ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

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A PERSPECTIVE ON INDIAN INDUSTRIAL ARCHAEOLOGY

This account is based on a visit made in the winter of 1986–87 mainly to see aspects of education so that items of industrial archaeological interest occurred as supplementary to the main itinerary and not as deliberately planned visits. Therefore the observations are unlikely to be truly representative of the area visited which in itself is only a very small part of India.

INTRODUCTION

When considering industrial archaeology in India it is easy to think of aspects of that country’s present working life as survivals of practices which have been replaced by later developments in the Western World. To use these examples to help understand and interpret the physical evidence of past industrial activities as found in Europe would be very misleading. It is therefore intended to make some general comments on working practices in India before considering three particular industries. The contrast between industrial activities is more marked in India that in the West. Many small businesses are conducted under very simple conditions, for example people sitting on the pavement in a busy city using hand-driven blowers to heat metal for engineering production on a very small scale. However, the scale of other manufacturing activities makes India about the tenth in the world league of industrial nations.

Whereas nowadays in the United Kingdom a particular activity is carried out in more or less the same way wherever it is located in the country, in India regional variations are still pronounced. For example, brickmaking in the Delhi-Agra-Jaipur areas tends to be in large apparently permanent works firing bricks in large circular trenches. Further south, firing is in clamps and nearly always rectangular except around Udaipur where the usual shape is of a conical form.

In India there are many instances where those practising the same craft or trade or selling the same type of commodity do so in adjacent premises: the same used to be the case in this country as evidenced by street names such as Skinners’ Lane, Gold Street and so on. In Delhi a number of firework makers and their shops were next door to each other and a little further along the same street the makers and sellers of automobile replacement parts were side by side. In Agra along a road called The Strand there was a row of about six ‘firms’ all making small millstones for grinding millet and similar. The situation in Jaipur was even more marked where whole areas of the city were given over to a single trade such as carpet weaving, jewellery making or stone cutting. From everywhere in the stone quarter came the sound of tools chipping on stone. One could stand at a street corner and whichever way one looked there were premises where stone was being cut—either in the open front of the building or outside in the street in front of the building. No wonder that vehicles bigger than the motorised tricycle rickshaws do not venture into the area. This same grouping of similar crafts also occurred in the villages, Badami, south of Bijapur, is a large village and the blacksmiths, again with open fronts onto the main road, were side by side. Elsewhere in the village at least four wheelwrighting businesses were grouped around the same open space.

The use of human muscle power is widespread. Most habitations appear to have overhead electric cables but whenever there is a small-scale need for power it was met by man or woman power. Restoration of the inland work in the Rang Mahal inside the Red Fort at Delhi required the new pieces to be ground to fit. Four men were doing this, each squatting on the floor and moving a bow back and forth with the cord of the bow wound around the shaft carrying the grinding wheel he was using to shape his piece of inlay. Sieving and sorting cereals (nearly always done on a family scale) were done by hand as was winnowing—often by throwing baskets of grain into the wind but also by hand-powered winnowing machines. However, with the growth of cooperatives there are some oil-engine powered winnowing machines appearing. Small roadside potteries, usually making earthenware water pots, had stick wheels operated from the squattling position.

This last observation highlights a realisation that one aspect of Indian working life would appear to have no parallel here, either in the recent or distant past. They make very little use of any artefact to support what they are working on. Apart from in the hand block printing of textiles in lengths suitable for saris, no work-benches are seen. Everything else is done with the work on the ground and the workmen squatting alongside it.

This was the case with the blacksmiths at Badami working on their very small anvils, the previously mentioned inlay grinders, carpenters planing wood, handmade-brick makers and shoe repairers who use a sort of lasting jack but it stands on the ground and not on a bench. Indians appear to be able to squat for hours on end and chairs seem to be non-existent in...
Animals are still used in India on a considerable scale both for transport and on animal-powered machines of various kinds. Although horses are used this is comparatively small scale in comparison with the variety of other animals employed. It is noticeable that despite the years of the British Raj there was no evidence of the padded horse collar and all the horses seen were harnessed using a breast band. The animals most frequently seen at work were oxen. They were being driven around circular tracks to operate edge rollers for preparing clay for brickmaking, for crushing stone and with wooden frame ‘rollers’ for separating grain from stalks of some cereal crops.

