with the destruction of the Euston Arch. Yet whereas the latter proved a powerful stimulus to the industrial conservation movement, the loss of Crumlin Viaduct went relatively unnoticed nationally at the time. Even today, the case raises important questions about our approach to major conservation challenges.

The viaduct, which crossed the Ebbw Valley ten miles north-west of Newport, Gwent, was one of the most significant examples of technological achievement in the industrial revolution. It was the most forthright of the world's earliest lattice girder structures, occupying a place in the development of lattice girder bridges similar to that of Pontcysyllte Aqueduct in the history of cast iron.

Crumlin was also one of the most spectacular monuments ever produced by the British railway age, and an important landmark in south Wales. Jack Simmons wrote of it in 1961, 'Though it is a perfectly plain structure, with no ornament at all, its height and the open latticework of the piers on which it rests give it an exceptional grace...' Of Crumlin together with Stephenson's Britannia Bridge, he said, 'Any one who wishes to see the use of iron in bridges at its best, and in the strongest possible variety, will still find it worth while to visit these two great works, built within ten years of each other, at opposite ends of Wales.' (*The Railways of Britain*, pp. 77-8.)

South Wales saw a massive increase in coal and iron production during the nineteenth century, and railways were vital in permitting this expansion to take place. Most traffic went down the valleys to the ports, but in 1847 the Newport, Abergavenny and Hereford Railway obtained an Act to build a new link, the Taff Vale Extension, from their line at Pontypool to the Taff Vale Railway at Quaker's Yard. In the words of the Company, this was to provide 'a direct line from the mineral districts to Liverpool and the commercial marts of the Midland and Northern Counties'. The route crossed the grain of the valleys by a series of embankments, bridges and tunnels. The viaduct over the Ebbw at Crumlin was the most notable engineering feature of the line, and evoked

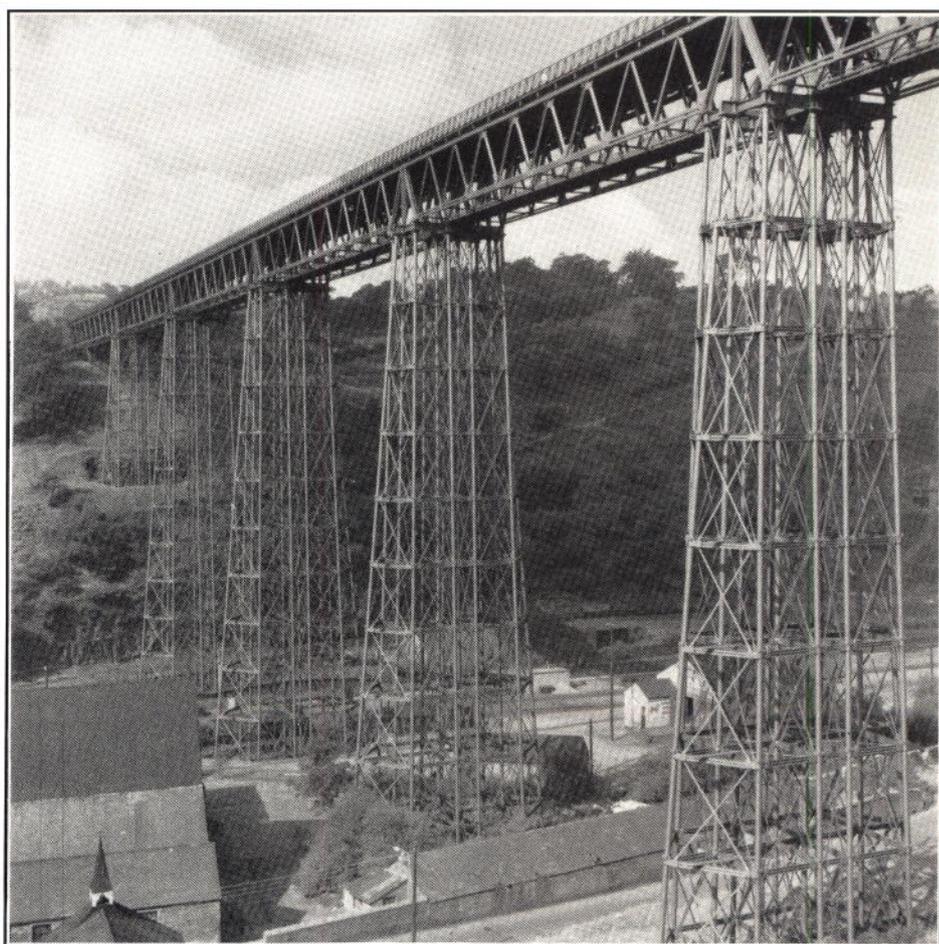
international acclaim. When it opened in 1857, the *Illustrated London News* commented, 'The man of science must regard this structure as one of the finer specimens of engineering construction which has been produced in this age of mechanical triumphs.'

The route as laid out by the company engineers Messrs Liddall and Gordon necessitated crossing the Ebbw at a height of over 200 feet. Since the valley was intersected by the smaller Kendon Valley at this point, in essence two bridges would be required linked by a rock knoll. The total length of the bridge would be 1,650 feet, the main valley requiring a section of 1,050 feet and the smaller valley 450 feet. The company invited tenders for a wrought iron bridge in August 1852, and considered two in October, for a lattice design submitted by Messrs Doynes and a 'Warren' configuration submitted by Messrs Kennard. The Kennard

tender was recommended on the grounds of strength and economy by Liddell, the Company Engineer, and the contract was awarded.

Messrs Kennard's design was based on the invention patented in 1848 by James Warren and Willoughby Menzoni: a triangulated truss of sloping members between horizontal top and bottom beams, commonly known as the Warren Girder. The bridge was of ten spans, seven of which were over the Ebbw valley. Each pier was made of 12 cast iron columns of one foot diameter, and the deck consisted of four lines of Warren truss girders, each of 150 feet span and 15 feet deep.

The significance of Kennard's viaduct lay in the design of the girders, which represented a stride forward in structural practice. T W Kennard applied a more detailed analysis of the stress distribution in the span, thus allowing design improvements to the top and bottom



The Crumlin Viaduct: would we treat it better today?
Photo: Howarth-Loomes Collection c/o RCAHM Wales

beams of the girders. This allowed economy in the use of iron by varying the cross-sectional area of beam without adversely affecting strength. Kennard patented his invention in 1853.

The fabrication of the wrought iron components was carried out using bar iron from Blaenavon Ironworks in a substantial permanent engineering works built on site by Messrs Kennard. The viaduct opened in 1857 to world-wide admiration, with Kennard's innovative design receiving much acclaim from the many eminent bridge engineers of the period. Crumlin proved to be the first of a series of viaducts based on Warren's triangular girder. Messrs Kennard continued to design and manufacture bridges at their engineering works at Crumlin for world-wide projects for a number of years.

