



SCIENCE MUSEUM PHOTOGRAPH

MENAI BRIDGE

"On Monday the 30th January 1826, this stupendous, pre-eminent and singularly unique structure was opened to the public at 35 minutes after one o'clock a.m., by the Royal London and Holyhead Mail Coach conveying the London mail bags for Dublin". So begins Dr. Prings account of the opening of the Menai Bridge, the 150th anniversary celebrations of which took place in the last week of January, culminating in a reenactment of the first bridge crossing. Telford's resident engineer W. A. Provis describes how, accompanied by his brother, he boarded the coach some distance from Bangor, informing the driver of the intended change of route, the latter's objections in carrying out these instructions being quashed by the mail coach superintendent who boarded at Ferry Inn. On stopping for a short moment at the end of the bridge "the mail was instantly crowded by Messrs. Hazledine, Rhodes, the younger Wilsons (all directly concerned with the construction of the bridge) and as many more as could find a place to stand on or to hang by. Thus loaded, a crack of the whip put the horses in motion, and we were quickly conveyed to the opposite end, amidst the cheers of the men around us, and the shrill whistling of the gale".

The pride and enthusiasm displayed by the builders of the bridge on the first crossing was later echoed by the crowds who flocked to a be-flagged bridge complete with massed bands and cannon. Even the rain failed to dampen their spirits so great was the "admiration and astonishment on beholding the proportion, symmetry and grandeur of this unrivalled structure".

Yet the universal enthusiasm displayed on the opening day was a comparatively new phenomenon, the early history of the project being distinguished by a misguided, though powerful opposition, centring on the believed hindrance a bridge would cause to navigation of the straits. This factor combined with difficulties of finance and inadequate technology in dealing with the immense problems involved in spanning the Straits effectively prevented any progress being made until the early years of the Nineteenth century when strategic, political, and economic considerations induced central government to interest itself in communications with Ireland. Various plans and petitions had been submitted in the last quarter of the 18th Century ranging from huge embankments complete with drawbridges to more conventional multi-arch wood and stone designs. The justifiable objections raised by local merchants and traders dependent upon the navigation of the Straits, appeared to have become entrenched by the early 1800's bearing no relationship to the practicability of the bridge designs then under consideration. Both Telford and Rennie, unquestionably the greatest Civil Engineers of their age, came up against strong opposition from this quarter which was by no means silent even after the commencement of construction.

The first indication of government interest came in 1801 when the Secretary of State for Ireland directed Rennie to prepare a survey and plan for a possible bridge over the Menai Straits. The sites of Ynys-y-Moch and the Swellies were singled out as being particularly

favourable and Rennie produced four plans featuring large Cast Iron arches, expressing a personal preference for the second of his two designs for the Swellies, as it involved the least hindrance to shipping both during and after construction. Rennie's plans were submitted to William Jessop and Dr. Hutton, Prof of Mathematics at Woolwich who endorsed the proposals with a few minor qualifications, but the scheme was allowed to lapse because of local opposition and lack of Government finance.

It was to be nine years before the matter was again considered. A parliamentary committee was set up in 1810 to look into the state of the roads from Shrewsbury and Chester to Holyhead. The erection of a bridge at Menai was considered vital as the mail coach service had been established in 1808.

Rennie, Jessop and Hutton were again called upon to act in an advisory capacity and a considerable amount of evidence was collected from local Pilots, Seamen and officers of the Royal Navy. The findings of the enquiry were on the whole favourable although many of the Carmarthen merchants remained hostile on purely commercial grounds. A small number of local Pilots also expressed doubts on the manoeuvrability of vessels whilst sailing under large bridges. It was later discovered that the objectors had no experience of such conditions and a Thames lighterman was called upon to give evidence. The committee reported back to parliament that a bridge would be perfectly "feasible and safe and would be of great benefit to the people of Anglesey and Ireland".

As a result of the committee's findings, the Treasury ordered Thomas Telford to prepare a survey of roads from Shrewsbury and Chester to Holyhead and it was while acting in this capacity that he put forward various suggestions for a bridge over the straits. He submitted two cast iron arch designs for the sites of Ynys-y-Moch and the Swellies recommending the Ynys-y-Moch plan on ground of economy and ease of construction. The bridge was to consist of a single cast iron arch of 500' with a roadway of 40'. The estimated expense was £127,331 which represented a considerable saving on Rennie's proposals of 1802. A further committee was set up in 1811 with John Maxwell Barry in the chair. Telford's design for Ynys-y-Moch was considered to be the most suitable because of the ease with which it could be erected over the straits without interfering with navigation. The committee recommended immediate action but no government aid was forthcoming.

The next and probably the most important stage in the building of the Menai bridge took place not in North Wales but at Runcorn in Cheshire, where Telford was approached by local landowners who wished to build a road and bridge link to Liverpool. The problems involved in the erection of the two bridges were very similar, the maintenance of a navigable channel during and after construction being the prime objective. It was this consideration combined with inadequate foundations in the immediate vicinity of the Mersey which prompted Telford to "adopt the principle of suspension". He conducted over 200 experiments involving the tenacity of bar iron on a Bramah press, at Brunton & Co's chain-cable manufactory in London. The results were later published in Prof. Peter Barlow's treatise on the strength of timber and iron.

A 50' model of the central opening was subjected to stringent tests involving the application of weights in excess of 3,000lbs. On concluding his experiments Telford was satisfied that the suspension bridge offered a safe and in many instances superior alternative to the more traditional types of bridge.

A select committee was appointed to consider the merits of the Runcorn project in 1816-17. Telford was made chief consulting engineer with special responsibility for evaluating the various designs submitted in response to the competition announced in 1816. In reporting back to the committee in March 1817 he rejected all schemes 'not of the suspension principle'. This left only his own design "and a sketch of a chain furnished by Capt. Brown." Brown had been involved in similar experimentation on the strength of chain cables and their application to civil engineering projects. He was later to work closely with Telford on several problems associated with the Menai bridge. The Runcorn bridge project was cancelled because of financial problems although the fundamental principles evolved during its research and development were to rise Phoenix like in Telford's new design for Menai.

The by now familiar pattern of parliamentary committee and enquiry was again set in motion in 1815 to supervise the improvement of the Holyhead road. Its responsibilities were extended in 1817 when a separate enquiry was instigated to examine the possibility of using the suspension principle at Menai. Telford was again instructed to prepare a survey and report and he again recommended the Ynys-y-Moch site. The proposed bridge was to have a central span of 560' with two 12' carriage ways suspended 100' above the high water mark by 16 main chains. The chains were to be embedded in a 'mass of masonry' at each end, although Telford later devised a system of tunnels to carry out this function. Rennie's approval was again obtained and a report was sent to parliament asking for permission to proceed with construction.

