

A new research tool?

Goad Fire Insurance Plans. The production of Fire Insurance Plans (FIPs) in this country has been dominated by one company — **Charles E Goad**. Between 1886 and 1970, 126 volumes covering 59 towns and cities were published. The plans, recording particularly warehouses, mills, factories, and canal, railway, and port installations, were produced for the specific requirements of fire insurance companies to whom they were loaned for the payment of a subscription fee.

The plans covered central urban areas and often a substantial district around; the **Manchester Carriers Warehouse Volume**, for instance, covers a region of thirty miles radius. The details, recorded in colour, generally at a scale of 40 feet to 1 inch, are outstanding — land use, building materials, structural details, number of storeys, location and type of openings, windows and doors, hoists and lifts, fire fighting appliances, and such 'sundries' as steam engines, boilers, and chimneys. For urban historians, industrial archaeologists, and others, the plans thus provide a source of information about commercial and industrial buildings in the period 1886-1970 which is unrivalled in its quality and accessibility.

Once the initial plans were surveyed and published, an extraordinary operation took place in order to keep them up-to-date. Every 5-6 years, surveyors recorded changes in land use, construction, materials, ownership, demolitions, extensions. But instead of issuing entirely new sheets, the changes were printed onto correction slips, tailored to fit, and pasted in the appropriate place on the original plan. In this way, revised plans came to resemble jig-saws. They were up-to-date but, of course, the earlier layouts were 'lost' beneath the pastings. It follows, therefore that those who wish to trace the development of the buildings and land use need to refer to earlier plans.

In 1983, Goad's voluminous and chaotic collection of volumes, sheets, correction slips, and other material — the result of 100 years of on-going revision and publication — were transferred from the Goad repositories to new premises at Old Hatfield and sorting and cataloguing commenced. The immense quantity of volumes and sheets covering the country is now being sold off and a catalogue is available for £5.00 including

postage, from Charles E Goad Ltd, 18a Salisbury Square, Old Hatfield, Hertfordshire AL9 5BE. The cost of individual sheets (20¼" x 25") varies according to their condition — £1 for bad copies, up to £10 for very good and good copies.

Goad FIPs can be consulted in certain city libraries, County Record Offices, and in London in the British Library, Guildhall Library and County Hall. The task of tracking down what has been produced, what remains, and where it is — a prodigious task — has been undertaken over the last decade by Gwyn Rowley of the University of Sheffield, who has written and introduced and guide to Goad FIPs (1984). This fascinating document, **British Fire Insurance Plans** (A4, 117 pages) is splendid value at £3, including postage, from Charles E Goad at the above address. As well as an inventory of extant volumes, it includes an historical survey of FIPs and a description of the features and special properties of the Goad plans. There is also a note about another amazing Goad enterprise undertaken since the production of FIPs ceased — detailed plans of over 1000 central shopping areas in the British Isles. These include the names and trades of every retailer.

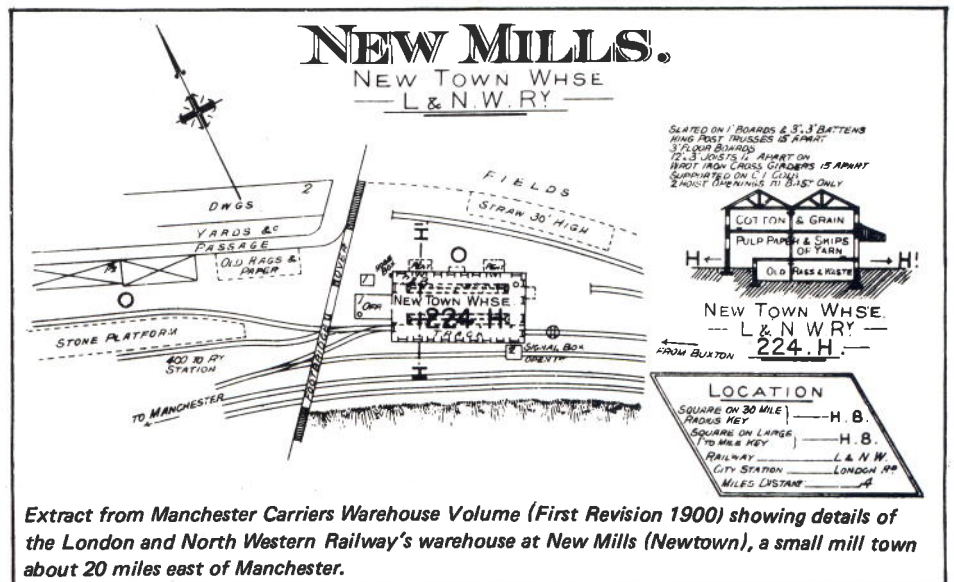
Derek Brumhead

Initiative to Revitalise Liverpool Canal. The British Waterways Board have launched an important initiative to revitalise the use of the Leeds & Liverpool Canal in Liverpool and Sefton.

The eight mile length of canal, from its terminus at Stanley Dock near the centre of Liverpool, and running through Bootle to Aintree, is designated as a Remainder Waterway under the Transport Act 1968. Limited resources have therefore been available to maintain it. At a recent meeting in Liverpool, chaired by the Board's Chief Executive, Mr D G McCance, the Board's strategy to develop this length of canal, which is supported by local authorities, the Department of the Environment's Merseyside Task Force and Mersey Initiative Unit, was outlined.

This strategy, which centres on the appointment by the Board of a Development Officer, is backed by the injection of significant funds to improve the canal and its environment. Improvement works in 1985/6 will include dredging and removal of rubbish, bank protection and specific projects to improve the amenity value of the canal to local people. The Merseyside County Council, who for some years have been undertaking improvement works in the canal corridor in co-operation with the Board, will continue to undertake complimentary improvements with assistance from the urban programme and the Manpower Services Commission.

Announcing the initiative, Mr McCance said that the Board recognised the importance of gaining the support of the local community for their plans and of consultation with the local authorities. Little use had been made of the canal in Liverpool and Sefton for many years and new



Extract from *Manchester Carriers Warehouse Volume (First Revision 1900)* showing details of the London and North Western Railway's warehouse at New Mills (Newtown), a small mill town about 20 miles east of Manchester.

uses would have to be carefully introduced and properly controlled and supervised. This would be the primary task of the Development Officer who would have the assistance of other locally based staff.