The new railway was a strategic success initially, with its various spurs providing access to over 18 ironworks with a total of 117 furnaces. The take-over by the Great Western in 1863 coincided with the explosion in the coal trade and the extension of the line into the Aberdare and Neath valleys. Despite the decline of the inland iron trade, this ensured that coal traffic would maintain the viability of the line for the next one hundred years. However, as the coal

industry, too, gradually declined after the First World War, rail traffic reduced, and in 1964 the line closed.

British Rail immediately declared its intention to demolish the viaduct, owing to its need for regular maintenance, unlike most masonry structures. The viaduct had been listed in 1960, but permission for its demolition was granted once the costs of maintenance had been looked into. Little consideration was given to whether preservation was justified or how it might be achieved, as it was felt by the government departments involved that expenditure on maintenance could not be justified and the life of the structure would be limited in any case. The response of the local authorities was muted and no real effort was made to establish the historical significance of the viaduct or its likely future value to the nation's heritage. The Royal Commission on Ancient and Historic Monuments in Wales was asked to make a photographic record. However, demolition went ahead in July 1966.

Today, only the stone abutments survive, towering high on the hillsides above the village of Crumlin (SO 213986). As Bryan Morgan wrote in *Railway Relics* (1961), for a paltry sum in annual upkeep, Britain had lost for ever a monument of great technical importance.

This demolition seems almost inconceivable today. Crumlin was one of the most technologically important bridges ever to have been built, and was a truly impressive landmark; but the minds of people at the time were largely set against its retention. Many local authorities in South Wales in particular appear to have been determined to obliterate all traces of the detested ironmasters and coal owners, though many of the same authorities are now striving to promote their areas through the lesser industrial heritage they did not manage to destroy.

Energetic attempts are being made by the Bennerley Viaduct Preservation Trust to keep the similar bridge of 1879 in Derbyshire, but even today such fights are long and difficult. One hopes that with our experience from cases like Crumlin and better understanding of industrial heritage, we will be able to regard future challenges of conservation with greater insight, and think ahead while there is time. But would we? Many similar future challenges may exist. The present Severn Bridge, for example, completed in the same year that Crumlin was demolished, might yet be considered for demolition. How will we react to such prodigious conservation problems, and how will we be judged in years to come? **Michael Tutton**

NOTHING LASTS FOR EVER

Literary and artistic criticism is not something we are often treated to in the Bulletin. The following article by Francis Haveron is an individualistic critique of one recent film. Readers are invited to respond to this, or to send in articles about other works relevant to industrial archaeology.

In AIA *Bulletin* 19.1 last year, Stephen Hughes recommended that British local societies should borrow an English language film about industrial archaeology from the Netherlands. Having tracked down this film, called *Nothing Lasts For Ever*, I borrowed it from the Dutch producing company and showed it to the Surrey Industrial History Group. It is on 16mm format in colour and obtainable from the producer Rene Scholten at Studio NIEUWE GRONDEN, Van Hallstraat 52, 1051 HH Amsterdam, The Netherlands, Fax 020 682 43 67 or ☎ 020 686 78 37.

Unusually, this is a film about industrial history and its relics that was made by a woman, Digna Sinke. On the evidence of this one film, a woman's and a film-maker's viewpoint of industrial archaeology can be very different from that of most industrial archaeologists. A common approach is one of precision: setting a place, a building or an object in its time and its situation; exploring relationships of time, place and significance; mapping out its world with the accuracy of a geographical survey. Digna Sinke's film gives some dates and historical perspective, but avoids the traps of dullness or at least a sense of talking to a small, narrowly interested minority. Instead, she approaches the task with a poetic eye and a sense of pessimism aptly conveyed by her film title. Her first sequence, for example, wanders in leisurely fashion through a deserted porcelain factory which nature is rapidly engulfing with foliage. The film's climax is a sequence of shots (mostly archival newsreels) of demolition by dynamite of elderly factory buildings and unwanted chimneys—a sequence which appeals

to the destructive small boy who lurks beneath our skin. The coda is a series of shots zooming back or travelling back down the corridors of melancholy buildings awaiting demolition or of deserted railway tracks in a factory area.

The problem is that of an audience. Who is the film aimed at? Any film about industrial archaeology is welcome but this one does talk down to its viewers at the beginning like a Schools TV broadcast to ten year olds. Is it intended as a tribute to the past history of Dutch industrialisation? Is it intended to pay a tribute to the sterling efforts of industrial archaeology enthusiasts? Is it intended to excite our enthusiasm for visiting industrial archaeology sites in Holland? None of these really fits this film. The best interpretation might be that it is a philosophical musing on the impermanence of man's endeavours. It is not likely therefore to please the industrial archaeology movement whose members may not be given to thinking about the brevity of life and of work. On the positive side, it does convey usefully some idea of the progress of Dutch industry, yet it pays no attention at all to windmills and canals, those essential of Dutch industrial archaeology and history. Several industrial archaeologists are shown but, with respect, their preservation work is not adequately displayed. One problem could be that the film's length has been cut heavily, from 74 to 56 minutes. The result is that it appears disjointed. An example is the treatment of a wind pump dealt with in five shots, two of which show an enthusiast walking across a field, but no information as to what it is, its date, its importance, where it is nor what it is doing in the film are given to us. There is no complete shot of it, no explanation, no development.

The sound track, though, is particularly interesting as it mingles, amongst many other sounds, bird song and the quiet cough of a steam-powered pumping engine, plus some delightfully cool Mozart and even a snatch of a tango. Alas, the editor has left in an embarrassing excerpt of a singer extolling the praises of

the HAKA chain of co-operative stores, one of which—the headquarters? it is never made clear—we are soon shown being demolished to make an ironic comment and perhaps to bear out the film's pessimistic title.

Summing up, an interesting film but ultimately one which leaves its audience feeling sad and dissatisfied. It promises much but provides little. The industrial archaeology movement has tried, in many cases successfully, to arrest Time's winged chariot. In Britain we are perhaps too self-satisfied with what has been achieved but I find it difficult to believe that there are reasons for our Dutch colleagues and those in other European countries to be so downcast. There is a satisfying kind of tragic melancholy in contemplating decay and ruins but the industrial archaeology movement as a whole is realistic, positive and determined, and is not likely to sympathise with the mood evoked by this film.

Francis Haveron

NOTICEBOARD

ANOTHER ROUNDHOUSE

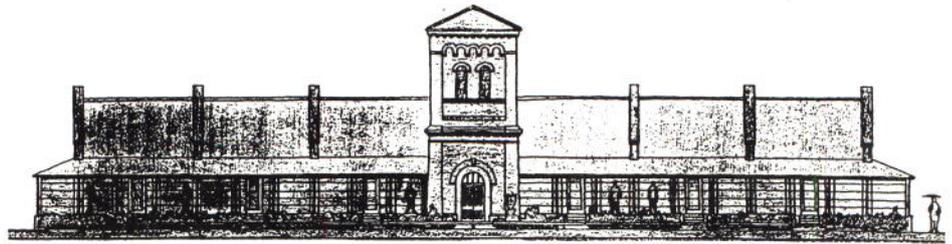
The Barrow Hill Engine Shed Action Group was formed to save the last operational ex-Midland Railway steam roundhouse, at Chesterfield. The roundhouse was built in 1870 and housed up to 80 locomotives until it ceased operation in 1991. As a result of their efforts, the buildings and turntable have been listed and attempts are being made to negotiate purchase of the property for a working museum. The Group would welcome support from all quarters. Contact Mervyn Allcock, 266 Williamthorpe Road, North Wingfield, Chesterfield, S42 5NS ☎ 0246 854921.