After 20 years of inaction, central government at last granted £20,000 towards the project. On the 8th July 1818 a carpenter began to prepare the framing for a work shop. He was the first man to be employed on a project which was to involve many hundreds over a period of seven and a half years. Telford's genius for organising large bodies of workmen and picking able assistants was to be demonstrated more than once in the ensuing years, taking in its stride a potentially dangerous last minute attempt to sabotage the project. A separate act for the bridge was passed in 1819 which effectively silenced all opposition. The real business of building the bridge was now able to proceed uninterrupted, except by the elements, to its triumphal conclusion in 1826.

ROYDON MILL, ESSEX

The Secretary of State for the Environment, in a letter issued on the 21st of January 1976, dismissed the appeal against listed building consent to demolish Roydon Mill. As a result of the public enquiry held in Epping on the 5th of November, at which the A.I.A. gave evidence for the preservation of the Mill, the Inspector, Mr. M. M. Cross stated,

"I am of the opinion that this listed building has both intrinsic value and value within the landscape within this regional park and green belt area of countryside. It is my view that the mill should if at all possible be preserved, either in its present form or as a restored original mill structure. I accept the restoration cost estimate advanced by the Appellants; however I am not convinced that such a restored building is incapable of being put to a valid use in connection with the fairly extensive caravan site operation, with some modification or conversion. Such a continued use of the mill, whether for recreational, social, storage or other uses, perhaps including some residential units, could allow some of the miscellanea of other less attractive buildings to be reduced, adding to the attractiveness of the caravan site and the landscape.

I do not consider that the restoration cost estimate is unreasonable under such circumstances. I tend to agree that the alternative of conversion to multiple dwelling use is not very attractive by reason of the high cost and the locational factors. However this is a further possibility that cannot be ruled out. With these possibilities in mind, and given the value of the building within this setting I am of the opinion that the demolition of Roydon Mill should not be allowed".

It is most gratifying that the Secretary of State endorsed this view. There are however no grounds for A.I.A. members to feel complacent, see the Heritage Year Toll Report elsewhere in this Bulletin.

INDUSTRIAL ARCHAEOLOGY AND LOCAL HISTORY UNIT FORMED AT GLADSTONE POTTERY MUSEUM.

In the autumn of 1975, a volunteer group was initiated, aiming to bring together local people to co-ordinate the study of the industrial heritage of the Potteries.

The group is already active in the field making a survey of the surviving bottle ovens. A brick group is being formed and an emergency brigade has successfully rescued the interior of an important Potteries pub, the Bridge Inn at Etruria.

The Bridge Inn was the 'local' for Wedgwood's Etruria works, A typical canal-side pub, it was a popular free house until the owner died suddenly, leaving the unspoilt, simple Victorian interior a prey to vandals. The fittings and furnishings, including tongue and groove panelling, have successfully been removed and it is hoped that the room, if not the entire pub, may be re-assembled at a future date. A local appeal has been successful in locating local people who have souvenirs of the pub and who are willing to lend or donate them to the Museum. The original Wedgwood pottery, brass and marble beer pumps have been acquired by the Museum with a grant from the Victoria and Albert Purchase Grant fund and local subscriptions.

It is hoped that the Industrial Archaeology Unit will shortly publish a bottle oven survey form and would like to hear from similar organisations who can help cover the rest of the bottle ovens that remain standing throughout the country.

For further information contact David Sekers, Gladstone Pottery Museum, Stoke on Trent, Staffs.

CONFERENCES AND EVENTS

AIA Conference 1976

The 1976 Conference will be held at the University of Southampton from Friday September 10th to Sunday September 12th. The theme of the Conference will be to examine the industrial archaeology of Hampshire, Dorset, Sussex and Wiltshire. The field excursion will be to Portsmouth and Gosport dockyards where, among other excellent features, we hope to see the famous block mills and machine tools erected by Marc Brunel. For further information and application forms, please write to Fred Brook, AIA Conference Secretary, 15 Widecombe Avenue, Weeping Cross, Stafford.

Summer School in Manchester

Manchester College of Adult Education are holding a six day Summer School from the 25th - 30th of July on the Industrial Archaeology of Manchester and its Region. The course, under the direction of D. D. Brumhead (A.I.A.), will include lectures on watermills, coalmines, engineering, steam engines, railways and canals, and visits to such sites as Cheddleton Flint Mill, the Rochdale Canal, the Corn Mill at Leek, Sutton Manor Colliery and Pilkington Glass Museum.

The cost is in the region of £3.00 for non resident students and £38.00 for resident. For further details and application forms contact Mr. D. D. Brumhead, College of Adult Education, Cavendish Street, All Saints, Manchester M15 6BP.

Mines and Quarries of Cwm Pennant

7th - 14th August, based at the Snowdonia National Park Study Centre at Maentwrog, Gwynedd. Cost £34.00. Further details from Department of Adult Education, University of Hull, 195 Cottingham Road, Hull HU5 2EQ.

Industrial Archaeology and Local History of Dorset

22nd - 29th August, led by John Perkins. Cost £45.00. Further details from the Administrative Officer, Department of Extra-Mural Studies, University College, 40 Park Place, Cardiff.

TRANSPORT TRUST ROAD RALLY AT BIGGIN HILL

Saturday 15th May and Sunday 16th May, 1976.

To coincide with the 1976 International Air Fair at Biggin Hill Aerodrome in Kent, the Transport Trust is organizing a rally of road vehicles which is to include historic cars, buses, bikes, lorries and, who knows, even a traction engine or two!

In addition to the famous flying display, there will be an Austin 7 motor club rally, a Navy assault course and Army and Police motor cycle displays.

For further information contact Bruce Duncan, The Transport Trust, 6 Denbigh Mews, London S.W.1.

NEWS FROM THE GROUPS

Exeter I.A. Group

Recent lectures have included the I.A. of Hampshire, Oxfordshire and Somerset and special topics such as the buildings of Totnes, Limekilns and railways in Devon. A special honour was to have a lecture on American Bridges by Emory Kemp who is the editor of the American S.I.A.'s journal, Industrial Archaeology. Work in progress involves studies of Shilhay, Roadside stones in Devon and there is an urgent need for recording work on brick making in Devon.