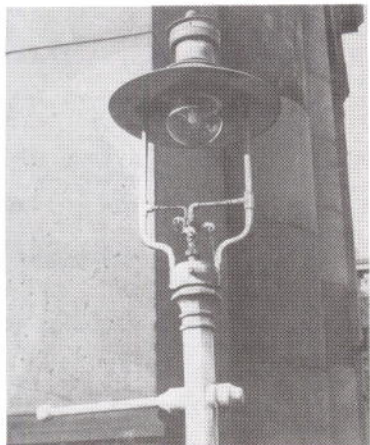
Mrs Cindy Irwin, the Development Officer, sees her main role to be the bringing together of ideas and resources to improve the canal and its environs. 'I will provide all the advice and assistance I can but I will be looking to local people to tell me what they want from the canal and how far they are prepared to go in helping to achieve this.'

Inland waterways provide a valuable leisure resource in many inner city areas. The Board welcomes the support and assistance of agencies in all sectors of the economy to improve these waterways for public use.

Kenneth Hudson was, and still is, one of the leading publicists for industrial archaeology. But he has often been mildly controversial and although you may agree or disagree with his views, you certainly can't ignore them. In January of this year, Kenneth gave the 15th anniversary year lecture to the Exeter IA Group and as this extract shows has lost none of his ability to stimulate the thought process.

What attracted me to industrial archaeology in the first place, back in the early Sixties, was that it seemed to offer a heaven-sent opportunity to break out of the academic jungle. It looked and felt like a wonderful no-man's land, in which specialists of all kinds, shapes and colours could meet and actually talk to one another, without losing face and without communicating secrets to the enemy. And in this spirit I wrote that very daring pioneer work *Industrial Archaeology: an Introduction*, which appeared in 1963. To the surprise of all concerned, it did remarkably well and was reprinted quite quickly. One reason for this was certainly that John Betjeman took it up and said nice things about it in reviews. In the last series of television programmes he did, not long before he died, sitting in his wheelchair, it was good to see a copy of *Industrial Archaeology: an Introduction* sitting in his bookshelves, just behind his right ear.

INDUSTRIAL ARCHAEOLOGY



An Introduction by
KENNETH HUDSON

I put a motto at the front of the book. It came from H J Habbakuk's book, *American and British Technology in the Nineteenth Century*, and it said: 'This essay is a foray into the debatable borderland between history, technology and economics. Anyone who sets up as a middleman is likely to provoke the traditional mistrust of brokers and bodgers'.

How very right he was. From the very beginning, there have been those who, fearful of losing the keys to their kingdom, have shown themselves strongly disposed to regard industrial archaeologists as 'brokers and bodgers'. For a year or two, until about 1968, they tended to lie low, mainly, I think, in case industrial archaeology should happen to become a profitable bandwagon on which it might be prudent for them to jump. One day, who could tell, there could even be Chairs of Industrial Archaeology.

So, for a while, there was a delicious honeymoon period in industrial archaeology, when it was good to be alive, a time which echoed the dictionary definition of a honeymoon — Dr Johnson's 'the first month after marriage, when there is nothing but tenderness and pleasure', and the NED, 'the first warmth of newly-established friendly relations'. With hindsight, one can see an excellent reason why there should have been so much peace and mutual helpfulness in the atmosphere — there was so much work to do, in locating the surviving remains of the First Industrial Revolution and in organising campaigns to preserve them — incredibly starry-eyed campaigns, as one can see at this distance.

I preached the crusade myself. The aim of *Industrial Archaeology: an Introduction*, I said, was 'to draw attention to the surviving memorials of our industrial past and to help to create a public opinion which is sufficiently well-informed to approve of money being spent on recording and preserving tangible evidence of some of the more remarkable achievements of a country which was, in its time, the leading industrial nation in the world'.

The following year, in 1963, I launched *The Journal of Industrial Archaeology*, and in Vol 1, No 1 — a collector's item nowadays — I indulged in a little stocktaking. 'During the past two or three years', I wrote 'the new subject, or, as some people might say, the newly-christened subject, of Industrial Archaeology has aroused a degree of interest which has surprised even its own partisans.

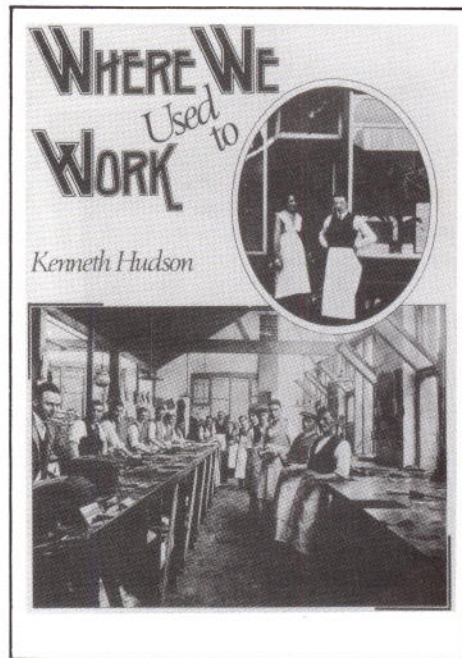
'The study of the physical remains of an enormously rich and varied industrial past has proved an attraction to engineers, historians, economists, photographers, railway devotees, geographers, antique-dealers, schoolboys, professors, industrialists — a most encouraging and useful mixture of experts and amateurs, all anxious to take part in the urgent process of locating, recording and, where possible, preserving the buildings and equipment which keep the story of technological development alive, properly documented, and meaningful.

'This *Journal* has been established in order to make it easier for those engaged in Industrial Archaeology to publish the results of their work and to keep in touch with the activities of other individuals and groups who are active in the same field.'

But, even by the end of the decade, a certain restlessness could be detected among the troupes. All this finding and photographing and recording of ancient steam-engines, breweries and inclined planes was heady stuff for a few years, but the

time was bound to come when even the most loyal and devoted among the Party Members began to wonder, and sometimes to ask what it was all for, what did it all add up to? Moving around the country a lot, I was able to sense the mood clearly enough, particularly since it was something I was experiencing myself. By the mid-seventies, *Industrial Archaeology: an Introduction* had fairly obviously been overtaken by history, which was, in a way perhaps, a tribute to it. Maybe it had helped to make history or steer the course of history. So, in 1976, there appeared, as inevitably as night follows day, *Industrial Archaeology: a New Introduction*, and in this I said, as a good Vicar of Bray should, that my faith and enthusiasm was undiminished, but admitted there had been a certain shift of emphasis. 'My aim', I told anyone who cared to listen, 'has changed only to the extent of understanding that one must never cease to emphasise that workers are as important as machines and buildings. Industrial archaeology, in other words, is essentially a humane study.'

'Aha', crowed the Old Bolsheviks, who had been waiting and longing to pounce for some time, 'just as we feared and suspected, this is no solid steam-engine man, no trustworthy, fully paid-up nuts-and-bolts member of the Newcomen Society. This is the most dangerous type of broker and bodger, a social historian in Newcomen clothing.'