FUTURE OF THE ROYAL GUNPOWDER MILLS AT WALTHAM ABBEY, ESSEX

In 1991 the Ministry of Defence (MoD) closed the Royal Armament Research and Development Establishment (RARDE) at Waltham Abbey. This is the site of gunpowder mills which were probably first established in 1665 and became the second government gunpowder factory (after Faversham) in 1787. In the nineteenth century the site was at the forefront of research into the development and manufacture of modern explosives and propellants. This continued into the twentieth century and after World War II the establishment took on a series of new titles until in 1984 it became RARDE.

The site occupies some 190 acres, much of which is a Site of Special Scientific Interest (SSSI) with, for example, the largest heronry in Essex. There are also many historic industrial buildings, including several terraces of steam powered gunpowder incorporating mills, the earliest dating from 1857. Much of the site is contaminated with waste products from explosives research, development and testing.

The MoD appointed CIVIX, a group of urban design, development and planning consultants, to advise them on the sale of the site. CIVIX in



turn consulted many interested parties, including Waltham Abbey Town Council, Epping Forest District Council, Lee Valley Regional Parks Authority, Essex Wildlife Trust, Gunpowder Mills Study Group (GMSG), English Nature, English Heritage, and the Royal Commission on the Historical Monuments of England (RCHME). The industrial archaeology interests have been largely represented by the GMSG, with the support of the Greater London IA Society. CIVIX and the local community have been very supportive of our proposals which include the creation of a national gunpowder museum in one of the ranges of steam-powered mills. In addition the RCHME, with the support of English Heritage, have carried out a major survey of the site and its buildings and have discovered many unexpected artefacts, including powder punts on the network of canals which served the site. The Commission has also undertaken a detailed study of the extensive archive of documentary information on the mills, much of which was deposited recently at the Public Record Office. It is anticipated that many features of the site will be listed or scheduled as a result of this activity, which is also linked to a national survey

of the gunpowder industry currently being undertaken by English Heritage.

On 22 March CIVIX presented their proposals to the MoD at a briefing meeting held at Waltham Abbey Town Hall. These involved the use of some parts of the site for housing and commercial developments, including an hotel, other parts for leisure, recreation and education, including the proposed museum, and also the retention of the SSSI. KPMG Peat Marwick, who had been commissioned to examine the feasibility of creating a Trust to develop the site also reported. They envisaged development over a period of five years of a Visitor Centre, the Gunpowder Museum, a Nature Centre, and 'people mover' systems using the existing canals and perhaps a re-created tramway. We now await the reports from the RCHME and English Heritage during the summer and the response from the MoD, which is under an obligation to the Public Accounts Committee to achieve a market value for the site. However, whatever else materialises, an enormous amount of information is becoming available on the history of the explosives and propellant industries.

Alan Crocker, Chairman GMSG

ROSEDALE

A £300,000 project jointly funded by English Heritage and the North York Moors National Park will protect the ironstone kilns at Rosedale from further damage and preserve the best parts to give an impression of the original layout. Ore was mined in this remote valley from the 1850s to the 1920s for the Teesside ironworks, and the area forms one of the most impressive industrial landscapes left in Britain.

NEW MEMBERS

The Association welcomes the following new members, who have joined since January:

Michael Tutton, Abergavenny
Richard J Butterfield, West Yorkshire
Eric V Cooper, Alloa

Dr Tim Smith, West Sussex
Victoria A Perry, Bury St Edmunds
E L Golberg and M D Hamilton,
Washington DC

Jonathan Clarke, Telford
Alan Jervis, North Yorkshire
T E Evans, Haywards Heath
Jill Halpin, Surrey

M J Wagrel, Totnes
Lorraine R Wilde, Burton-on-Trent
Spencer Cooper, Birmingham

Peter Wildman, Rugeley
John L Irwin, Farnham
B C Taylor, Norwich
Philip C Parker, Perth

John H Rapley, Honiton
W D Cocroft, Newcastle-under-Lyme
J C Taylor, Sheffield

Martin Frisby-Boor, Farnborough
Dr S Peters and Ms C J Mills, Leicester
Roy Powell, Wiltshire

In addition, the following organisations have affiliated to the Association or become institutional subscribers:

Museu Paulista, USP Biblioteca, Brazil
Nottingham Trent University

AFFILIATED SOCIETIES

By the time members receive this, the 1993 Ironbridge Weekend will be over, and plans in hand for next year's event. If anyone has any suggestions, either about the general arrangements, or topics and/or speakers, please let me know.

I am pleased to report that I have received a

'Society Profile', from the Westonzoyland Engine Trust. Keith Hooper, their publicity officer, provided the piece below.

May I remind groups that further 'Profiles' would be most welcome—send these, or any comments about the AIA's service to local societies, to me at 20 Stourvale Gardens, Chandler's Ford, Hampshire, SO5 3NE.

Pam Moore

SOCIETY PROFILE WESTONZOYLAND ENGINE TRUST

The Westonzoyland Engine Trust is a small (but enthusiastic!) group of volunteers who aim to restore the first steam pumping station on the Somerset Levels, and establish a museum of steam and land drainage. The Trust was founded in 1977 when a group from the Somerset IA Society was invited by the then Wessex Water Authority to survey the 1830 built station and its later secondary pumping engine built by Easton and Amos of London in 1861. The pumping engine consists of a two cylinder vertical steam engine, one cylinder being either side of a well and connected by an overhead crankshaft geared to an Appold centrifugal pump in the well. The original group became a charitable Trust in 1980 and steamed the engine for the first time since 1951 on 7 May 1983, after having installed a small vertical boiler and constructed a new boilerhouse. Lack of skilled bricklayers ensured the new work was suitably wobbly to match the old!

After having leased the site for some years the Trust was offered the freehold of the majority of the site for a small sum and was able to purchase this from the then newly-

formed National Rivers Authority. The Trust has been able to re-build the sixty-foot high brick chimney and restore a large part of the roof, but much attention is needed to the inside of the buildings. We have been fortunate in obtaining various other steam engines, a blacksmith's forge, a two-foot gauge railway and a 50 hp Crossley diesel engine, as well as many smaller items. A new exhibition hall is largely complete and just awaits internal finishing and cosmetic exterior work.

At present the Trust has some seventy members, with a 'hard core' of ten working on Thursday evenings and Sunday afternoons. The Station is open to the public on the first Sunday in the month from April to October from 2pm to 5pm, when the engines are run under steam. We are also open on any Sunday afternoon and on Thursday afternoons in June, July and August, not in steam. The Station is 1.5 miles from Westonzoyland Village on the Burrowbridge road (ST 340328).