GLIAS

Visits have been made to Abbey Mills and West Ham Pumping Stations and Fuller, Smith and Turner's Brewery, Chiswick. Bartle's Ironworks, W.11 is being demolished and the Halcrow I.A. group are recording it. John Yates has been asked to write a book on London Steam Engines and is anxious to contact anyone who knows of steam engines in the London region. His address is 701 Seddon House, Barbican, E.C.2.

Southampton University I.A. Group

The group is arranging visits in April to Oxfordshire and in August to Central Wales. Work has included street surveys with particular reference to signs, inspection covers and the like and Southampton Rolling Mills, and their bulletin contains reports on visits to Durham and Hertfordshire.

A NATIONAL PLAN FOR THE RESTORATION OF EARLY HISTORIC VEHICLES

A project to be financed jointly by the Transport Trust and the Shuttleworth Trust.

Some of the earliest road vehicles in Britain are housed with the Shuttleworth Collection at Old Warden Aerodrome, near Biggleswade in Bedfordshire, but some of these have lain for several years virtually untended through lack of finance. In the past, the available resources have been devoted to the restoration and maintenance of the Collection's world-famous and ever-expanding range of historic aeroplanes.

Now, through the initiative of the Transport Trust, a new plan is to be launched. Some of the oldest vehicles in existence are to be restored to exhibition condition and full working order. Each requires many months or perhaps a year of painstaking specialist attention, but work will begin on the first vehicle as soon as a new workshop has been erected and a suitably skilled craftsman has been engaged. The Shuttleworth Collection is seeking just such a person at the present time.

Firm decisions on the order in which vehicles will be selected for restoration cannot be made until more detailed technical examinations have been carried out. Among the cars available to receive attention on the five-year programme is a Panhard of 1895 (believed to be the second car ever to have been imported into Britain), although this is in bad condition and another, more complete, vehicle is likely to be the first on the list. This could be an 1897 Daimler with a brake body, a Benz International of 1898 or a Mors "Petit Duc" of 1899, while one favourite to start the programme is the 1898 Panhard Levasseur that was owned initially by Lord Rothschild and subsequently was driven to Ascot by King Henry VII.

The money to be used for this ambitious project in no way interferes with the resources that are available for work on the Collection's historic aeroplanes. A joint funding programme has been agreed between the Transport Trust (the national body for co-ordinating and financing the restoration and preservation of all forms of historic transport) and the Richard Ormonde Shuttleworth Remembrance Trust which is the parent organisation of the Shuttleworth Collection.

As the vehicles are completed, they will be placed on permanent display at Old Warden, but the Transport Trust will have use of them at certain times for publicity purposes and hopefully will enter one on each of the annual Veteran Car Club runs to Brighton. The new project is a major step forward for the Shuttleworth Collection, the Transport Trust and for the preservation movement as a whole. It is the first time that a joint three-sided programme of this kind has been embarked upon on a national basis involving the co-ordinated funding and facilities of the Richard Ormonde Shuttleworth Remembrance Trust, the Transport Trust and the Shuttleworth Collection.

Further information on the plan, or on the Transport Trust or the Collection, may be obtained from the Transport Trust, at 18 Ramillies Place, London W1V 2BA.

CANALS IN THE U.S.A.

The American Canal Guide, Part 2 - The South: North Carolina to Florida, is the latest section of the American Canal Society's guide-book and inventory of North America's forgotten historic canals and locks, which have begun to re-emerge as historic sites, linear parks, and protectors of open space. This guide should be a valuable reference for park planners, historians, industrial archaeologists and environmentalists, who ought to be aware of America's historic canal resources, what is being done with them, and what remains to be done. Part 2, 12 pages long with 14 photographs and 18 maps and drawings, covers over two dozen canals, from the 1823 Roanoke Canal in North Carolina, with its cut-stone aqueduct and locks and Civil War trenches, to the maze of canals radiating out from Lake Okeechobee, built during the first three decades of this century - Florida's Canal Era - when the Everglades was considered one of America's last frontiers. Part 2 is available at 75p from Bill Trout, Treasurer, American Canal Society, 1932 Cinco Robles Drive, Duarte, California 91010. Part 1, covering the west coast, from British Columbia to California, is still available at 50p. Industrial Archaeologists should consider joining the American Canal Society to receive the quarterly bulletin, American Canals.

NEW FACTORY, SEVERN STREET, SHREWSBURY.

An early iron-framed building, part of Messrs. Benyon & Bage's Canal Terminus flax mill, has recently come to light in Shrewsbury. It was built between 1806 and 1809 by Charles Bage, who in 1796 pioneered the construction of fireproof iron-framed buildings with his first Shrewsbury flax mill at Ditherington.

The building is similar in construction to Bage's Ditherington mill. Cruciform cast iron pillars, probably made by William Hazledine, support cast iron beams and vaulted brick ceilings, dividing the building into 2.150m. (7 ft.) bays. According to a plan of the building made by Boulton & Watt in 1811, there was a stair well at one end of the factory. The third storey has a brick ceiling, above which is a timber and slate roof.

Charles Bage and the brothers Thomas and Benjamin Benyon had been in partnership with John Marshall of Leeds until 1804, and Bage had designed buildings for them in Leeds as well as Shrewsbury.

The main Canal Terminus factory was built in 1803 for the production of linen thread, and when Bage and the Benyons left Marshall and the Ditherington flax mill, they took their share of the machinery with them. The Boulton & Watt plan, made for the installation of gas lighting, shows the main flax spinning mill five storeys high on the site of what is now Benyon Street. The top two storeys were used for preparing, carding and hackling the flax, which was then spun on the lower three floors. Other parts of the mill were used for counting, warping and reeling the thread, and a large part of the ground floor was used for storage.

In its prime, the factory employed over 400 hands, and produced linen yarns, cloths, canvas and threads. It was described in glowing terms by a local writer "... the whole machinery, which is of wonderful construction, is worked by the solemn and stupendous action of a steam engine of 55 horse power, which keeps in motion upwards of 3000 spindles".