For most of the area visited, water lifting for irrigation by oxen involved them walking down an incline to pull a rope taken over a pulley and down to a leather bag in a well. Once the water had been emptied from the bag into a distribution channel at the top of the well, the oxen had to walk backwards up the incline to lower the bag down into the well ready for the next lift. Sometimes a single animal was used, more often two side by side and in one case three abreast were used to pull up two leather bags. Around Udaipur a different type of water lifting device was in use, the oxen walking continuously around a circular path to drive, by gearing, a chain of earthenware pots to lift the water from the well. There were many examples using primitive wooden protrusions meshing with each other but hardly qualifying for the term gearing. Others had iron gearing although the larger gear was of the peg type. Some were out of use where the water was being raised by small centrifugal pumps driven either by electric motors or by small oil engines.

**BRICKMAKING**

Brickworks abound in India or perhaps brickmaking sites would be a better term since in many instances there are no permanent buildings, structures or machinery. Reference has already been made to the circular trough kilns of the Delhi-Agra-Jaipur area. The troughs were approximately 60’ [18m] mean diameter, the cross-section of the channel being about 10’ [3m] wide and 8–10’ [2.4–3m] high. The bricks were being stacked, fired and unloaded at various places around the trough and from the middle of the circle rose one or two cylindrical metal chimneys. There was no opportunity to investigate the connection between the channel and the chimneys but these kilns might be an Indian open-air variation on the Hoffmann-type kiln.

In all cases where bricks could be seen being formed it was by hand and in the open. If machines were used they were probably in some shed and therefore hidden from view, but at most of the sites there were no sheds! At every site the green bricks were laid out in the open to pre-dry – one advantage of having a rain-free climate for long periods of the year. Since there was usually only one layer of bricks the pre-drying process covered a considerable area. There was an opportunity to observe operations at a brickmaking site close to the road between Dharwad and Hailiyl. As one man dug the clay, using a mattcock, others brought up water from a nearby stream and tipped it in the hole. The fellow paddled in this with his bare feet as he continued to chop out the clay, so carrying on the function of a pugmill. Periodically the semi-fluid material was scooped out of the hole and added to the pile by each of the two brickmakers. The piles were covered with cloths to retain the moisture as the sun was shining all day, even in January. The brickmakers worked in teams of three. One was a woman, resplendent in brightly coloured saree, who took the clay from the pile worked it up into very nearly the right amount before passing it to the moulder. He threw it into a wooden mould having a bottom with the initials of the company for whom they were working. After scraping the excess clay from the top of the mould he tipped it onto a wooden flat by which the third member of the team carried it to the pre-drying rows. Apart from this third member, the other two carried on their work from the squattting position to which reference has been made previously, so that there was no other equipment or artefact on the site other than the brick moulds, four metal tills and water-carrying vessels. This site was one of about five in close proximity to each other, and the construction of the clamp for firing the bricks had not started. Some of the other clamps under construction and the clamp which was burning stood in isolation, the other brick making activities having moved to another site. The burnt clamp, standing on its own, was quite a common sight giving the impression that the bricks are left in the clamp until they are required for use so that the clamp remains, through its gradual demolition, for a considerable time.

**MANUFACTURING**

Production of goods on a small scale can be easily seen in India since it is usually carried on in the open by the side of the road or in open-fronted buildings. Even activities needing a large space, such as rope making, are carried on in public places and at Ramdurg, between Badami and Goa, this was in the crowded main thoroughfare. Children are employed in the majority of cases to do the tedious work although women seemed to do most of the fetching and carrying and nearly always on their heads.