For further information please contact: Mrs M Miles, Hon Secretary, WET, Rose Cottage, Lower Durston, Taunton, Somerset, TA3 5AH ☎ Taunton (0823) 412713.

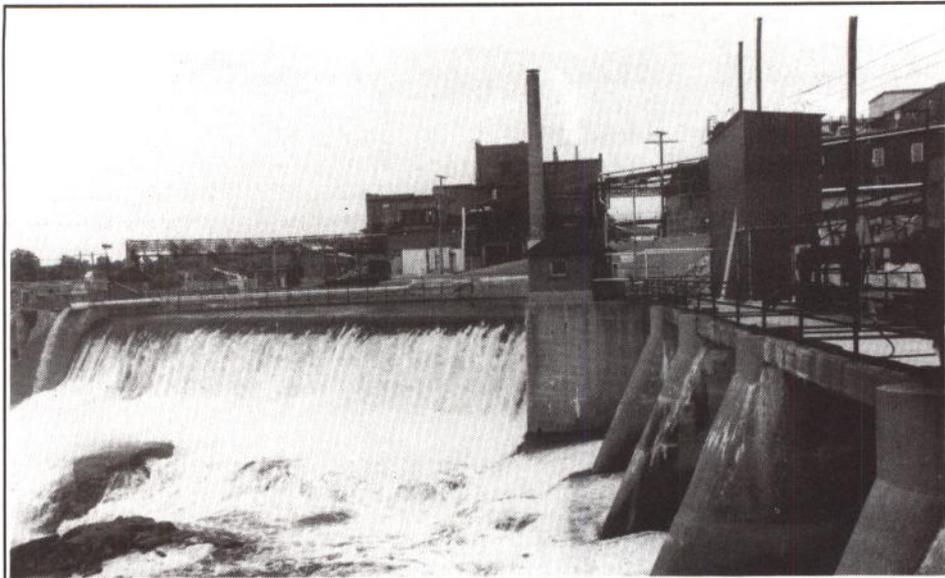
COMMENT

This new regular feature in the *Bulletin* provides a 'leader' column in which opinion, not just information, can regularly appear. The Editor will be pleased to receive letters from readers in response to Comments, or on other matters.

A book launch was held at the Science Museum in March. Such events are not unusual, but this was an exception: the publication of the largest single work yet to be devoted to industrial archaeology.

The *Blackwell Encyclopaedia of Industrial Archaeology*, at nearly 1000 pages, is a publishing event of considerable proportions, and one of which practitioners of industrial archaeology need to take notice. Large books with an overview of the subject as a whole are still rare, perhaps even non-existent, and we are not well served with basic texts or introductions. We have never had a dictionary, let alone an encyclopaedia, of our discipline.

We have also seldom had books in industrial archaeology which take a truly international perspective, explaining and comparing developments in different countries. The *Encyclopaedia* is primarily concerned with doing precisely this, presenting lengthy articles on the industrial archaeology of most industrialised countries and shorter articles which discuss individual sites and regions of international significance. The subject index provides the means to trace particular industries within the geographical entries so that patterns of international influence and archaeological survival can be understood. In a subject which still excites its practitioners to claims of 'the oldest...', 'the first...', 'the most complete remaining...' in the world, this is a valuable context for our studies. Other articles define useful terms, and describe industrial processes, historical figures, sources and approaches, and even a few industrial archaeologists.



From our first encyclopaedia: an electrothermal phosphorus works at Quebec, Canada—established in 1893 and controlled by the British company Allbright and Wilson from 1902
Photo: Barrie Trinder

The *Encyclopaedia* will be reviewed badly. The first reference work in any new discipline is a gift to the critics: it will be imbalanced, it will contain mistakes, and it will certainly omit some readers' favourite things. However any first reference work is also by its nature an immense achievement.

This particular work has been eight years in gestation and has occupied over fifty contributors to write almost one million words. It has been a giant leap of endurance for its General Editor, Barrie Trinder; and it is one small, significant step for industrial archaeology. It shows that our subject has reached a level of importance at which expert contributors can be found from most developed countries in the world, at which a commercial publisher will entertain a large financial risk, and at which it can gain national media attention (a half hour feature on the *Encyclopaedia* was broadcast on Radio 4 on 1 May). It also gives us the

beginnings of an international terminology for our subject, a broader perspective of subjects and techniques than any single person has ever addressed before (pulling together architecture, conservation, engineering, science, archaeology and history on a worldwide basis), and a vast quarry of facts and information.

Those of us who live in Britain may have to gain some humility in realising other countries were more advanced in particular industries at crucial times; but we may also be pleasantly surprised by the international context revealed. As Neil Cossons said at the launch of the *Encyclopaedia*, 'It shows again and again the central role that Britain played in changing the shape of the world from the eighteenth century'. Perhaps this places on us in Britain a special duty to undertake our work with expertise and knowledge—and perhaps our first encyclopaedia, at the very least, can show us what it is we need to learn.

OBITUARY

KEITH GALE

Walter Keith Vernon Gale, of Goldthorn Park, Wolverhampton, died on 24 April, aged 79.

Keith Gale was a member of the Institute of Metals and a Fellow of the Royal Historical

Society. He was a past President of the Newcomen Society, the Staffordshire Iron and Steel Institute and the Historical Metallurgy Society.

He was born into a family long involved in the iron industry of his local Black Country, a mystical area which in later life he was to define. His earliest memories were of the local rolling mills. At a very early age, becoming fascinated with all aspects of iron and steel production, he determined to learn of them all he could. This became an all-embracing passion which continued throughout his life.

He first served an apprenticeship at Soho Foundry where he learned practical aspects and at the same time set about research not only amongst established

sources but into company and estate records. He gained assistance from the Birmingham Common Good Trust in 1951 and was awarded a Leverhulme Research Fellowship in 1952. Having been commissioned in 1954 to write the history of a foundry he was encouraged to write his first full-length book *The Black Country Iron Industry: a Technical History* published in 1966.

By 1960 he had become metals editor of *The Engineer* continuing to 1972, from which time he was a freelance writer. A prolific author of technical papers, he contributed nine to the *Transactions of the Newcomen Society*, having read them at the Science Museum. Several of his works will be well-known to almost every industrial archaeologist in Britain: *The British Iron and Steel Industry* (1967), *Iron and Steel* (1969), *The Iron and Steel Industry: a Dictionary of Terms* (1971), 'Iron and Steel' in *The Archaeology of the Industrial Revolution* (1973) and *Historical Industrial Scenes: Iron & Steel* (1977). His other major published works include *A History of the Pensnett Railway* (1975), *A History of Bromford, 1780-1980* (1980) and *Walter Somers Ltd: A History, 1866-1986* (1987).