Worse was to follow. In 1980 came a book, *Where we Used to Work*, which committed the ultimate offence of actually excluding 'industrial archaeology' from the title. By that time it was evident that I was a soul lost beyond the possibility of saving, a perpetrator of heresies and black masses, a person capable of writing things like: 'The traditional academic sharing out of the past into subjects called economic history, architectural history, social history, the history of technology, industrial archaeology and so on may be professionally convenient and profitable but makes little real sense', and 'A great deal of the work carried out by industrial archaeologists has been completely sterile, comparable to the single-minded collection of postage stamps, coins or matchbox labels.'

I went on to say that any form of archaeology,

palaeolithic, Roman, medieval, industrial or whatever 'has a point only if it is carried out with the kind of informed imaginative understanding which allows the archaeologist to think and feel his way back into the lives of the people who created what he is studying.'

But I have never wavered in my belief that the great strength of British archaeology during the post-war period has been its remarkable ability to marry the efforts of the amateurs and the professionals, to the great benefit of both. One reason for this phenomenon, perhaps the most important reason, has been a chronic shortage of money. If the professional archaeologists had had plenty of money to support their efforts, we should, without a doubt, have continued with the pre-war situation of rather grand experts hiring coolies to do the hard work, with a sprinkling of favoured students to act as reasonably skilled NCOs. But, with rare exceptions, the funds didn't exist any more for this kind of organisation — the wages of the Fifties and Sixties weren't the wages of the Twenties and Thirties — and so the amateurs, the hobby people, had to be closely involved if the work was to be done at all. And, if the Herr Direktor didn't handle his new, educated labour force sensibly, if he didn't treat them as equals, they were pretty certain to tell him where he got off and disappear. Until the lesson was learnt, this was precisely what happened. It was democracy or nothing.

In the case of industrial archaeology there were other factors at work. The first was that there weren't really any professional industrial archaeologists. There were professionals in bits of industrial archaeology — people who knew about steam-engines and factories and machinery and coal-mines — but virtually nobody with a knowledge of the whole field. Everybody was an amateur, but some, if one might put it this way, were expert amateurs and others were amateur amateurs, a deliciously Gilbertian situation and very, very British.

There have, undoubtedly, been some very effective lone wolves among industrial archaeology's amateurs but, generally speaking, they've been most useful and most impressive when they've worked within some kind of organisation, a local industrial archaeology society, like yours here in Devon. If I were to go around the tables here tonight and write down everyone's occupation, I'm sure it would make a most interesting list and one that would illustrate very well the wide range of knowledge and talent that adds up to the industrial archaeology labour force here in Britain.

But people have to feel that their efforts are worthwhile. There has to be some end product, some form of permanent record, some piece of successful preservation, a crusade that's got somewhere. Without this, a society disintegrates. It can't live by dinners alone. And because you obviously haven't disintegrated — you've been in existence for fifteen years and you're still here — you must feel you've accomplished something useful and satisfying.

So far as the next fifteen years are concerned, I feel I can offer one useful piece of advice and one warning. The piece of advice is, 'Don't go on padding round the same old well-nibbled, well-trodden pastures for ever — the First Industrial Revolution pastures of steam, coal, canals and railways. Go for the industrial archaeology of our present century where there's so much to be discovered and so many living ancients to be met and interviewed.

I'm sure that's the main job to be done for the rest of this century — and remember that the next fifteen years are going to take us up to the year 2000, when I may or may not be able to be with you. I hope very much that I shall.

And the warning can only be put in the form of a question, to which I simply don't know the answer. Has industrial archaeology reached the point at which it can afford to regard itself as a wholly professional affair, with no need of paid enthusiasts? Is it moving towards that point? If the answer's yes, then, if I were you, I should go away and take up dominoes. But, partly because I want to send you to bed happy and partly because I believe it's true, I think the answer's no, provided — and it's an all-important proviso — you concentrate on the twentieth century and leave the eighteenth and nineteenth to the professionals who are only too happy to spend their time digesting, analysing and writing up the things the amateurs have ferreted out and collected during the past twenty years or so. Go where there's still plenty of grass, nice, fresh, juicy grass, in modern industrial places like Plymouth and Torquay and Newton Abbot, and you'll reach the year 2000 bright-eyed and in good condition.

Ironbridge Museum Foundry produces its First Castings.

After many years of planning, combined with the acquisition of early examples of foundry equipment, the Ironbridge Gorge Museum Trust has finally completed an outstanding replica of a turn-of-the-century iron-foundry. The new exhibit forms part of the small industrial township on the Blists Hill complex at Ironbridge.

This is no sterile reproduction of an old casting-enterprise, but a fully-operational foundry capable of producing castings up to four or five cwt. It has already employed its 14in dia cupola in the manufacture of trial components, before featuring moulding, melting and casting procedures as part of the many attractions offered on the site. Visitors will be able to view the production of moulds from a raised walkway at one end of the foundry building. Just below is a moulding



21st June 1985, the first 'cast' of the new Blists Hill iron-foundry.

Below: John Steele, Blists Hill Exhibits Manager (extreme right) and his gang.

machine and a moulding bench, enabling those interested to question the craftsmen about the various stages involved in the manufacture of a casting.

The interior of the foundry is dominated by a large wood jib crane, typical of those employed in small jobbing foundries last century. A sand bed provides the opportunity to demonstrate the very simple methods used in the production of firebricks and floor-plates. Sand is prepared in a Jackman pan-mill.

Positioned outside the foundry are two cupolas, their charging doors reached from a bridge thrown across from a high bank to the south. The largest of the furnaces is only for 'show', its capacity being, at the moment, far too high for the modest resources within the foundry building. The working cupola is very small, but capable of demonstrating to the



public how such a unit can provide molten iron. This unit, incidentally, was obtained from a small Berkshire foundry which employed a water-wheel to drive the fan.

The foundry is associated with a small foreman's office, faithfully reproducing what the interior must have been like 75 years ago. Eventually, the display will also incorporate a modest patternshop, and pattern store. The building which houses the foundry will also feature a machine-shop, belt-driven from a small beam-engine.

It is hoped that the available resources will enable the foundry to produce a range of attractive souvenirs for sale to visitors, together with small architectural details, bench-ends, replacement and repair castings, firebars, firebacks and a variety of other iron components.

It is expected that the display will form a major draw to the public, especially as few people have ever had the opportunity of seeing iron melted and poured. Furthermore, it will provide an insight into the rudimentary techniques involved in the production of a casting — and thereby establish in the visitor's mind just what casting is — and how it differs from components made by other metal-forming routes.