Whilst sites and buildings play so small a part in the small scale production activities, there is evidence of the change in style of plant for processing industries such as sugar refining. In the sugar growing area around Ramdurg there were several clusters of buildings each having an open fronted building over large diameter, but shallow open-topped pans with squal curved tapering sided chimney. Further north, the older style refineries had a row of small cane boilers, each with its own tall metal chimney protruding through the roof of the open sided long shed. A visit to a modern refinery, operated by a cooperative between Aurangabad and Ajanta—more famous for its caves than its industrial archaeology—provided a contrast between very modern plant engineering and the older ways of handling material. Although
most of the sugar cane was delivered by lorry, some came by oxen-hauled carts. Women worked barefoot on the raw cane moving along a conveyor feeding the up-to-date processing plant and after the produced sugar had been automatically bagged into sacks these were lifted, one at a time by six sweating men onto the back of another man who ran about 20 yards [18m] and up an inclined plank to load it onto a lorry.

The oldest example of the physical evidence of manufacturing activity was that associated with the cotton ginnery. The cotton ginnery at Jaipur and Amber claimed to be much evidence of the hand-block printing of fabric as a domestic process and the hydraulic gin, as it was on the foundations of the old Jaigarh Fort, overlooking Amber, a short distance from Jaipur. The fort is high up in the hills and displays the largest wheeled cannon ever made—a magnificent weapon, disappointingly displayed under a low metal canopy. The cannon was made in the foundry in the fort and one can only guess at the labour needed to bring up the raw materials to this height. There does not seem to be much evidence of the foundry itself although a number of foundry tools are exhibited. Many of these were unusual but interpretative material was lacking. Still in situ is the man-powered cannon boring machine. Men turned a capstan, the vertical shaft of which extended down into the space below the platform on which the men walked. Wooden gearing connected the vertical capstan shaft to the horizontal shaft for turning the cannon. Although the capstan and the point of attachment for the cannon are visible at ground level it was not possible to see the gearing below but a rather crude model was very helpful in showing the arrangement.

TEXTILES

Activities seen relating to textile manufacture ranged from a cotton gin mill with heavy machinery to weaving and hand-block printing on virtually a craft scale. The cotton gin at Bo-dei (in Gujarat between Dabhoi and Chota Udapaur) was one of ten owned by a Bombay industrialist. Ox-carts brought the raw cotton from the fields and at the mill were unloaded into huge white heaps—so white in the Indian sun that it was disconcerting to the eye. From the heaps the cotton was taken in large shallow baskets on men's heads into the gin itself. There were two lines of gins, manufactured by Platts of Oldham and carrying the date 1905. They were fed with women sitting on top of the machines. Cotton dust was everywhere—no extraction plant though necessary here. After separating out the seeds, which were put in piles to await transport to the oil mills, the cotton was baled in a hydraulic press, by Richardssons, for which the hydraulic power came from a system built to Wilsons patent by Nasmyth & Co, Manchester.

Weaving and hand-block printing of fabric are carried on in many regions of India even though only a few places have a reputation for a particular type. There is also a problem in that many so-called factories are merely places to demonstrate the techniques to attract tourists in and persuade them to purchase from the shop which is the main concern of the proprietors, often selling products made elsewhere. As an example, a small building by the road between Jaipur and Amber claimed to be premises for hand-block printing and carpet weaving. The latter was done by a young boy working at amazing speed whilst the visiting party watched—he obviously gets plenty of practice at this—but he stopped as soon as the party went into the shop and started buying. On another occasion, this time in Aurangabad, the guide took the party in the evening, perhaps to demonstrate a Silk-Weaving and an invitation to purchase wares from the shop—and for which the guide would get his commission for leading the party there. Nevertheless there were about eight looms, all set up with the working portions covered as would be expected to protect the silk until work started next morning. The shuttles passed through the warp at no more than a foot above floor level so that there was a hole in the floor beneath each loom for the treadles to open or close the shed in the warp. The operator sat on the edge of the hole with his feet in the pit to work the treadles. Not seeing inside these "hand-loom factories" it is not possible to say whether this was common practice.

CONCLUSION

The foregoing are only a few of the wealth of items in India of interest to industrial archaeologists. The romance of the Indian railway system is well-known. Road transport has its fascination in the lorries, nearly all of the same size but decorated in a highly individualistic manner—painted flowers, elaborate lettering and geometrical patterns, with a similarity to canal boat painting in England. Even visits to the centuries-old forts and palaces offer industrial archaeological interest because water supply has always been a problem and there are 'tanks' (man-made reservoirs) such as in Krishik-Feror in Delhi, at Fatehpur Sikri and Badami—now famous for the echoes from the sound reflecting hills of the sound from women beating out their dirty clothes against the steps of the dam. Presumably there were Victorian pumping installations in the larger cities but the only one seen was the Love Lane Pumping Station in Bombay and that looked as if it was being demolished. Even in India things do not survive for ever.