In later years he became honorary adviser on iron and steel to the Ironbridge Gorge and the Black Country Museums and acted as adviser



Keith Gale working on his research at Noah Hingley's Foundry, Netherton

SMALLSMITH'S DIARY

20 April

Bolt, the remarkable Mrs Dobbin, my dear wife and I have just returned from another excellent Regional IA Societies conference. Bolt had the honour of giving a five minute address on our Society's new computerised IA Database—at least, he was supposed to speak for five minutes. In his defence, I do feel he was justified in taking longer to explain what is a very intricate system, and he was certainly not alone in going 'over time' in the Contributions section. However, it was a shame that half a dozen or so groups then had to forego their turn so we could all get to the nearby gas-lit beer palace on time. There, Bolt, who was clearly uplifted by his 'five minutes of fame' (actually half an hour), partook of real ale in a very debonair fashion. Once he is over his hangover, he may well regret this liberality, though, for in his beery good-humour he bet members of the Rivetsville Canal Restoration Trust £500 that he could restore the last five miles of the canal single-handedly before the end of July. I suspect the Trust will insist he honours this bet, as they were one of the societies denied their contribution, and, what's more, Bolt and Mrs D gave them an hour long performance of traditional Pipeclay Ironworkers' ditties before they could escape.

24 April

Sure enough, Bolt has received a letter from the Canal Trust inviting him to start his restoration work. It was a somewhat frosty and unhelpful letter given that Bolt is in effect a volunteer, and that 'Good Management of Volunteers' was one of the themes of the Conference. A post-script added that the Trust was looking forward to his imminent and much-welcomed financial contribution to their meagre funds. Bolt is on his way to Rivetsville tomorrow, '...to sort out a gentlemen's agreement'.

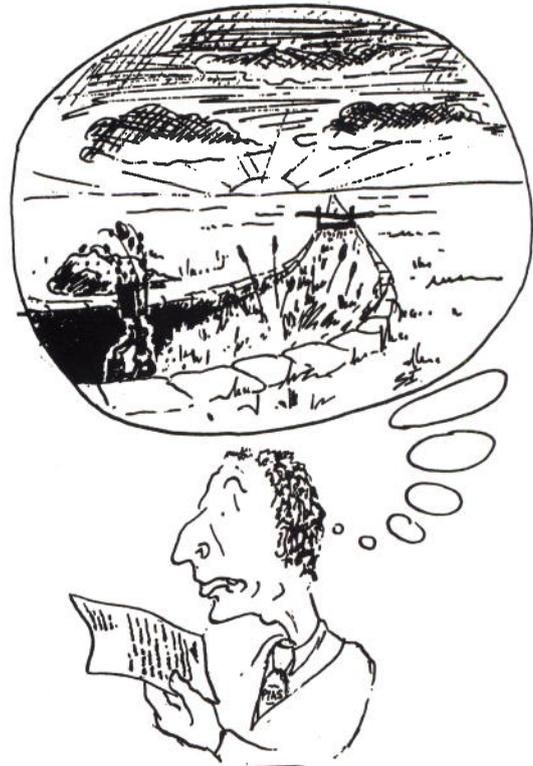
30 April

A strange weekend. On Friday we were called at very short notice to an extraordinary meeting of the Pipeclay IA Society by Bolt on his return from Rivetsville. We hadn't seen him so agitated since Neill sent him a Valentine's card purporting to be from Mrs Dobbin some years ago. It turns out that the 'gentlemen's agreement' he negotiated was actually a 'double-or-quits' bet that he knew more eighteenth-century Worcestershire bargee terminology than the combined members of the Canal Trust. One would normally expect Bolt to win this easily, as anyone who has heard him on the subject will testify readily. Unfortunately, however, he found himself up against a Trust member who has just completed a 120,000 word thesis on that very same subject at a nearby college. This leaves Bolt owing £1,000 to the Trust—unless, of course, he manages to clear five miles of canal on his own. At our meeting, Bolt at first argued that he was representing our Society when he made his bet, which

made us all liable. This was quickly dismissed by Neill. (Neill has an uncanny insight into our Society's rules and regulations which, so my wife would have it, always seems to benefit his own activities. But in this instance we supported him.) However it was proposed that the Society would offer the Trust our expertise in computer technology if Bolt was released from his obligation, and to Bolt's immense relief—he was contemplating having to sell his complete set of The Railway Magazine to pay off his bet—the Trust have now agreed.

6 May

Bolt, who recovers quickly from setbacks, was heard bragging at the pub tonight that, through his efforts, two groups had been brought together in a scheme which will be the model of future inter-society co-operation. But we all noticed that he was for once drinking only tonic water.



on historical cast and wrought iron for the Department of the Environment and for consulting engineers on several wrought iron structures, including Clifton Suspension Bridge, Kew Gardens Palm House, Clevedon Pier, and Meldon Railway Viaduct in Devon.

Ever ready to assist the serious enquirer from his great knowledge and the resources of his massive library he was quick to dismiss those who made vague requests and expected him to carry out their own research.

He was pleased to present the Rolt Memorial Lecture in 1991 to the AIA, entitled 'Researching Iron and Steel: a personal view'. This was a largely autobiographical document, and writing of his life and experience he stated '...it has given me that unquantifiable but extremely valuable thing, job satisfaction, not sometimes, but always...'

He leaves his wife Ann who was his great support and who was responsible for typing the many millions of words he wrote. So many friends and associates have lost a great colleague who will be sadly missed, and a man truly the leading historian of iron and steel.

J S Allen

AIA NEWS

SMALLER PUBLICATIONS

The *Bulletin* has not included reviews of publications for some time, but many organisations send publications and newsletters to the Editor so that he can glean news and events. From now on, all such publications should be sent to the Editors of *Industrial Archaeology Review* at the Department of History, The University, Leicester, LE1 7RH, who will feature their contents in the IA Abstracts service or in reviews, as appropriate. They will pass on to the *Bulletin* Editor news that might be suitable for publication here. Organisers of events which have a potential nation-wide appeal should send details to the *Bulletin* Editor direct as soon as they are available, so that they can be considered for the Diary column. Many important events have not been notified to the *Bulletin* recently, so if you are organising one, please ensure the information is sent in as early as possible.

1993 SUBSCRIPTIONS

Members are reminded that all subscriptions are due for renewal on 1 July, and members without direct debits will receive an individual reminder during May or June. There is no change in subscription rates this year. New personal members who joined after January have the benefit in their first year of subscription through to June 1994.