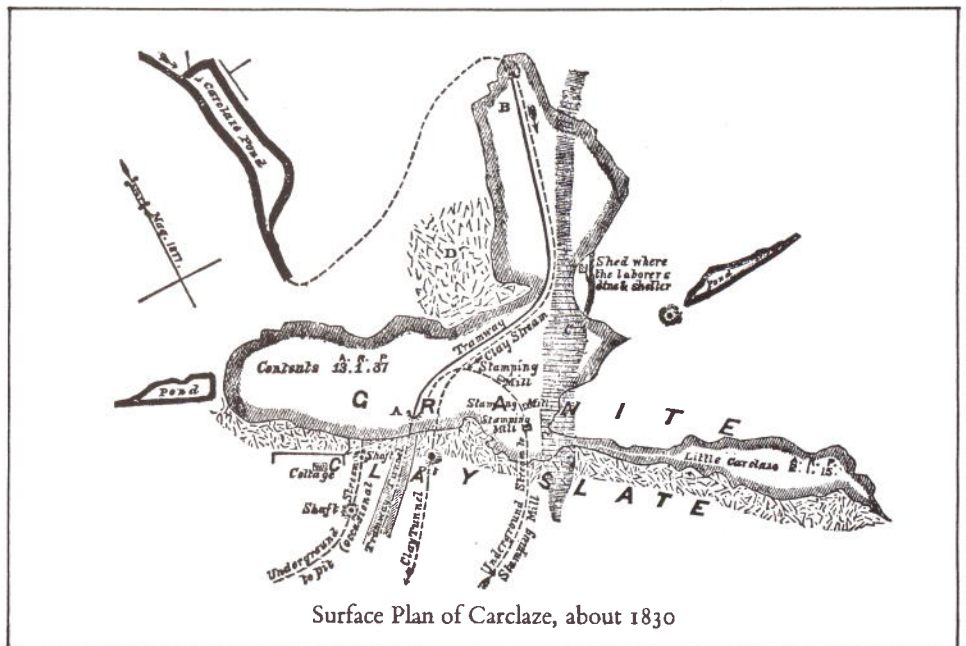
The equipping of the foundry is likely to continue. Amongst items still sought is a cast-iron core stove, of pull-out or quadrant-drawer type, a range of cast-iron moulding boxes, and a Royer belt-type sand conditioning unit.

This item originally appeared in *The Foundry Trade Journal* 20.6.85.

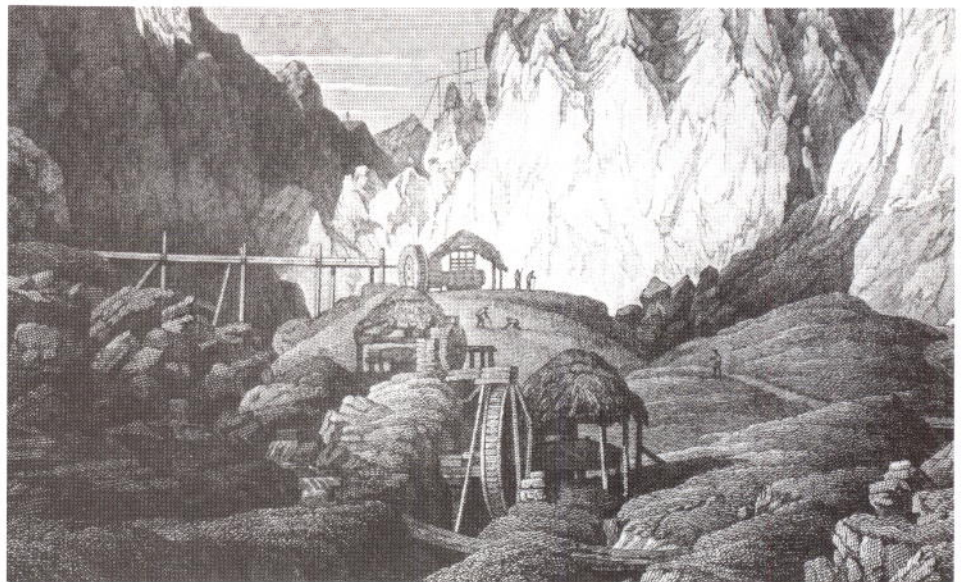
Carclaise Tin Mine, Cornwall. Browsing through a recent issue of *Country Life*, the Secretary suddenly came across an advertisement by Colnaghi's, the London Art Dealers, showing a picture of **Carclaise Tin Mine** by John Warwick Smith (1749-1831). This was a pencil and water colour work, 5½ ins x 8½ ins in size. On sale at £1500, it was beyond the Secretary's pocket, but in its representation of the working — for both tin and china clay — it will undoubtedly be of interest to members.

A K Hamilton-Jenkin in Volume VIII of his series, *Mines and Miners of Cornwall* — 'Truro to the Clay District' which was published by D Bradford Barton (and later Town and Country Press Limited) in 1964, gives a surface plan of Carclaise about 1830 and reproduces another engraving of the Mine — recording that *No industrial site in Cornwall was more frequently visited by early tourists because here it seems as if a complete mine had been turned inside out for the benefit of timid travellers who would wish to see the work of mining without the risk and fatigue of a descent below the surface.* The site amounted to little more than an open cast excavation of about a mile in circumference and being about 150 feet deep. The Mine was unusual in that it included a subterranean canal running beneath the openwork during the eighteenth century. After being quarried, the ore was carried down onto the canal boats via a shaft in the floor of the pit. It was said that the amount of tin ground removed was in excess of one million tons, and that the adventurers had recovered tin worth over £1m.

The artist — John Warwick Smith was born in 1749 at Airthington in Cumberland. He was the son of a gardener, but had drawing lessons as a child. In 1775 he gained the patronage of Lord Warwick who paid for him to visit Italy from 1776 to 1781. He had moved to London



Surface Plan of Carclaise, about 1830



The pictures: top; the John Warwick drawing of Carclaise Tin Mine. Centre: surface plan taken from *Mines and Miners of Cornwall* by A K Hamilton-Jenkin, Vol VIII, page 42.

Bottom: Engraving of Carclaise Tin Mine by S Middiman from a drawing by L Farrington published in *Magna Britannia* Vol III (1814) compiled by the Rev Daniel Lysons and Samuel Lysons.

by 1797, but sketched in Devonshire, Derbyshire and Wales. He died in 1831. Examples of his work can be seen at art galleries in Aberdeen, The Ashmolean, Birkenhead, Exeter Museum, the Fitzwilliam Gallery, Leicestershire, Manchester and Newport.