Geoffrey Stammer
In early 1986 members of Somerset Industrial Archaeology Society became concerned for the future of the derelict Firepool Pumping Station that once served Taunton station, and the Society began an active campaign to save the building and to find an appropriate use for it.

The area in which the pumping station is sited has a recorded industrial history dating back to medieval times when the River Tone provided grist and fulling mills. The 18th century saw improvements in the river navigation and barges plied between the port of Bridgwater and the wharves on the Tone at Taunton’s Town Bridge. But its importance increased with the Industrial Revolution and the greater need for transport and communications. The Bridgwater & Taunton Canal (1827) and the Grand Western Canal (1838) connected with the Tone at Firepool, and there was access to the Chard Canal from the Bridgwater & Taunton at Creech St Michael about 3½ miles to the south east. In 1842 the Bristol & Exeter Railway reached Taunton and a coal and culm wharf was set up, with a pair of limekilns near by. Water-borne traffic declined and the railway, which had purchased the Bridgwater & Taunton Canal in 1866, needed more and more water to service the various departments at Taunton station. A hot air engine house was built on top of the limekilns and the old coal and culm wharf was converted to a reservoir. In 1877 a 63,400 gallon wrought iron water tank was put on top of the building, and in 1889 replacement steam engines and pumps were installed in a re-constructed pumping station which remained in service until the 1960s, when the withdrawal of steam and the contraction of the railway network made it redundant.

The pumping station itself is an architectural collage. At its base are two lias-built limekilns, one with its original drawing chamber and grate. Though once common features in Taunton Deane, most limekilns have been destroyed and an example in an urban setting provides a rare opportunity for the public to study an accessible example. The external brickwork above the kilns was supplied by William Thomas of Poole, West Buckland, now Steeley Bricks, the only surviving brick works of its kind in the country. The bricks are a reminder of the engineering quality of the local Keuper marl clay. The work above the eastern kiln with flooring strengthened by Barlow rail recycled from the Broad Gauge era, appears to be part of the hot air engine house, while the water tank topping the whole building dates from the days of the Bristol & Exeter Railway and is a reminder of the time when Taunton was a busy railway station and depot needing large quantities of water for locomotives and many other essential purposes. Two sets of Pearn three throw pumps complete the historical picture.

For many years SIAS has been pressing for an industrial museum in Somerset and, although not ideal, Firepool Pumping Station is the last industrial building of any size left in Taunton that might become available and could be used in this way. British Rail Properties Board was approached and gave both cooperation and encouragement. SIAS members were allowed access to the building and a working party cleared out rubbish, repaired internal stairs and removed surrounding vegetation so that local councillors and Somerset Libraries and Museums Committee could inspect the building in safety. A feasibility study was undertaken, and an outline plan for an Industrial Heritage Centre was drawn up giving £124,000 as the estimated cost of renovating the building, carrying out external works and setting up a museum. At the request of the County Museums Officer the project was incorporated in a discussion document showing how Firepool fitted in with other strategic IA sites in the county. This study, in the form of Firepool and Somerset’s Industrial Heritage, was submitted to the County and Borough Councils.

The overall scheme was not accepted as the building and site were thought too small for a museum representing the whole county. However, the attention SIAS drew to the building, and the case made for its preservation, generated interest and sparked off ideas. At the time of writing it seems that the building will be saved to begin a new phase in its existence. There is a scheme which aims to create a quay and slipway and moorings on the canal, and to turn the first floor of the building into a restaurant for the families and enthusiasts attracted to the canal and waterside. At ground level will be an IA exhibit explaining the elements of the building set in the context of the railway, the local canal system and the various Bridgwater Docks developments. The renovation of Firepool Pumping Station will be another notable step towards the completion of a heritage facility based on the Bridgwater & Taunton Canal which is once more navigable from end to end, thanks to the efforts of the IWA, British Waterways Board and the various local authorities, and will complement activities at the Bridgwater end where access from the canal to the dock complex will be restored during 1988.