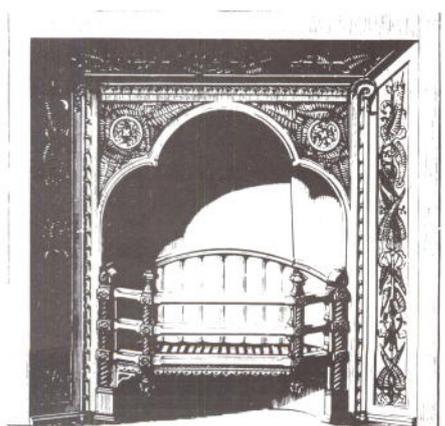
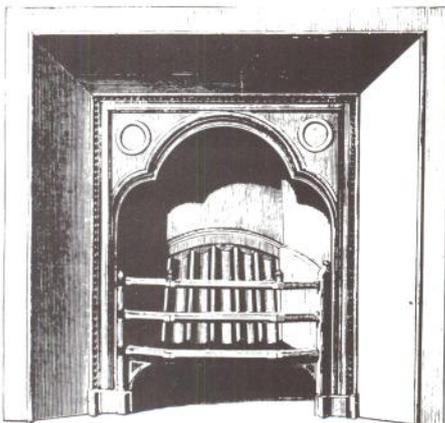
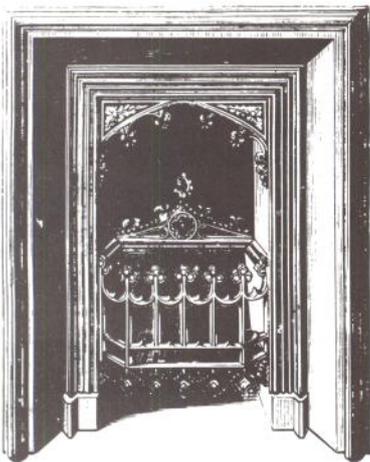
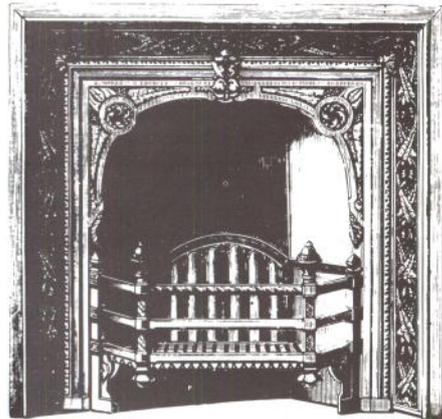
Members who pay by direct debit will receive no further advice. The amount due is the same as advised last year or, if they have recently signed a direct debit authority, the amount confirmed in the acknowledgement.

Following suggestions from overseas members we are now able to accept payment by Visa, Mastercard or Access (but not American Express, Diners Club or Switch). Details will be with the renewal reminder. We hope you find this of use.

As usual, can I make a plea to members to renew promptly when you receive the reminder and to follow the instructions. Do remember that your officers all work voluntarily and while we are administering the AIA for you we are deprived of indulging in practical industrial archaeology.

Michael Messenger, Hon Treasurer

grate illustrations



NEWS

GRATE ADVICE

They are among the most common products of the Victorian decorative arts; many of us have them in our homes; but how many of us know about the history or care of Victorian fireplaces? A new booklet has been produced by the Victorian Society to provide a historical introduction to the subject, to give guidance to the different styles of fireplace that were made, and which may be appropriate to a particular house. It explains how to care for fireplaces and the different materials used in their

SALE OF BATTERSEA POWER STATION

The 31 acre Battersea Power Station site in London which includes Sir Giles Gilbert Scott's famous art deco power station has recently been in the process of being bought by the Hwangs, a Hong Kong property-owning family. Mr George and Mr Victor Hwang, the brothers negotiating on behalf of their family, bought the development's bank debt at a large discount. This debt was probably more than £100 million (*Financial Times* 25 February 1993).

The subsequent future of the power station

is at present uncertain but Mr Victor Hwang has expressed his intention that it will not be demolished. The site became the property of the Hwang family at midday on Friday 26 February 1993 (*Independent* on Sunday 28 February 1993 and *Evening Standard* 9 March 1993). After selling Alton Towers in Staffordshire three years ago Mr John Broome had intended to develop a theme park around the power station, 'The Battersea', but the scheme ran into financial difficulties.

Robert Carr

THE MUSICAL MUSEUM BRENTFORD

At Brentford in West London there has been scaffolding on the tower of St George's church that houses the remarkable collection of mechanical musical instruments founded by the late Frank Holland MBE. Remedial work was necessary to secure the stone cladding of the tower which was separating from the brick core. Fortunately, the John and Ruth Howard Charitable Trust was able to donate £5,000 to assist with the expense.

The musical collection has been at St George's since 1963. A total of approximately

100,000 people have visited the museum and there have been more than 240 concerts there. On Sunday 28 March 1993 a thirtieth Anniversary Celebration was to be held at the Waterman's Arts Centre Brentford. Apart from numerous musical performances the showing of a 1925 film on the Wurlitzer Factory was advertised. A full programme of Saturday concerts at St George's runs until 30 October 1993. For details and booking contact the Musical Museum, 368 Brentford High Street, Middlesex TW8 0BD ☎ 081 560 8108. New volunteers are always welcome.

Robert Carr

HERITAGE DEVELOPMENT IN LEEDS

In Leeds a beer and brewing museum is being built on the banks of the Aire at Tetley's Brewery Wharf. It will open at Easter 1994 and will include a gallery of pubs through the ages, and stables for shire horses. The £5 million Granary Wharf development at Leeds Canal

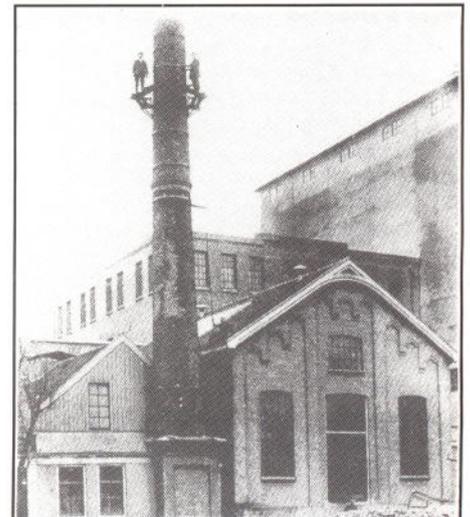
Basin will include refurbishment of the listed granary as a restaurant and offices. The Yorkshire and Humberside regional offices of the Countryside Commission has moved to the listed Victoria Mill, a refurbished warehouse by the Aire in Headingley.

David Cant

PRESSURE IN THE BOILER

In the Netherlands, the organisation known as PIE, the Project-Bureau for Industrial Heritage, has launched a programme for policy development and action entitled 'Pressure in the Boiler'. PIE has the support of the Dutch Parliament and the Minister of Welfare, Public Health and Culture. The programme is an all-embracing attempt to devise rational approaches to the industrial heritage, and involves over forty projects of research or action. Amongst its concerns are many of the classic problems of the industrial heritage. Projects are focused on ways of selecting subjects for conservation, on policies for moving or rehabilitating structures, and on the needs for greater information and education. They are also concerned with the roles of the industrial heritage in recreation and tourism, and the need for urgent responses to threats to industrial structures in some cases. This is an agenda which will be familiar to industrial archaeologists in all countries, and PIE is anxious to develop international co-operation so that they can learn from the experience of

others. Details of 'Pressure in the Boiler' and how to help can be obtained from C H R T Weevers, Office Manager, PIE, Netherlands Institute for Industrial Heritage, Postbus 948, 3700 AX ZEIST, Netherlands ☎ 03404 32999.