Southwick Brewhouse. A success story, where the dedication of the **Southampton University Industrial Archaeology Group** has triumphed. The brewhouse is in a separate building in the car park of the Golden Lion Public House at Southwick, near Portsmouth. The pub itself can be traced from early 17th century, but the brewhouse is pure Victorian. The last brewing – for the pub and workers on the local Southwick Estate – took place in 1956, and after that it seems that the building was simply closed and kept locked. So although time had taken its toll, when the team of Southampton University IA Group volunteers decided to make its restoration their aim, the complete brewery plant was intact. Through consultation and co-operation

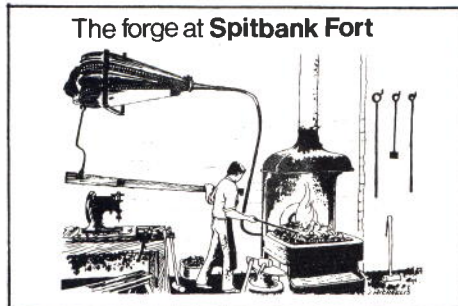


between the Group and the Southwick Estate and Hampshire Buildings Preservation Trust a scheme was prepared, grants obtained, and agreement reached with Courage's who hold a lease on the pub itself. The first step was to make the building safe, and the Southwick Estate arranged to replace the floor and louvres in the windows. Then the interior could be cleaned, repaired and the brewing plant refurbished – including the vertical boiler, horizontal steam engine and pump.

The Group was assisted by Mr Edward Argyle, a former head brewer of Gale's Brewery at Horndean, who gave freely and generously of his time to ensure that any technical problems could be solved. Then in early June 1985 he was the person who gave the project its fitting climax – the first brew in Southwick Brewhouse since 1956. The Southampton Group, friends and those who had helped in the project were kindly invited to attend the opening and sample the finished product for which the brewhouse had originally been constructed. It must be recorded that the result of both restoration and brew were excellent.

(The Golden Lion Brewhouse will open for group visits by appointment with the Curator – Mr Tony Dowsett – telephone Cosham 380978).

Portsmouth's Industrial Archaeology. Undoubtedly Portsmouth is viewed by the majority of the population as one of the homes of the Royal Navy. Thus a visit to **HMS Victory** (laid down at Chatham in 1759) will be a must. It is amazing to think that she was an anchor at Portsmouth Harbour from 1813 until 1921! As well as the ship itself, there is a nearby museum which deals with the end of the sailing navy. **Victory** is open every day of the year except Christmas Day, and the Museum except Christmas Day, Boxing Day and New Year's Day from 10.30 am to 5 pm Mondays to Saturdays and 1pm to 5pm on Sundays. As a contrast, the Navy now has on display at the Royal Navy Submarine Museum at Gosport – on the other side of Portsmouth Harbour – **HM Submarine Number 1 (The Holland)**. This was recently raised from the sea bed, and is now displayed alongside another submarine, **HMS Alliance**. The Museum is open daily between 9.30 am and 4.30 pm. Lastly, in the nautical line, and as a contrast to **HMS Victory**, the



Mary Rose Ship Hall and Exhibition also in Portsmouth Naval Base provides a contrast of some 200 years in maritime technology. Sunk in 1545, the artefacts now raised by the Mary Rose Trust are available for inspection. Details can be obtained from the Press and Publicity Officer – Telephone 0705 - 839766.

The importance of Portsmouth as a naval base gave rise to numerous massive and surviving fortifications. On Portsdown Hill the last self-contained castles to be built in Britain were constructed in Lord Palmerston's time to avoid the possibility of an attack from the landward side of Portsmouth at a time when there was tension with France. **Fort Widley** was one of these fortifications, and is now open for viewing by the public between April and September on Saturdays, Sundays and Bank Holidays between 1.30 pm and 5.30pm. As a contrast, **Spitbank Fort** in the sea at Spithead was built to protect Portsmouth from the sea. Its construction took 16 years, with walls at basement level 15 feet thick. A 402 ft deep well had to be sunk to provide a secure water supply, and the Victorian cooking ranges were sufficiently well built still to be in use during World War II. Thirty eight ton guns were installed to provide circular fire cover to prevent any seaborne attack on the fleet in Portsmouth. The fort has been restored

recently and is open from Easter until the end of October – but remember that a ferry trip is involved. Ferry times and details can be obtained from either of the ferry companies operating from Clarence Pier, Southsea – 0705 - either 524551 or 830665.

Rather more 'mainstream' industrial archaeological exhibits in Portsmouth are the pumping engines at the Eastney Pumping Station at Henderson Road, Eastney. After cholera epidemics, by 1868 a system of underground sewers had been built in Portsmouth which resulted in undersea discharge. Two Clayton steam engines and pumps were erected in 1868 for this purpose. After Portsmouth had experienced further growth, in 1886 two Bolton and Watt beam engines and reciprocal pumps – which continued in use until 1956. They were restored and made available for public inspection in 1972 and are housed in a building of somewhat ecclesiastical design. One of the engines is teamed every Saturday and Sunday during the summer. Both engines are capable of 150 horse power and are compound condensing beam engines with cranks and flywheels and double acting plunger pumps. They had a capacity of 250,000 gallons per hour and were worked direct from the beam. The engines are open to the public between April and September every day of the week between 1.30pm and 5.30 pm. Between October and March they are open on the first Sunday in each month between the same times. For further information telephone 0705 811527.

After Portsmouth . . . It should not be forgotten that other industrial archaeological preservation projects exist along the south coast. For instance, the only remaining destroyer to have seen active service in World War II – **HMS Cavalier** (which was launched in 1944) has been preserved at Brighton Marina and is available for inspection each day from 10.30 am. **The Southampton Hall of Aviation** has been established to depict the history of aviation in the Solent area – where there was some twenty six aircraft companies, including the Supermarine Aircraft Works where R J Mitchell produced the S6B Schneider Trophy winning aircraft which led to the Spitfire Fighter. The display includes the Sandringham Flying Boat, and is open at Albert Road, Southampton, daily (except Mondays) between 10 am and 5 pm. Sundays 12 noon to 5 pm. (Telephone 0703 - 35830).

Another aeronautical display in Wessex is the **Fleet Air Arm Museum** at Yeovilton – combining both the history of the Fleet Air Arm and the pre-production **Concorde 002**. For anyone interested in the history of aviation this museum is a 'must'. Readily accessible from the A303, opening details can be obtained by telephoning 0935-840565.

The Amberley Chalkpits Museum near Arundel in Sussex (telephone 079-881-370) – the Southern Industrial History Centre – shows restored industrial buildings, lime kilns, a narrow gauge railway, brick making machinery, and other evidence of the industrial past of the area. It is open from April to October between 10 am and 5 pm on Wednesday to Sunday inclusive. In 1984 over 50,000 people visited the museum – which must show the continuing interest in industrial archaeology from the general public.

And so back to the beginning. The Southampton University Group, having

successfully restored the Southwick Brewhouse, now has to move to pastures new. Other projects they are tackling include work at Basildon Brickworks and Windmill. So maybe there will be another excuse and opportunity to visit their area.