The building which still stands (called "New Building" on the Boulton & Watt plan, and later known as "New Factory") was probably built as a weaving factory. In 1806 Messrs. Benyon & Bage had weaving workshops elsewhere in Shrewsbury, but in 1809 weavers were being employed at Canal Terminus, and New Factory seems the obvious place for them to work. Linen cloth was still being woven by hand at this time, as the thread was not flexible enough



Cellar of same house.

to be woven by the power looms used for cotton. Charles Bage did invent a power loom for linen after leaving his partnership with the Benyons, and he built and set himself up in yet another iron-framed factory (now demolished) in 1818. Unfortunately, Bage was no businessman - his steam loom linen factory was a failure and he died a bankrupt in 1822.

The weaving of linen by hand continued at New Factory long after 1835, when the main Canal Terminus mill was demolished. Sacheverell Harwood became the proprietor after the death of the Benyon brothers, and he built a terrace of two storey cottages, several of which were occupied by linen weavers, beside New Factory. The site of the main mill was turned into allotments, and a strip of this land was used by one of the weavers as a rope walk. Mr. Harwood offered the factory and nearby plots of land for sale in 1843. New Factory was described in the particulars as a "large and substantially built fireproof brick building, roofed with slate and recently used by Mr. Harwood as a Linen Manufactory".

The mill passed into the hands of Robert Minn, whose name can just be deciphered on the wall of the cottage next to the factory: "Minn & Co., Home Made Linen Warehouse" The last reference to the linen factory appears in a local directory of 1856.

New Factory was turned into a terrace of four houses between 1856 and 1861. Two of these houses were occupied by linen weavers and it is probable that the top storey remained undivided and in use as a weaving workshop with access from the original stair well. During the 1890's the staircase was removed to make room for a fifth house, and the street side of the terrace was probably given a face-lift at the same time. The factory windows were replaced by domestic windows with axed arch lintels to match the other houses in the area, so that from Severn Street it is only the building's extra storey that distinguishes it from its neighbours. From the rear the building looks more like a factory, and some of the original windows can be seen - the largest ones on the top floor.

Several of Shrewsbury's smaller factories which became redundant in the 19th century were used for housing in this way - at a time when there was no shortage of building materials. New Factory was redundant 125 years ago, but instead of demolishing it, Robert Minn converted it into houses which are still comfortable today. However, there are disadvantages to living in houses with cruciform cast iron pillars at seven foot intervals. It takes a while to learn to avoid the pillars, and householders have to cut holes in their new carpets before laying them. One lady decided to remove a pillar from her house, but her son stopped sawing through it when the building began to shake.



Interior of No.6 Severn Street, showing conversion of New Factory to housing.

New Factory lies in an area of Shrewsbury which is being redeveloped and it was to have been demolished. The local council have changed their mind about this, and the building has now been listed. The cottages beside it, also listed, are still under threat as the council wish to demolish and replace them with a seating area and car parking space.

In the 1850's Robert Minn had the foresight to convert a redundant but solidly built factory into housing, but unhappily today, desperately needed and solidly built housing is threatened with demolition.

Hilary A. Green, Shrewsbury

HERITAGE YEAR TOLL

SAVE Britain's Heritage was formed in 1975 as a response to the fact that, despite 1975 being European Architectural Heritage Year, the destruction of historic buildings was continuing at an increasing rate. Through the year SAVE has been publicising threats to specific buildings (it has issued over 60 press releases) with the aim of alerting the public while it has still time to object. It has dealt with buildings ranging from the public lavatories at Herne Bay to country houses in Northamptonshire and Kent. SAVE, whose campaigning activities complement the more established National Amenity Society, will continue to operate during 1976 and would welcome assistance and information about threats. Contact: SAVE, 6A Bedford Square, London, WC1B 3RA (01-536 7551).

In the Architects' Journal (17 & 24 December 1975, No. 51, Vol. 162), SAVE published 'The Save Report' which is now available as a 35-page offprint from the above address. The following is taken from the Introduction:

"In the first six months of 1975 permission was given to demolish no less than 182 buildings in England and Wales listed by the DOE as being of special architectural or historic interest. Hundreds more were partially demolished or drastically altered and their settings ruined. This means that listed buildings are now disappearing at a rate of one per day - a dramatic acceleration over the 276 buildings lost in 1974 and the 226 in 1972. Even given the fact that more buildings are being placed on the 'lists' each year, the loss suggests a disturbing inability on the part of the authorities to protect the very buildings they have singled out as worthy of preservation. At this rate, 10,000 buildings officially classed as 'historic' will disappear over the next 25 years.

Faced with this potential loss it is hardly surprising that the U.K. Heritage Year poster proclaims the aim of calling the attention of the European 'peoples to the steady erosion of their common architectural heritage': as far as Britain is concerned the results have been a sham. Heritage Year has provided yet another occasion - of which there are already far too many - for Britain's architects, town planners and local authorities to pat each other on the back and give themselves awards. While the country's heritage has been vanishing at an even faster rate, our town centres have been sprouting cosmetised precincts, flower boxes and congratulatory receptions. Hardly a warning note has been sounded about the 'erosion' of anything, except perhaps the ratepayer's purse.

Heritage Year has possibly been unfortunate in coinciding with a year of economic recession unprecedented since the second world war. As a result many local councils simply abandoned their Heritage Year projects. The DOE, which had so ardently supported the idea of Heritage Year, found itself effectively ordering local authorities to ignore it, under the guise of cutting out all 'unnecessary' expenditure. The list of projects put forward to celebrate Heritage Year - projects which should in any civilised community have been normal civic activities - makes pathetic reading. This emphasis on spending public money on superficialities was fundamentally mistaken: the campaign should have pressed instead for the use of legal sanctions that now lie dormant, and for fiscal reforms that would encourage owners to maintain and use their buildings in the public interest.

Most depressing of all - and this message shines through our report - Heritage Year has all too rarely been accompanied by any increased sense of responsibility on the part of the public authorities which are themselves increasingly the custodians of historic buildings. The local authority and the public corporation have assumed the grim mantle of vandalism which once lay on the shoulders of the private property developer. For, given an alert public opinion and a determined local authority, there is precious little which a private property developer can get away with. Yet Britain is alas cursed with some of Europe's most philistine public officials. Some of the cases quoted below of vandalism and neglect of buildings

within the public sector ought by rights to entail the impeachment of some publicly elected or appointed officials. The fact that they can and do claim to be acting in the public's name and with the public's best interests at heart makes the menace they pose all the more threatening. We hope that by detailing both specific cases and the general principles arising out of them we have shed some light on what must now be considered the biggest area of threat to Britain's architectural heritage. We hope that we have done something to redress the balance of Heritage Year in its patent failure to live up to its stated promise".