Under pressure: the Duyvis vegetable oil factory

ZOO QUEST

The world's zoos contain some of the most important examples of early modernist architecture, and especially developments in the uses of reinforced concrete: relevant themes in the archaeology of the industrial era. The recent threat to close London Zoo was regarded as particularly distressing by conservationists of buildings as well as wildlife, as Regent's Park contains some of the most innovative zoological structures ever built. The Royal Commission on the Historical Monuments of England responded to the threat by sending in a buildings recording team last year, and this has now resulted in a publication by Peter Guillery which features many fascinating buildings, from the grade I listed Penguin Pool to the famous Snowdon Aviary.

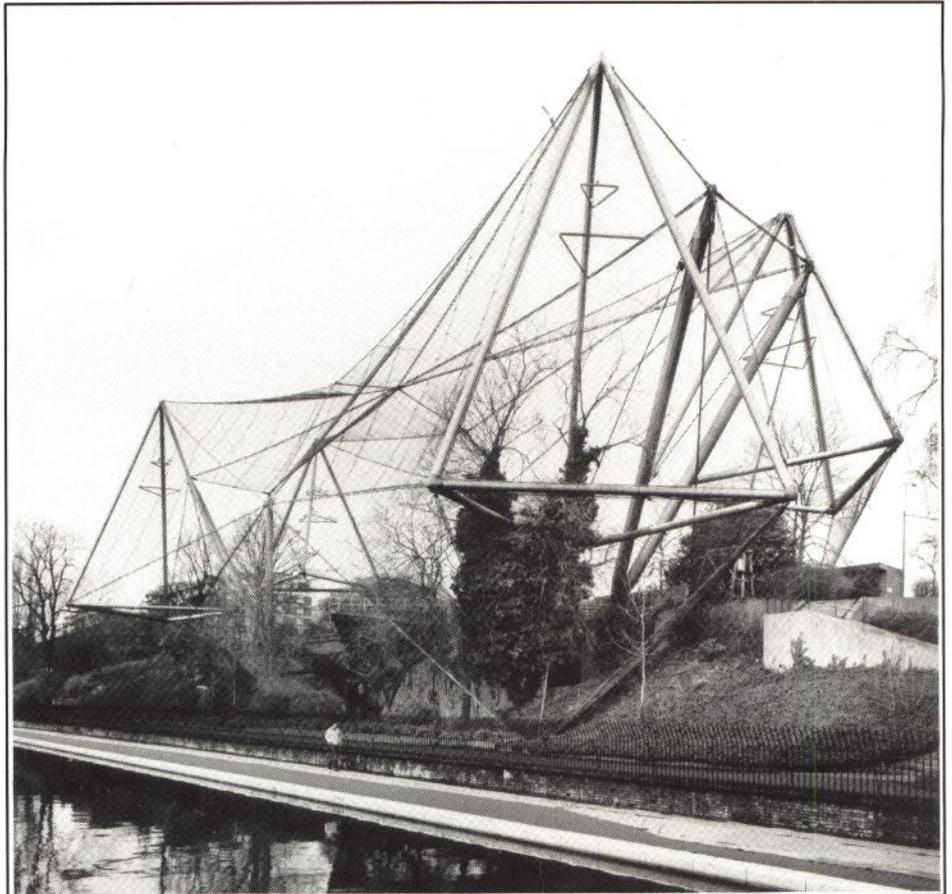
BRISTOL PITS

Much activity has taken place recently concerning the conservation of coal mining remains in the Bristol area. *Bulletin* 19.1 reported in detail on the issues of conservation at the Elms colliery which led to a public inquiry to decide on redevelopment. Following the Inspector's findings that development should not take place within the area that was scheduled, the owners of the site, Accado, have opened negotiations to sell it for a nominal sum to the Avon Industrial Buildings Trust. AIBT is hoping to raise the money needed for consolidation. Meanwhile, the Trust is also involved at the site of a colliery at Ram Hill which has recently been bought from British Rail by the County Council. Excavations on the site by John Cornwell and members of the Bristol IA Society revealed excellent early nineteenth-century remains of an oval shaft, a horse gin building, a later steam winding-house and a tramroad line.

Jessica Laurence of Avon County Planning Department is preparing a co-operative management plan for the conservation of the archaeology and wildlife of the site and the provision of public access. As a first step, AIBT has commissioned Mike Chapman to provide plans and historical documentation.

SHEFFIELD AT RISK

The Sheffield Trades Historical Society has drawn up a 'Red List' of important historic industrial buildings in South Yorkshire that are empty and uncared for, with no firm plans for their restoration. The aim is to show the scale and urgency of the problem. The list includes ten buildings in Sheffield and two in Doncaster Metropolitan Borough. Almost all are listed—one is the Large Crucible Shop at Sanderson Kayser's Darnall Works which is listed grade II* and a Scheduled Ancient Monument. Sheffield City Council's Buildings at Risk Initiative has identified eight listed buildings at 'extreme risk' of which three are industrial—Cornish Place, Truro Works and Anglo Works, all built for the silver and plate trade. In addition to these problems, Sheffield Industrial Museum at Kelham Island has suffered drastic staff cuts as an economy measure and opening hours are being reduced despite local protests. Whitbreads have announced that they are to close the Exchange Brewery at Ladys Bridge, Sheffield. Tennants moved their brewery here in 1852, and were taken over by Whitbreads in 1962. The older buildings, including the tower, date from the 1870s or '80s. *Derek Bayliss*



The Snowdon Aviary next to the Regent's Canal at London Zoo, by Lord Snowdon, Frank Newby and Cedric Price
Photo: RCHME CrownCopyright

EUROPEANS MEET AT YORK

The European Forum of Heritage Associations held its third annual congress in York at the end of Easter week. The Forum is an affiliation of national archaeological and other heritage organisations which exists to heighten awareness, especially among young people, of a common but diverse European identity, by the study, protection and promotion of the archaeological and architectural heritage. York's rich array of historic buildings and the strengths and successes of its Archaeological Trust make it an ideal centre for such a meeting, and the University Archaeology Department and the northern office of the Royal Commission on the Historical Monuments of England made their contributions. The Congress was hosted by the Council for British Archaeology (CBA) at its new headquarters at Bowes Morrell House, a house-warming reception forming part of the programme.

The programme extended over three days, with business meetings and opportunities to see the archaeological riches of York itself and the work of the University and the Trust. Much of one day was devoted to the current state of archaeology in Britain as a whole with stimulating papers on the development of the CBA, the work of the Council for Scottish Archaeology, the archaeological scene in Wales, air photography by the Royal Commission, and the activities of the Young Archaeologists Club. What was noteworthy about all of these presentations was the seamless approach, with the archaeology of the industrial period taking its place along with other periods. Industrial archaeology has quite clearly come of age!