Jubilee Mill, Glossop. This building — a three storey mill of some 55000 square feet and of stone construction fronting Turnlee Road on the A6016 has recently been sold for a figure approaching £2.50 per square foot. The purchasers — a local-based company — proposed to use the premises for textile manufacturing. An entirely appropriate satisfactory example of a future use being found for an industrial building. Note the basis of calculation of the sale price — a price per square foot. Site value is not of any real importance, it is the comparison of the price per square foot with other available buildings — either old or new that counts.

Mill Restoration. In 1970 the Bradford Mill House at Whitegate near Northwich in Cheshire was derelict. It was then restored — and is now for sale and expected to fetch £100,000. An example of how the restoration of industrial buildings can result in a valuable asset — and how types of buildings can become fashionable and attractive having previously been neglected.

Railway Benefactor in North Devon. Another example of British Rail asking apparently enormous sums for assets which they have closed. In this case, the asking price for the 2½ mile stretch of track between Torrington and Weare Giffard on the disused Barnstaple to Meeth Railway Line is £38,500. Devon County Council is to be approached for a loan of £20,000, but in the meanwhile a mystery Canadian benefactor has given the **North West Devon Railway Preservation Society** £15,000.

Congress of Independent Archaeologists will be held between the 21st and 22nd September 1985 at Wolfson College, Cambridge, and the fee will be £36.00. Further details can be obtained from Wolfson College, Cambridge CB3 9BB or 9 Nassington Road, London NW3 2TX (telephone 01-435-7517). The object of the congress is to reflect upon the slow down or halting in the rapid growth of archaeology in recent decades fuelled by government spending. Fund raising — both from business and industry and from the general public will be discussed, together with the amateur and the wide range of work done by the volunteer sector in archaeology. There will also be consideration of the ways in which the amateur and the professional can work in archaeology to the advantage of both.

ICOMOS. The International Council on Monuments and Sites has established an international committee to deal with the protection and management of the archaeological heritage. Its objects are to include the following:-

- 1 To stimulate an understanding of the importance of the archaeological heritage among the general public and government institutions.
- 2 The encouragement of a multi-disciplinary approach to the cultural heritage.
- 3 To encourage compatibility of documentation, the establishment of minimum standards for

recording, publication, etc.

4. The establishment of minimum standards for the training and qualification of those involved in archaeological heritage management.

The Committee's first public meeting will be held in Southampton during the World Archaeological Congress in September 1986.

Indian Take-away? Difficulties with raising the money for a major refit, including remasting and re-rigging, are obliging the Trustees of Britain's oldest wooden wall still afloat, the *Foudroyant*, to look seriously at a plan to ship her back to Bombay (where she was built of teak in 1816 as the *Trincomalee*) where she would become a floating museum of the Indian Navy and Bombay Docks as well as maintaining her present role as a base for nautical adventure training.

Although she has spent several decades moored in Portsmouth Harbour, the *Foudroyant* is not supported from Naval funds, and all refits and running costs have to be financed from funds raised by her Trustees. There have been occasions when the Navy has contributed materials for her upkeep: when *HMS Vanguard*, Britain's last battleship, went for scrap in 1960, the long canvas awning that covered her spacious focsle was used to help keep *Foudroyant's* hull watertight. The ship is unlikely to be a major tourist attraction for Portsmouth until she can be re-masted and rigged. Indications are that this could be carried out in India at a quarter of the cost of a similar operation here.

A semi-submersible transport vessel *Happy Mammoth* could uplift the whole of the *Foudroyant* and ship it to Bombay for an estimated £256,000. This sum would be raised by a consortium of Indian business and naval interests, although it is likely that her present Trustees would also require compensation with which to purchase another ship to carry on *Foudroyant's* youth training work. If achieved promptly, the transfer might succeed in unblocking up to £80m worth of contracts that the Indian Navy was to have placed with British companies. Consideration is also being given to moving the ship to the maritime heritage area at either Portsmouth or Chatham, so that she can be visited by the public. At present this remarkable survivor, her hull still substantially as originally built thanks to its excellent teak, is moored between Portsmouth and Gosport, and can only be visited by special arrangement.

John Robinson

Protection for Scottish Bridges. Although many of the forty-odd bridges erected in Scotland in the 1730s under the direction of General Wade are in remote locations, and little accustomed to heavy traffic, neglect and the hard climate has resulted in the collapse of several of these historic structures. Some fifteen have disappeared altogether, and several more are in imminent danger of collapse; those on private property have suffered particularly from lack of maintenance.

What is surprising is that very few of these bridges, built some 250 years ago as part of a Government policy of economic development and improved access for the Highlands, have yet been listed. The simple gravel and hard-core roads, built as part of the same programme of making military communications quicker and

more reliable, have in many cases disappeared under road widening schemes. The Association for the Protection of Rural Scotland has recently set up an Historic Roads and Bridges Committee, charged with surveying more of these bridges and seeking listed building status where appropriate. The Association organised repair projects, using voluntary labour, to restore two of these bridges during 1984. Care was taken to use only locally-quarried stone, and some of the high quality lime used for mortar had to come from as far afield as France. Among the best known of the General Wade's bridges is the five-arch structure which carried the A9 trunk road across the River Tay at Aberfeldy (see *AIA Bulletin 9:4*) but the initiative taken by the APRS should help to focus attention on other surviving relics of this remarkable episode of public engineering. Neither of the two single arch bridges selected for repair last summer had previously been listed, and the survey now in hand should increase our appreciation of the significance of Wade's contributions to the Scottish landscape.

Further to the announcement in *Bulletin 11:4* that a **Boulton and Watt rotative beam engine of 1784** is being restored for display in Sydney, we can report another early English-built beam engine due to come out from under its wraps at the same Power House Museum in the New South Wales capital. This particular machine was built by **Maudslay Sons and Field in 1837**, a low pressure six-column rotative engine believed to be only the third of its kind to be imported into NSW. It powered a granary, maltworks and brewery in Golbourn and was presented to the Museum of Applied Arts and Science (of which the Power House Museum is a part) many years ago when the brewery where it then worked was taken over by Tooth and Company, who realised its historic significance. We understand that restoration has been entrusted to engineering apprentices at Vickers Cockatoo Dockyard in Sydney. Our thanks to Michael Bussell for spotting this item in an Australian engineering periodical.

New Waves in Old Pipes. The network of cast-iron pipes installed beneath the streets of London (and of various other British cities including Liverpool, Manchester and Glasgow) in the previous century to deliver hydraulic power to domestic and Commercial users has found a new use. With more than 8000 machines connected to it in its heyday, London's hydraulic power system was one of the largest, the total pipe length exceeding 170 miles. As a public utility the **London Hydraulic Power Company**, which metered its supplies of high pressure water to consumers and billed them accordingly, was obliged early in the present century to concede defeat to electricity as a more versatile source of power. But some London consumers maintained their loyalty to hydraulic power right through both World Wars and the LHPC was still responsible for powering many theatre safety curtains, lifts and the bascules of Tower Bridge until the mid 1970s. By then various sections of the underground pipe network in West London no longer carried water under pressure, and the extent of the network still in full commission has shrunk to match the fall in demand. Pumping stopped altogether in 1977, but the pipes remained where they were, recovery being hardly worthwhile because of their great weight and the fact that many later cable and pipe runs now overlay them.