Industrial buildings included as examples in the report are :-

Demolished : Tapestry factory, Streatham Street, London, by Town & City Properties.

Tilbury warehouse, Tower Hamlets, London, by the National Westminster Bank.

St. Enoch's Station, Glasgow, by British Rail.

Condemned : St. Enoch Hotel, Glasgow, to be demolished by British Rail.

Hills Hygienic Bakery, Westminster, London.

'C' Warehouse, St. Katharine Dock, London, to be demolished by Taylor Woodrow.

On the list of buildings which continued to rot were early nineteenth century warehouses in Wisbech, Cambridgeshire. Threatened buildings illustrated include: Brown and Pank warehouse, Northampton which Carlsberg Breweries wish to demolish for new administrative offices; Roydon Mill, Essex for which demolition is proposed by Godfrey Davis (Parks) Ltd.; Lancaster

Arcade, Manchester and which the owner, Manchester Corn Exchange Company began to demolish one weekend and was stopped by a local authority injunction; Cutler Street warehouses, City of London, to be demolished by English & Continental; Newmarket Station, owned by Finsbury Developments Ltd., but allowed to decay.

OLD COKE-OVENS UNEARTHED IN SCOTLAND

Four beehive ovens have been uncovered during rehabilitation work at Plean No. 3 Colliery in Stirlingshire, Scotland.

The industrial archaeological importance of the find was realised immediately and the advice of the department of history at Strathclyde University and the Department of the Environment property services agency was obtained.

Beehive ovens were introduced in the mid-17th century and used to produce strong coke suitable for use in iron-smelting furnaces and for other metallurgical processes.

The Plean ovens are the only examples of the type known to survive in Scotland and, although partially collapsed, are worth conserving as a reminder of a once-important technique. The Plean district was noted for its coking coals.

Three of the ovens have been carefully filled in and one remains visible. The planning and development committee of the Central Regional Council at Stirling has recommended that this partly excavated oven be consolidated as it stands at a cost of £1,000.

BRIDGE BICENTENARY BEGINNINGS

On 5th February, 1976 the then Speaker of the House of Commons, the Rt. Hon. Selwyn Lloyd, MP, opened an Ironbridge Gorge Museum Trust exhibition in the Houses of Parliament to commemorate the bicentenary of the petition to the Commons for a Bill for the world's first iron bridge. The opening of the exhibition also marked the launching of the celebrations which will culminate in July 1979, the two hundredth anniversary of the construction of the iron arch across the River Severn. In the opening remarks to the exhibition ceremony reference was made to the interest shown in the project two hundred years ago when the Prime Minister - Lord North - and the Speaker (who enjoyed the nickname Sir Bull Face Double Fee) asked for the plans of the bridge to be presented before the members of the house of Commons that they might examine them in detail. The petition was successful as was the Bill and on the basis of that Act of Parliament the Iron Bridge Trustees were able to start construction in 1778, span the river in the following year and open the bridge to traffic on 1st January, 1781. Part of the exhibition is now on tour and has already been exhibited at Coventry and Birmingham museums. Anybody interested in taking the exhibition for temporary display should contact the Director, Ironbridge Gorge Museum Trust, Church Hill, Ironbridge, Telford, Salop, TF8 7RE (Tel 095-245) 3522). A space approximately 30ft x 20ft is required.

RECENT PUBLICATIONS

The Industrial Archaeology of Stockport, Owen Ashmore (A.I.A. Member). 1975, 100 pages, many illustrations, £1.50. Published by the DEPARTMENT OF EXTRA MURAL STUDIES, University of Manchester.

Includes chapters on all the industries of this complicated area and contains particularly good maps and diagrams. The gazetteer and bibliography are both comprehensive.

Surrey History. The latest edition of this well produced little booklet (Vol. 1, No. 3) published by the SURREY LOCAL HISTORY COUNCIL, contains two articles of I.A. interest. Paul W. Sowan (A.I.A. member) writes on the little known subject of stone mining in East Surrey and D. W. Warner writes on the early history of Gunpowder manufacture at Chilworth.

The booklet *Surrey History*, is available from Phillimore, Shopwyke Hall, Chichester, Sussex, price 50p (special discounts for societies).

Bedford Park: The First Garden Suburb. Pictorial survey by T. Affleck Greeves, publ. ANNE BINGLEY, £3.00. Bedford Park was planned by J. T. Carr in the 1880's; the architects included Norman Shaw. 60 pages, includes photographs and reproductions of architects plans.

New Uses for Old Buildings. Sherban Cantacuzino, ARCHITECTURAL PRESS, 264 pages, £11.95.

Shows what can be done to preserve old buildings, including industrial ones, by putting them to new uses. Over 70 different schemes are described in Britain, Europe & U.S.A. Section on three pumping stations by Denis Smith.

Fieldwork in Industrial Archaeology. J. Kenneth Major, Batsford, 176 pages, £4.50 (or £2.95 paperback). Based on the author's practical experience in I.A., the book deals with interpreting the site and machinery, background research, measured drawings of buildings, photography and the publication of results.

Exploring our Industrial Past. Kenneth Hudson in Hodder's Teach Yourself series. 214 pages, paperback, £1.75. Kenneth Hudson points out that Industrial Archaeology is fundamentally about people, and stresses the value of old people's memories. He also deals with recording, publishing results, preservation, and getting help from societies. The three appendices cover museums with important collections relating to industrial and transport history, local I.A. societies and national bodies likely to be helpful.

Discovering Industrial Archaeology & History, Hugh Bodey (Exeter I.A. Group Member), SHIRE PUBLICATIONS, 1975, 112 pages, 75p.

Includes a personal selection of museums and sites of interest.

NEW BOOKS

The following forthcoming books have been announced and may be ordered from Moorland Publishing Company, The Market Place, Hartington, Buxton, Derbyshire SK17 0AL.

Arthur Raistrick, *The Lead Industry of Wensleydale & Swaledale*. Vol. 1 *The Mines*, Vol. 2 *The Smelting Mills*, hardback, £2.95 per volume.

A two volume history of lead mining and smelting in the North Yorkshire Dales, with many illustrations of the surviving features.

D. Anderson, *The Orrell Coalfield, Lancashire, 1740-1850*. Hardback, £4.95.

A comprehensive history of this rich coalfield, with details of tramways, canals, river navigation, mining techniques, steam pumping and winding engines, social conditions, etc.