Ann Ronan

In March, the annual Affiliated Societies’ Week-end was held in Ironbridge where more than 40 delegates represented 15 societies. There was lively discussion during all the sessions, with topics including publicity, co-operation with mainstream archaeologists, award schemes, and the value of computers to local IA groups.

Next year’s weekend will be from 14 to 16 April.

Provisional details will be mailed shortly, and I hope that as many members of local societies as possible will attend this informal occasion which provides opportunities of discussion with other groups as well as hearing talks on relevant subjects. Put this date in your diary now. I hope that I shall meet many of you at the AIA Conference in Swansea.

Please send your society news, profiles and suggestions for topics for future weekends; my address is 13 Bromley Road, Midanbury, Southampton, S02 2AA.

Pam Moore
SOCIETY PUBLICATIONS

Gloucestershire Society for Industrial Archaeology Journal 1987. 72pp issn 0268 1420

The last issue under the editorship of Christopher Cox and a very interesting, well produced journal too. A contribution by M J Hoy on the Stonehouse and Nailsworth Railway details the promotion of the line by local woollen clothiers, its construction from 1873 to 1877, its subsequent extension, and closure in 1966. Much of the line now forms the Stroud Valley Cycle Trail and most of the bridges survive as well as Nailsworth Station and Jones’ warehouse near Egypt Mill.

Ian Standing’s article on the Industrial Heritage of Boxhead and Bixslade in the Forest of Dean makes the railcarriage points a site in the area but describes the fight GSA and individually bided to save against proposals for further refuse dumping in the old quarries there. The first part of a contribution on Brimscombe Steamboat Builders up to 1900 shows them to be famous world-wide for the quality of their small steamboats. Other contributions concern the three main roads through Painswick, the former Albion Inn at Coalway, and the enquisition by the Stroud Preservation Trust of the former toll house at Cairnsclaw for renovation.


The Editorial poses the question as to whether the Society wants to produce a Journal in the future, the answer should be emphatic ‘yes’! Local society journals take some gathering together but the NWSIAH journal sub-committee should be proud of this production with its variety of contributions and quality of illustrations. There are six articles including ‘The Rise and Fall of Toolmaking in Lancashire’, ‘The Industrial Development of Garston’ and on the Manchester Dock at Liverpool, completed in 1813. Railways in Liverpool provide the topic for two contributions, one on the growth of the Dock Railways and the other on the Bramley-Moore High Level Coal Railway. However pride of place must go to Roy F C loreshaw’s article, ‘Measured Surveying of Buildings and Land’.

NEWS FROM BRITISH WATERWAYS

Aire & Calder Navigation

The Listed Stanley Ferry Aqueduct, which was opened in 1839 and taken out of use following the construction of a new concrete aqueduct in 1981, has been deteriorating. Refurbishment of the unusual bow arch-suspended trough aqueduct has been financed by English Heritage. There are proposals for a waterside leisure complex nearby.

Hartford Union Canal

An environmental scheme has been funded by the London Borough of Tower Hamlets for the improvement of the 1.5 mile canal, also known as Ducketts Canal, which links the Regents’ Canal to the Lee Navigation. The length includes three locks. In 1867, the first of the extensive list of improvements created a complex of two listed bridges at Gunmaker’s Lane and Parnell Road and several timber loading wharves.

Fossdyke Navigation

Several environmental improvements have been made and landing stages provided on this navigation built by the Romans c120AD to connect the rivers Witham and Trent. At Saxby, a footbridge and picnic spot have been added. Great Northern Railway at Newark in 1883, then moved to Claypole in 1883, has now been re-erected across the Fossdyke.

Staffordshire & Worcestershire Canal

The Sow aqueduct near Tixall has been restored by BWB staff. A new concrete trough was cast within the original stone structure and the stonework repaired using stone from the original quarry at Tixall. The CPRE has made a merit award to BWW Northwich area for the restoration.