Having been designed with water pressures of 700 psi in mind, the pipes are commendably resistant to external crushing from adjacent soil movements or the increasing weights of road traffic. In this respect they have proved ideal as conduits for fibre-optic links. Late last year **Mercury Communications** set up as a competitor to British Telecom, bought the London Hydraulic Power Company and its whole networks of pipes for £3.5 million. While this may seem a high price for a super-annuated system of old water pipes, the cost today of laying a complete new system of fibre optic links beneath the streets, and the extent of disruption involved, make this acquisition a bargain.

Independent Industrial Directors Meet at Bo'Ness.

A meeting at the Scottish Railway Preservation Society at Bo'ness on March 28 marked the first anniversary of the **Association of Independent Industrial Museums and Heritage Sites**. Growing from a group of administrators meeting informally, the Association now represents Museum of Scottish Leadmining, Wanlockhead;

the Independent Industrials and the proposed Scottish Museum of Industry.

On May 28, after being addressed by John Todd, Head of Tourism and Leisure Division of the Scottish Development Agency, the Association dined in a restored North British Railway saloon. Before visiting Birkhill Clay Mine, Chairman Jim Arnold of New Lanark took the controls of a preserved 1952 Ruston and Hornsby diesel electric engine under the watchful eye of Scottish Railway Preservation Society Manager Robin Chesters for a trip along the relaid railway at Bo'ness.

Tiptree Pumping Station. A very successful visit by members of the Suffolk IA Society was made recently to the Essex Water Company's pumping station at Grange Road, Tiptree, where water from the River Stour at Stratford St Mary is pumped to Danbury, near Chelmsford. These notes were prepared by Mr Ron Woolener, who had charge of the pumping engines for a number of years and obviously regards them with affection.

The station was built in 1930, when three

to build and maintain the plant.

Although in an out-of-the-way situation, the houses at Tiptree were popular with ex-servicemen as they were available at a very low rent, had DC electricity, were on the sewer and had an upstairs toilet — things which might seem commonplace today but were by no means so in 1932. The electricity was virtually free, never costing more than three to five shillings a quarter, but only a few appliances were allowed owing to the limited supply provided by the generators on the main engines. If for any reason the main engines were not running, two 150 KW sets would provide all the electricity needed for houses, workshop and any auxiliary plant that had to be kept running.

If the river was low the company (then the South Essex Waterworks) had by law to let a certain amount of water flow through, so boreholes alongside the river were brought into operation to enable the station to continue pumping between four and five million gallons of water daily to the Danbury reservoir. This water did not need any treatment at all and was pumped straight into the main pipelines. Even this method of obtaining water had its drawbacks, however, as by taking water out of the boreholes at Langham the water level in the boreholes at Dedham owned by the Tendring Hundred Water Company was lowered, so the two companies worked together on that problem.

The main engines are 400 hp with a gearbox reduction of 2½ to 1 and a chain drive for the generator and circulating pump. They have wet liners with a bore of 16½ inches diameter, the pistons weigh on average 700 lb, there are white metal bearings for main large and small end, and the flywheel weight is nine tons. The exhaust is used to heat the boiler, so the central heating bill is nil. Fuel consumption is on average 4000 gallons per week for two engines. Breaking that down, it is roughly 300 gallons per day for each engine, 12½ gallons an hour. But remember that the revs are only about 200 to 208 a minute.

For cylinder lubrication there are two green boxes on the engine with eight sight glasses; the globule of oil travels up the wire through the oiler plug into the liner to lubricate the piston rings, of which there are seven, five compression rings and two scraper rings. The lubricating oil in the sump is continually fed through a streamline filter so that no matter how long the engine is kept running, the oil is kept clean. There is also a small black lubricator with chain drive situated under one of the green boxes; this is the only modification to the original design, the reason being that the exhaust valves tended to stick when using lubricating oil, so this was fitted to use a detergent oil which meant no more sticking valves. The air valves give no trouble as they do not get so hot, and lubricating oil fed on to the valve stem by means of a wick proves quite sufficient.

The engines are run for a period of twelve weeks and are then taken out of service to overhaul the valves. Ring and bearing overhauls are usually carried out after about 20,000 hours.

There are three fuel oil storage tanks, each holding 50,000 gallons, enough for 37 weeks. Lubricating oil tanks hold 1,000 gallons, of which about 40 gallons is used in a week, giving enough for 25 weeks' supply. So in the event of industrial action by oil company's staff we could go six months before there was any thought of a shutdown. Old lubricating oil is filtered by a streamline filter situated in



Standing, left to right: Eamon Hyde, Scottish Mining Museum, Prestongrange; Ian Johnstone, Strathclyde Region Physical Planning Department, New Lanark Village; Bill Breakell, Bo'ness Heritage; Campbell McMurray, Scottish Maritime Museum, Irvine; Frank Bracewell, Director of Planning, Central Region. On footplate of Ruston & Hornsby Locomotive: Stephen Kay, New Lanark; Robin Chesters, Scottish Railway Preservation Society.

engines were installed. The water was abstracted from the river at Stratford St Mary and filtered at the Langham Valley works before being pumped into the million-gallon covered reservoir at Tiptree. At that time five houses were built for the staff of the station, another pair of houses being added about 1937-38 at the same time that a fourth diesel engine was installed.

The usual method of finding men to look after the engines in those early days was to contact the Royal Navy to see if there were any stokers who were retiring and were looking for work plus a house. Water pumping stations are generally situated in remote areas, and this was true of the Grange Road station when it was built. The road outside was no more than a track made of hoggins, and the lorries bringing in the plant often had to be pulled out of holes and ruts whenever it rained. Because of its relative isolation the station was equipped with a good workshop and even a forge so that it could handle ninety-nine percent of the work necessary

Scottish Maritime Museum, Irvine; Scottish Mining Museum, Prestongrange; Dalmellington Heritage Trust; Bo'ness Heritage Trust; Scottish Railway Preservation Society, and New Lanark.

In the last year the Association have been involved in liaison with Manpower Services Commission, with European Regional Development Fund funding, with planning considerations, and made formal representations concerning the Strathclyde Region Structure Plan and to the Museums Advisory Board. This Board, chaired by Lord Bute, is considering the future for the Museum of Scotland and the relationship between

the oil room, and this is used mainly for distributor and pump box lubrication and for tappet gear inside bonnets. It is also used on a one old/one new basis in the green lubricators.