F. D. Woodall, *Steam Engines & Waterwheels*, a pictorial study of some early mining machines. Hardback £3.50. Over 100 photographs of working waterwheels, Cornish Beam engines, winding engines as well as simpler machines.

K. C. Barraclough, *Sheffield Steel*, 112 pages, 156 illustrations, £3.95.

Sheffield is world-renowned for its high-quality steel and this book illustrates all aspects of the industry from the early eighteenth century to the beginning of this century when alloy steels gradually took over from the traditional carbon steels. All aspects of the industry are portrayed - from the making of 'crucible', 'cementation' and 'bulk' steel to its forging rolling, grinding and casting into the products that have made this city famous.

I. J. Brown, *The Mines of Shropshire*. 120 pages, 161 illustrations, £3.95.

The great variety of minerals extracted from the mines of Shropshire resulted in the Coalbrookdale area becoming the 'cradle of the Industrial Revolution' and the Ironbridge Gorge Museum is a monument to the remains there. But most of the mining remains have disappeared with the rise of the town of Telford and this book is a valuable record of the mines of coal, ironstone, clay and limestone that made the area so important. The other Shropshire coalfields are also included, as well as mines rich in lead, zinc and copper in the west of the county. There are many historic photographs, both surface and underground, as well as ancient steam engines, social conditions and housing.

BOOK REVIEW

The Pembrokeshire Landscape, by Rober Evans and Brian John, FIVE ARCHES PRESS, pp 130, 86 plates, £1.20.

This well illustrated volume, somewhat artily described by its authors as 'a portrait in words and photographs', is, and how rarely can the word be used of any newly published book this year, a bargain. Despite repricing on the shelf, up from 90p to £1.20, it still represents well above average value, and includes both a good index and a comprehensive local bibliography. Since Pembrokeshire exerts the same sort of attraction for a range of cognoscenti as do both West Cornwall and Galloway, it is inevitable that the authors, basically geographers, have tried to be as wide ranging as any potential market can justify. Equally inevitable then, to the industrial archaeologist the volume provides the opportunity to select from the well illustrated text good examples and then to pursue the bibliographical references which are appended to every plate. The technique of compilation is a success. Every plate is grid map referenced and this, together with the bibliography ensures that each plate can open a door to wider and detailed knowledge. It is the central section of the book - on the evolution of the man-made landscape - which is richest for the industrial archaeologist. There is good historical text linking plates on disused quays, coastal limekilns, iron workings, and the debris of the small anthracite extracting industry. The authors are strong on the rise and fall of the coastal trade by sailing vessels. And, with an index which shames many more expensive volumes, the book is a useful achievement. The casual summer visitor to Pembrokeshire who is lured by the colour photography of the cover will not be disappointed. He will learn more of the county whose guest he is and the opportunity for more detailed knowledge will be available in compact form.

The Open University in Scotland

Colin Luckhurst.

Rhosydd Slate Quarry, by M.T.J. Lewis and J.H. Denton, COTTAGE PRESS, Shrewsbury, 1974, pp 100 ill, £2.00.

This monograph is essentially the product of members of two week-long courses in Practical Industrial Archaeology, held at Coleg Harlech in August 1971 and 1972, organised by the Department of Adult Education of the University of Hull, with the Authors as tutors. The group comprised a doctor, an accountant, a clerk, a teacher, a housewife and a schoolboy to name but a few. Rhosydd initially was a 'fringe' quarry whose early development was hindered by the lack of an efficient mode of transport. The deposits were first tapped in the 1830s but were not fully exploited until after the quarry had been connected to the Croesor tramway in the 1860s. From then onwards until the 1920s quarrying continued fairly steadily but from then onwards only spasmodically before being finally abandoned to the sheep in 1954.

In the absence of satisfactory business records the work shows the value of industrial archaeology to the industrial and business historian, and is an extremely valuable addition to the small but slowly expanding literature on the development of quarrying not only in Wales but in other parts of the United Kingdom. The book begins by looking at the general history of the quarry and then proceeds to examine what remains of the workings, mills, water supplies, transport and domestic arrangements. The treatment of these themes is extremely thorough and the heavily detailed text is well illustrated with an astute selection of photographs and sketches. The techniques used in the study varied from using a simple steel tape to mine detectors and even more sophisticated instruments, supplemented by common sense, maps, oral evidence, air photography, a prismatic compass, a level and a clinometer. The only major difficulty with the book is that just occasionally the wealth of detail given becomes slightly oppressive, a factor which is not helped by the method of printing. On balance, however, these defects are by far outweighed by the overall quality of the work.

Lanchester Polytechnic

T. Donnelly

BBC Engineering 1922-1972, by Edward Pawley, BBC PUBLICATIONS, London, 1972, pp xiv + 569, ill, £7.00.

The BBC, established as the British Broadcasting Company late in 1922 by the government-encouraged merger of the broadcasting interests of several manufacturing companies, and becoming a public Corporation on 1 January 1927, celebrated its jubilee in 1972. This fine book is one of the main BBC contributions to the occasion. Most people know of the early days of the BBC as far as some of the programmes and personalities are concerned; here, in Mr. Pawley's book, we now have the technical background, not only to these early efforts at 2LO but also to the whole amazing development of radio and television broadcasting in Britain up to almost the present time. It is probably not very widely realised to what a great extent the BBC had to devise its own techniques, and it is useful to have this insight into the special engineering problems of broadcasting. Some of these special problems arose from the novelty of the situation, for example, studio and programme control methods; others arose from the need for higher quality than was usual, as in amplifier and line transmission techniques; and there were, of course, all the requirements for suitable measuring instruments.

Mr. Pawley shows a wonderful grasp of the whole wide range of activities of the Engineering Division of the BBC, including its finances and administration. He describes them clearly and the process of evolution is made apparent. The organisation of the book is by period; the Company 1922-6, the early days of the Corporation 1927-39, the war years, post-war reconstruction 1946-55, and the years of expansion 1956-72. Within each period the organisation is by subject - studios, transmitters, simultaneous broadcasting, television, the line network, staff, organisation, finance, etc. While this makes the following through of any particular subject rather difficult, it does ensure that the various technologies are seen in relation to one another and to the operational needs.