The Association congratulates the CBA on the opening of its new headquarters, and wishes all its staff and members well in their future work. *John Crompton*

WATERWHEELS IN LONDON

The river Wandle is justly famous as London's industrial river from its numerous water mills. Around 1800 there were as many as 90 sites using water power with up to 200 water wheels. In Morden Hall Park you can still see a water wheel at the former snuff mills (TQ 261 686) in a fine setting. These mills worked until 1922. The East Mill is an eighteenth-century brick and weatherboard building, its breastshot iron wheel now minus paddles. The wheel on the corresponding West Mill built c1830 was removed in 1968.

Downstream from Morden Hall Park at the former Liberty's silk printing works, Merton Abbey (TQ 265 698), is a cast iron 12 feet diameter undershot waterwheel dated c1840 which powered rising spools. It is about 15 feet wide, would have produced roughly 15 horse power and last worked in 1952. Silk printing finally finished here in 1981 ending a local tradition of textile printing which had lasted 250 years. The area to the south east of the wheel house is now given over to crafts and bookshops etc., making use of Liberty's former factory buildings.

Just upstream from Morden Hall Park, Ravensbury Mill (TQ 265 682) off Morden Road is credited as the last working water mill on the river Wandle, the wheels here drove wood-working machinery until the 1960s. The Rutter family had used this mill for snuff making from 1805 until 1926. Two breast-shot waterwheels are inside the building. Nearby is a side road named Rutter Gardens. Snuff mills were characterised by their choking atmosphere, especially bad in summer. The water powered Sharrow snuff mills in Sheffield are still working. Ravensbury Mill is at present not open to the public but it is hoped that the Wandle Industrial Museum will be housed here. *Robert Carr*

DIARY

17-18 June 1993

PROSPECTS AND PRIORITIES FOR THE INDUSTRIAL HERITAGE

a two-day international seminar at Sumerlee near Glasgow, organised by the Ironbridge Institute, Middlesex University and Sumerlee Heritage Trust. Details from the Ironbridge Institute, Ironbridge Gorge Museum, Ironbridge, Telford, Shropshire TF8 7AW ☎ 095243 2751.

21 June - 30 July

ARCHAEOLOGICAL TRAINING EXCAVATION

at John Wilkinson's Bersham Ironworks near Wrexham. Courses run for five days and full tuition is given. Details from Bersham Heritage Centre, Bersham, Wrexham, Clwyd LL14 4HT or ☎ Steve Greuter: 0352 702745 / 0978 261529.

26 June 1993

PERCEPTIONS OF GREAT ENGINEERS: FACT AND FANTASY

a seminar on the biographical bias to engineering history, at Merseyside Maritime Museum. Details from Director of Continuing Education, University of Liverpool, Liverpool L69 3BX ☎ 051 794 2525.

15 October 1993

ARCHAEOLOGY AND LAND RECLAMATION

a seminar at Mold, Clwyd, concentrating

particularly on land reclamation threats and conservation opportunities at industrial sites. Details from Sue Haygarth, Clwyd Archaeology Service, Development and Tourism Dept., Shire Hall, Mold CH7 6NB ☎ 0352 704015.

16 October 1993

THE FUTURE OF SOUTH YORKSHIRE'S INDUSTRIAL HERITAGE

a conference to mark (amazingly) the SIXTIETH anniversary of the Sheffield Trades Historical Society. Details: Derek Bayliss, 30 Muskoka Avenue Bents Green, Sheffield, S11 7RL ☎ 0742 307693.

7-21 September 1993

SIA TOUR OF ENGLAND AND WALES

a visit by the (American) Society for Industrial Archaeology. Details from Henry A Rentschler, PO Box 962, Paoli, PA 19301, USA.

8-12 September 1993

RUSSIAN INDUSTRIAL HERITAGE

conference in the Urals with pre- and post-conference programmes. Details: Professor V V Alexeev, Institute of History & Archaeology, Russian Academy of Sciences, 56 Rosa Luxemburg St, Ekaterinburg 620 219, Russia

10-12 September 1993

AIA ANNUAL CONFERENCE FOR 1993

at Ambleside, Cumbria. Additional programme 8-10 and 12-14 September. Details mailed with *Bulletin* 20.1. Send SAE for extra copies to

preservation, particularly in an international context where the boundaries between field recording and excavation, and in situ and museum presentation are increasingly blurred. It also marks the increasing interest of the Institute in studying sites dating to the last hundred years. These developments are reflected in the 964 page Blackwell *Encyclopaedia of Industrial Archaeology*, edited by Barrie Trinder within the Institute and published in March this year (see 'Comment' on p4), and in the first study of Britain's premier industry of the twentieth century, entitled *British Car Factories*, written by Paul Collins and Michael Stratton to be published in the early summer.

Meanwhile the subject of Industrial Archaeology and the University's Masters programme have just gained recognition by the Economic and Social Research Council (ESRC). Intending students with appropriate qualifications can now apply for advanced coursework student-ship awards on a competitive basis. ESRC support should ensure a continuing stream of high calibre students studying the subject and subsequently working in research, recording or museums. Information and literature is available from the Ironbridge Institute, Ironbridge Gorge Museum, Ironbridge, Telford, Shropshire TF8 7AW ☎ 0952 432751.

Michael Stratton

below: Students during a joint recording project with RCAHM Wales at the site of the British Ironworks, Abersychan, Gwent

Photo: Michael Stratton



Chris Irwin, The Book House, Ravenstone, Kirkby Stephen, Cumbria, CA17 4NQ.

13-17 September 1993

SYMPOSIUM ON THE CATALAN FORGE

and other direct reduction methods for iron production, at Ripoll, Spain. Details from Simosi sobre la Farga Catalana, Secretari General, AMCT, Via Laietana 39, 08003 Barcelona, Spain ☎ 93 319 23 00.

6-8 September 1993

RESTORATION 1993

a trade exhibition and conference at Boston, Massachusetts. Details: RAI/EGI Exhibitions on USA ☎ 617 933-9699/fax 617 933-8744.

13-17 October 1993

CONSERVARE '93

a trade fair and conference at Ostend for all involved with heritage in Europe, whether policy makers, conservators or interested individuals. Details: Conservare nv, Troonstraat 66, B-8400 Oostende, Belgium. The Flemish IA Association will organise a programme within the conference on 15-16 October to consider conflicts between conservation of industrial monuments and pollution control. Details of this from VIA, PO Box 30, B-9000 Gent-12, Belgium.

12-17 September 1994

ELEVENTH INTERNATIONAL ECONOMIC HISTORY CONGRESS

Milan, Italy, including over 75 sessions on different themes. Details from Ing. Alessandro Ciarlo, Bocconi Comunicazione, Università Bocconi, Via Sarfatti 25, 20136 Milano, Italy.

Information for the diary should be sent 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 advertised.

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Final copy dates currently are as follows:

30 June for August mailing

30 September for November mailing

30 December for February mailing

30 March for May 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 and research 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. Further details may be obtained from the Membership Secretary, Association for Industrial Archaeology, The Wharfage, Ironbridge, Telford, Shropshire, TF8 7AW, England ☎ 095243 3522.

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