The floor up above houses the fuel oil tanks and also the water tank for the cooling system on the engines.



First, my thanks to Society secretaries who have supplied profiles:

Cleveland Industrial Archaeology Society. As a society we have a number of subjects to explore in the different fields of industrial archaeology in the Cleveland area, including ironmaking, ironstone mining, agricultural remains, alum industry and lead mining.

We are currently publishing a report on ironstone mining by J S Owen which will cover an important ironstone field on North Yorkshire Coast.

A full programme of meetings and field outings is arranged.

Details from the Secretary: Mrs Joyce Burns, 5 Gresham Road, Middlesbrough, Cleveland TS1 4LY.

The **Wilts and Berks Canal Amenity Group** was formed in 1977 with the aim of protecting and preserving Britain's longest derelict canal and encouraging its use for amenity purposes. The Wilts & Berks Canal runs from Semington, near Melksham, to Abingdon, with branches to Chippenham, Calne, Longcot and Wantage. Another branch, the North Wilts Canal from Swindon to Latton near Cricklade, was originally built as a separate waterway. Altogether 67 miles of canal were built — the whole system was abandoned in 1914.

The Group's members are thinly spread over much of southern England (and some distance beyond!) and like all canal societies its interest in 'its' waterway is wide-ranging, including the industrial archaeology of the canal but embracing much else besides. In the last year or two it has been realised that a large percentage of the Wilts and Berks Canal could be restored to navigation, and that it would provide a valuable addition to the recreational waterway network in an area which has suffered heavily from canal closures during the present century. To achieve this, some brand new lengths of canal and river navigation will have to be created in order to by-pass sections of the original canal which have been redeveloped and are irrecoverable. At present a 'Melksham by-pass' using a section of the River Avon is being surveyed, and preliminary studies are in progress to find routes through Abingdon and Swindon. All this study, although not involving the canal line directly, is aimed at establishing that the canal is worth preserving and restoring as a whole — the Amenity Group has already discovered, the hard way, that without such an overall plan, the steady nibbling away of structure and lengths of the bed continues.

Much of the Group's effort on the canal itself is at present devoted to the restoration as a local amenity area of a few hundred yards of

canal, with a bridge and lock, at Castle Park, Calne. A systematic survey of the remaining structures along the whole length of the canal would be very desirable — only a small number have been studied in detail, including the former wharf house at Dauntsey Lock which the Group was given access to shortly before it was modernised. This is just one example of the work of study, preservation and restoration which needs to be done on this enormous industrial monument. Any other IA groups who wish to take on part of this task will be welcomed by the Amenity Group with open arms!

Those interested in joining the Wilts and Berks Canal Amenity Group should contact the Membership Secretary, Ron Churchill, at 67 Longleaze, Wootton Bassett, Swindon, Wilts SN4 8AS, telephone Swindon (0793) 850758. A journal, *Dragon-Fly*, is published three times a year; for general enquiries about the work of the Group please contact its editor, Richard Porter, at 'Havenmead', Easton, Wells, Somerset, telephone Wells (0749) 870492.

Manchester Region IA Society have sent the following description of a weekend study tour of Castlefield, together with an offer which other societies may feel they cannot refuse:

Castlefield — Britain's First Urban Heritage Park. A week-end Study Tour organised by the Manchester Region Industrial Archaeology Society. Twenty-two members of AIA or local societies from the West Midlands, Cumbria, Yorkshire, Kent and Greater Manchester assembled at Hulme Hall in the University of Manchester on Friday evening 19 April — a venue which specialises in conferences and facilities for national and regional organisations, and in which all the accommodation is in single study bedrooms. (The AIA Conference was based here in 1977).

The first evening was devoted to a lecture by Derek Brumhead on the Geography, History and Archaeology of the Castlefield area from Roman times to the coming of the railways. A D George then dealt with the Industrial Archaeology of the Liverpool Road Station site. The Saturday morning programme consisted of a 2½ hour trail of both the conservation area on Liverpool Road, and the canal features of the Bridgewater and Rochdale basins. Two current excavations of the Roman vicus were also visited and explained.

In the afternoon, participants boarded a narrow boat at the Duke's lock for a trip on the Bridgewater from Castlefield to Worsley (Commentary by Roger Lorenz) with a stop at Barton to examine the swing bridge and steel aqueduct and the engineering aspects of the Ship Canal in that vicinity. A brief stop at Worsley was followed by a return by road to Hulme Hall and after dinner members showed their slides of previous study holidays.

On Sunday morning under the guidance of Bob Manders a full tour was made of the New Greater Manchester Museum of Science and Industry at Liverpool Road, and the historic interiors of the station. In the afternoon, a talk by Graham Breeds, Education Officer, on Manchester and the History of Aviation, was followed by a tour of the Air and Space Museum with the bonus of the special exhibition on the 75th Anniversary of the first London to Manchester Air Race.

The total cost for the weekend including full

board, packed lunches and admission charges was about £40. MRIAS is pleased to invite societies affiliated to the AIA to consider a similar package for their annual weekend away. Hulme Hall can accommodate you April or, between July and September inclusive, and our secretary can provide liaison at the Manchester end. All you have to do is recruit the numbers with a minimum of 20, and we will act as tutors, guides and do the rest.

Please write for specimen programme to D D Brumhead, 3 Falcon Close, New Mills, via Stockport, Tel 0663 44863.

References to the industrial archaeology of the Castlefield area will be found in *AIA Bulletin* in Vols 11 No 1, Vol 9 No 1 and Vol 10 No 1, also 7/2 (Education Supplement).

As noted in the last Society spot, the SPAB is running a Domesday Survey of Barns. Its organiser, Miss Sarah Dennison, has kindly sent a bundle of leaflets which provide details on making the surveys, dating barns and recognising important features; there are also suggestions for the re-use of barns. I will bring these to the AIA Conference for consideration at the Societies' meeting but if in the meantime you wish to participate, write to Miss Dennison at SPAB, 37 Spital Square, London G1 6DY.

Mills in the 80s has been circulated to Societies with a direct geographical involvement, and your Liaison Officer is currently awaiting comment — perhaps at Glasgow? If you are interested but not directly involved, there will be the opportunity for discussion at the Conference. We look forward to seeing as many representatives as possible there, to maintain the important network of national contact and comment, as well as to renew acquaintance with fellow enthusiasts only met annually. I will be pleased to collect any information you have — numbers for the Special Issue Bulletin, Society profiles, dates for forthcoming conferences — and save you the postage.

For our latest embryo idea, support for trail leaflets, we would greatly appreciate it if you could bring a copy of any leaflets your Society has produced, for display, discussion and the encouragement of others.

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