Stratford Canal

The lift bridge No 26 on the North Stratford Canal near Hockley Heath has now been fitted for hydraulic operation; the old hand winch which wound lifting chains has been reconditioned and remains in situ.

Bridgewater Canal

The Grocers Warehouse, Castle Street, Manchester and its surroundings were opened to the public last Easter after restoration which included the reinstatement of the waterwheel and lifting gear.

Gloucester Docks

The burnt out shell of the Britannia Warehouse has now been demolished but a new building will be erected on the site. The old side warehouse. The Kimberley and Philpotts warehouses are to be linked by glass structures and converted to shopping mall, public house and offices.

Its excellent illustrations should encourage participation in the Society’s surveying and recording activities.

The Journal may be obtained from NWSIAH c/o Liverpool Museum, William Brown Street, Liverpool, L3 8EN for £2.50 plus postage.

BIAS Journal Volume 20 1988

A well produced volume under the new Editorship of Robin Stiles. It attempts to focus on a principal subject but with a wide variety of techniques of analysis and source material. The chosen topic was the Somerset Coal Canal, parts of which have recently been cleared and recorded by Avon Industrial Building Trust. Mike Chapman has conducted a cartographical survey of the Coal Canal, using a variety of early maps and relating them to field evidence. The records made during the survey have been entered on the Avon County SMR, and the article provides an admirable model for similar recording work. Robin Stiles himself has written about the Somerset Coal Combination, a group of local coal owners using the canal who were accused of operating a price ring. John Broome attempts to locate the tucking mill near Midford which was the home of the geologist William Smith, at one time engineer during the construction of the canal. The third part of H E Dommett’s article on Nailsea and the Glassworks examines the period 1840–1873 and concludes an excellent issue.

Suffolk Industrial Archaeology Society Newsletter No 21 (April 1988)

This issue includes the first part of a supplement on Brick Kilns in Suffolk compiled by C J Pankhurst which gives map references and details of their users.

Sussex Industrial Archaeology Society Newsletter No 58 (April 1988) issn 0263 516X

A note on the rapidly disappearing cast iron, concrete and aluminium telephone kiosks is included. Metal headstones in the county are discussed by Tony and Mary Yoward. There is a short article on the surviving pumphouse at Luxford Farm, East Grinstead where the roundhouse for a horse engine driven pump is being restored. The Chichester Canal Society have launched a fund raising campaign to complete the restoration of the Birdham to Chichester length of the former Portsmouth to Arundel Navigation.


This contains a contribution on Mechanics Institutes with particular reference to the one in Nottingham. There is a recording report on the Cliff Mill at Gonalston on the Dover Beck, probably the Lowdham Mill referred to in A Memoir of Robert Blincoe. The former tene ment factory in Beeston, built in 1866 and subsequently occupied by Myford Ltd, the lathe makers, has been demolished; the firm still occupies adjacent single storey buildings.

South West Wales Industrial Archaeology Society Bulletin 47 (April 1988)

Through a transcript of a letter from one Thomas Glazebrook of Tewkesbury, dated 17 November 1784, D C Morrison is appealing for information concerning an engine built for water pumping at Penrice Castle. The Gerwen Engine House at Bynea, Llanelli, built about 1806, has been repaired from demotion and CADW is to recommend a restoration programme for the pumphouse which became disused in 1908. Neath Borough Council is carrying our work at Neath Abbey Ironworks to protect the blast furnaces from further deterioration.

Condensation No 50 (Wesontzoyland Engine Trust, May 1988)

Short articles are included by Keith Hopper on Easton. Amos and Anderson, the steam engine manufacturers and on John George Appold, a London engineer born in 1800.

ALSO RECEIVED


Yorkshire Archaeology Society, Industrial History Section Newsletter No 27.

OTHER PUBLICATIONS RECEIVED

Tyne and Wear Museum Service Publications

Recent publications include The River Wear, a pictorial survey from Bididd to the river mouth, exceptional value at £1.80, and Railways of Sunderland, by Neil Sinclair which includes numerous illustrations and excellent maps and is priced at £3.25. Tom Corfe has edited The buildings of Sunderland, 1814–1940 which follows the development of different types of building and traces local architects, price £1.25. A Guide to the River Tyne pointing out many buildings of interest is priced at £1.00. These publications may be obtained from Tyne & Wear Museum Services, Blantyre House, Blantyre Square, Newcastle-upon-Tyne NE1 4JA; postage and packing is extra.