There are some outstandingly good sections in the book; I was particularly impressed by the 19 page account of the early (ie pre-1939) development of television broadcasting systems, which clarified many points for me. Detailed accounts of staff changes appeal less than the discussions of studio design or the development of television stereophony, VHF and high-power transmitters, for example. It is on the technical matters that Mr. Pawley is at his best, for he makes them fascinatingly clear, without jargon or mathematics, and probably many people who are not electronic or acoustic specialists will be able to read the book with enjoyment and enlightenment. It is not an entirely impartial history - how could it be with an author who has only recently retired from a senior position in the BBC Engineering Division? In respect of BBC work itself, it is no doubt impeccably accurate, being based on BBC records. In respect of related work by other bodies, particularly the Post Office, and in its general historical background I fear it is not so reliable. Thus, Chapter 1, 'The Beginning of Broadcasting', gives a very readable account of the developments in radio technology before 1922, although many of the inventions, ideas, circuits and methods discussed are, in fact, a lot older than Mr. Pawley states. One or two examples must suffice. On p9 we read, referring to the year 1910, 'it seems unlikely that the principles of modulation and the production of sidebands had been established at that time'; in fact they were demonstrated in an acoustical context by Mayer in 1875 and analysed mathematically by Rayleigh in his book, *The Theory of Sound* in 1894. Contrary to the suggestion on p8, amplitude modulation for telephony was not a product of the radio art at all; Leblanc had demonstrated the principle very explicitly in 1886, even before Hertz provided the very first proof of electromagnetic radiation. On a point of accuracy, the crediting of the invention of the oscillating valve circuit and of positive feedback to H.J. Round in 1913, is, I believe, quite wrong; Round had many important inventions to his credit, but these were not among them.

There are some other historical inaccuracies in later chapters. I was in communications research myself from 1933 onwards, and I know (contrary to the suggestion on p158) that heterodyne oscillators were well-established then. On p 265 we read that the 'split-band' system of transmission, which combined two low-quality telephone channels to give a high-quality channel, was introduced during the last year of the war (ie 1944-5), but a colleague and I had personally fitted up such a system as a reserve link for King George VI's Christmas broadcast from Sandringham in 1937.

Although I have been able to find things wrong with this book, I have nevertheless a high opinion of it in general, and can recommend it to those thousands of people who are interested in radio technology and in the BBC in particular. It is a large work, well written, and well illustrated with thirty-two photographs.

University of Birmingham

D.G. Tucker

A Towpath Guide to the Brecknock & Abergavenny and Monmouthshire Canals, by R. Alan Stevens, GOOSE AND SON, 1974, pp 130, 55 plates, 29 maps, £2.85. Towpath Guide No.2 paper back.

This is the second in a specially designed series to meet the needs of those who explore canals whether afloat or afoot. Although an austere publication in a light-weight coarse paper within paper covers, the photographs are well produced. There are three small scale maps showing the routes of the canals and twenty-six diagrammatic large scale strip-maps, which give the position of each lock, bridge, aqueduct, stop-planks, sluices wharves etc. Original mile-posts are shown when extant and most usefully the mileages from both ends of the canals are given on each side of the strip-maps. However, the draughtsman eschewed the use of curves: every feature, every canal, road or river is angular; the result is so like an electrical circuit diagram that one searches for fuse-boxes, earths and the like. As one who loves the Usk I am repelled by this hideous canalisation; even a palsied wriggly line to indicate the river would have made it stand out in blessed relief. My only other criticism is that no dimensions are given of the aqueducts and similar features; surely Dadford's 176ft long Brynich aqueducts deserves more than a mere mention that it has four arches, but we are told that the small one near Llanelan is 8ft high and wide.

After a brief editor's preface and an introduction there is an excellent ten-page chapter devoted to the historical background which puts the Brecon and Abergavenny canal into a proper perspective with both the earlier eighteenth century canals in England and with the valley canals of Glamorgan which, like the Monmouthshire section of the waterway, followed rivers. The Brecon canal had only six locks in its 33 miles and it was also unusual in being planned for agricultural purposes, but the 20 miles to Newport and the 11 mile Crumlin branch were always industrial.

The main part of the book consists of twenty-nine pages of description of the canal and its features as the traveller proceeds from the topmost water intake a little way above Brecon; and a brief mention is made of any monument or building of interest within walking distance of the canal. Similarly, note is made of about a score of tramroads associated with it, many of them penetrating into beautiful unspoiled country. The appetite of the traveller is so whetted that were all these explored a voyage down the canal would be a very long business. Those sections no longer available for navigation - but accessible to the public - are described, but most attention is given quite rightly to the boat user.

In five useful appendices, which conclude the book, engineering works and features are described, although this could have been improved with more details of locks, their paddles and gates. The second lists important dates in the history of the canal, and the third is bibliography with a full list of maps. The fourth very rightly lists all the main and minor facilities available: these include - the hire of cruisers, the availability of food, drink and fuel, and I for one now know that the letters CD refer to no other privilege than that of 'chemical toilet disposal'. The fifth appendix is a list of distances which is followed by an ample six-page index; the book is concluded with seven blank pages left for notes which seems a thoughtful gesture. Other users may not share my views on the route maps which do not hinder my recommendation of this book. I feel sure that it should sell very well and give its readers a very great deal of pleasure and information and Mr. Stevens much justified satisfaction.

Aberystwyth

D. B. Hague

Der Eisenbahnbau und das Wachstum der deutschen Eisen- und Maschinenbau - industrie 1835 bis 1860: Ein Beitrag zur Geschichte der Industrialisierung Deutschlands, by Horst Wagenblass, GUSTAV FISCHER VERLAG, Stuttgart, pp 334, DM.74.

This is a weighty study of the impact of the railway on the German iron and heavy engineering industries. Dr. Wagenblass sees in the development of the iron road a whole host of quantitative and qualitative effects accruing which were of profound importance to the industrial revolution in Germany. Critics might argue that his work lacks the statistical sophistication of Fogel's well-known study of American railways, but at the level of traditional analysis he produces enough evidence to show that railway building was a major force in the emergence of modern iron production and a mechanical engineering industry. The book will be of only marginal significance to the industrial archaeologist and has the annoying characteristic of so many German studies - the lack of an index.

University of Strathclyde

Baron F. Duckham

The Techniques of Industrial Archaeology, by J.P.M. Pannell, ed by Kenneth Major, DAVID & CHARLES, Newton Abbot, 1974, pp 199, ill and diagrams, £3.75.

This new edition is welcomed, not least because it maintains the availability of this very useful book. The six chapters on techniques have had minor changes and the one on 'Keeping a Record' has been placed immediately after the other five, forming a more coherent sequence than in the original. The bibliography includes books published up to 1972 and has an added list of museums.

In the 'optional extra' chapters changes have taken place which have altered the character of the book. Pannell's chapter on 'Materials of Construction', emphasising man's control over his environment, is replaced by the editor's 'The Scope of Industrial Archaeology'. Pannell's chapter on 'The Development of Design' has been replaced by the editor's 'Conclusions', which in part gives a summary of the legal protection of buildings and the problems of preservation. It seems odd that Pannell's two contributions should be replaced by two summaries of information easily found elsewhere - the original edition describes K. Hudson's book as the only one covering adequately the whole scope, and we now have R. A. Buchanan's and A. Raistrick's books. Whilst Pannell had in mind the broader perspectives, the editor's contributions are somewhat introspective.

Of the six technical chapters, four are unchanged. The use of more valid examples of information to be derived from directories and guide books, in chapter 2, is welcomed. So is the new section on the NRIM in chapter 6. The section on aids to drawing has been rewritten as has the section on photography, but the figure in the NRIM section depicting the classification of industrial buildings is without the classification.

In the chapter on scope, the various activities that have been studied by industrial archaeologists are classified, but unfortunately a different classification is used for the bibliography, and for the list of museums, the sections being arranged alphabetically, books on 'power' (steam power only, a separate entry for 'water-mills and wind-mills' exists) come between 'photography' and 'preparation of reports'.

The line drawings are clearer in this edition, but the photographs less clear. The updated bibliography, lacks the critical assessment in the original edition, is easier to read, but it is felt that some assessment of what is contained in the general books might be in place, especially for the newcomer, for whilst the book can only give a short account of photography, or of aspects of the preservation of buildings, these subjects are treated at length in the Industrial Archaeologist's Guide.

The six technical chapters will always be required reading for the aspiring industrial archaeologist and they have been improved and updated. The two new chapters do not add significantly to the literature of IA, and the loss of the two discarded chapters may be irreparable.

Finally, the editor points out (p163) that libraries and record offices are rarely open when the industrial archaeologist has spare time, yet one ignores archives and records at one's peril (p18). Is this the current dilemma in IA?

University of Bradford

John Diaper

Buses in Camera: Scotland and Northern England, compiled by Gavin Booth, IAN ALLEN, 1973, pp 132, photos, £2.73.

Years ago, when I was at primary school in the Scottish Borders, we learned off by heart a poem called 'The Country Bus', the work I think of some versifying inspector. The last stanza ran :-

And Blyth Bridge and Bonnybridge
And Lilliesleaf and Luss
Hang out their lights on winter nights
To greet the country Bus.

We were then, in the early 1950s, at the end of the golden age of the buses, and the intervening two decades have been a period of consistent decline, with a fall of over 50 per cent in patronage and consequent reductions in services. Country routes have been most severely hit by increasing car ownership and in west central Scotland regular-interval electric trains have taken a heavy toll. The belated conversion of government to the cause of public transport and the fuel crisis indicate that some sort of renaissance is on the way, but it will take time to re-create the expertise and the morale necessary for recovery.

In rethinking policies one great disadvantage is the lack of an adequate historiography of road transport. On the whole, bus history still remains the province of enthusiasts, rather like railway history before the economic historians discovered it. We know more about vehicles and liveries than about company organisation, pricing policy and labour relations. Yet the social impact of the bus in the 1920s and 1930s was, as far as mass-mobility was concerned, probably more significant than that of the railway a century earlier. Over large areas the bus must have been the major factor in stemming rural depopulation. Surely, in the next few years, the rise and fall of local bus services, their organisation, timetables, traffic and staff, must become a major preoccupation of local historians. In this, pictorial records like Mr. Booth's will undoubtedly be of use as he gives technical information about bus types, and the vehicle preferences of operators. But in its orientation towards an enthusiast market there are gaps: we could have done with some reproductions of advertising material, with photographs of staff and working conditions - when, for example, were pneumatic doors and one-man buses introduced? What about the contract bus, or those multi-coloured cavalcades of vehicles which used to take whole Border villages on their annual outing to the Northumbrian coast? The needs of the enthusiast and the social historian are, of course, different, but I hope that in subsequent books Mr. Booth will include more visual records of the remarkable social impact of the bus.

The Open University

Christopher Harvie

SPECIAL EVENTS IN IRONBRIDGE

The following special events will take place at the Ironbridge Gorge Museum during 1976.

Steam in Ironbridge	24 - 25 April
Veteran Car Club Rally	8 May
Vintage Car Club Rally	16 May
Morris Dancing Display	13 June
Horses in Harness	21 - 22 August
Steam in Ironbridge	18 - 19 September
Morris Dancing Display	3 October
Open Day at former Maws	
Tile Works	9 - 10 October

All events with the exception of Maws Open Day will be at Blists Hill from 12.00 to 18.00 hours.

Normal Museum admission charges will apply. Refreshments available. Free car parking and park and ride on most dates.

George Stephenson: The Engineer and his Letters, by W.O.Skeat, INSTITUTION OF MECHANICAL ENGINEERS, London 1973, pp 267, ill, £4.50.

This is an interesting and representative selection of George Stephenson's letters interspersed with careful commentary and amplification by the editor. The letters date from the famous dispute of 1816-17 over the primacy of invention of the mine safety lamp to 1848, the year of the engineer's death. All aspects of Stephenson's work are covered and the established view of the man as an intuitive mechanical genius rather than a distinguished civil engineer is amply confirmed. The few communications transcribed from Stephenson's own holograph, spelling mistakes and all, have a greater immediacy than the more polished versions written for him, but all convey a lively sense of his vision. enormous industry. determination and his unshakable belief in both the steam railway - and himself.

This attractively produced volume ranks as an additional biography rather than merely a collection of letters. Possibly at times it is just a trifle adulatory, though on one can deny that George Stephenson has a habit of consistently remaining more than life-sized. It is worth hoping, incidentally that Mr. Skeat might one day compile a similar book on Robert Stephenson, a man many of us believe to have been by far the greater engineer.

University of Strathclyde

Baron F. Duckham

AIA Bulletin is published six times a year by the Association for Industrial Archaeology. The Association was established in September 1973 to promote the study of Industrial Archaeology and encourage improved standards of recording, research, publication and conservation. 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 interest of Industrial Archaeology at a national level, to hold conferences and seminars and to publish the results of research. Further details of the Association and its activities may be obtained from the Secretary, Association for Industrial Archaeology, Church Hill, Ironbridge, Telford, Salop, TF8 7RE, England (095-245 3522).