CLEVEDON PIER

English Heritage and the National Heritage Memorial Fund have contributed £274,000 to the Victorian pier at Clevedon, near Bristol. The structure partly collapsed during tests in 1970. The pier, with its eight 100’ spans and head with three cast iron pavilions was opened in 1869. The ironwork was fabricated by the Hamilton Ironworks, Liverpool.
REGIONAL NEWS

SCOTLAND

The two Dredge bridges in Inverness were damaged during dismantling and this may render the construction on Forestry Commission land impossible. Scotland's last sugar refinery, machinery manufacturers, Smith-Mirrless, were closed in February 1988 and are now doing sub-contract work. The firm, now owned by Tate & Lyle, used to make as much as 80% of the world’s sugar refinery plant.

The Forth Railway Bridge has its centenary next year and preparations are in hand for a special exhibition centre under the bridge on the North Queensferry side. Elsewhere the Garden Festival is acting as a drama on other events outside Glasgow, and has totally wasted any industrial archaeological potential. The existence of the Festival has opened up the massive Govan Graving Docks next door to intense vandalis, and their future looks very grim.

Industrial recording and their future has been put under great pressure because of coal mine closures. Seafield in Fife has already been recorded with full British Coal assistance and attempts are being made to record some Ayrshire pits.

CUMBERLAND

There is a dearth of hand-made paper and the mills to manufacture same in Britain. A modern paper-making company at Beetham near Millthorpe, in southern Cumberland, is, however, proposing to put on an exhibition to celebrate this year’s 500th anniversary of paper making in the UK.

Heron colliery was recently renovated so that corn could once again be ground at this 250 year old mill. Henry Cooke, papermakers, are on the opposite bank of the river and were one of the founders of the Beetham Trust which renovated the mill. Messrs Henry Cooke would like to create a Paper Museum next to the corn mill and with sufficient backing it is possible that an actual hand-making process could be re-started and an appeal for £50,000 has been launched with this aim. Donations should be sent to Mr Mcgregor at Heron Colliery, Bee tham and in addition artefacts and memorabilia for the museum would be welcomed. The exhibition, which will also concern modern paper-making, will be opened for educational purposes.

M Davies-Shiel

YORKSHIRE & HUMBERSIDE

The Yorkshire Mining Museum at Capernwray colliery has now opened and can be visited daily, except Christmas and New Year’s Day, from 10.00am to 5.00pm. Visitors, in groups of not more than 15, descend the 140 metre shaft, sunk in 1791, in cages and are guided round the workings and pit bottom displays by a team of miners.

Otley Council, West Yorkshire, and British Rail, have launched an appeal for £10,000 to repair the monument in Otley churchyard which was built as a memorial to the 23 men who died during the construction of Bramhope Railway Tunnel in 1845–49. The monument takes the form of a miniature replica of the castellated entrance to the tunnel.

Abbydale Industrial Hamlet in Sheffield has been awarded a plaque under the Institute of Mechanical Engineers’ Heritage Hallmark Scheme, in recognition of its water-powered tit hammers and crucible steel melting shop. We are sorry to record the death in March at the age of 84 of Frank Wilkinson, the scythe-maker who was born at the hamlet. He worked there until it closed and continued to demonstrate his skills to countless visitors on working days after it re-opened as a museum.

Shieldsfield’s new City Centre Plan includes some encouraging proposals including a further industrial conservation area on the lines of the one around Kelham Island. In addition a policy of archaeological investigation of city centre sites before redevelopment and the creation of a Sheffield Heritage Centre are proposed. The Ponds Forge site near the city centre was recently cleared for a new swimming pool, the oldest buildings extinguished were erected in the 1680s by George Senior after the end of water power on the site. Senior’s gateway has been left standing and may be kept as a landmark. The history of water power in The Ponds goes back at least to the 16th century, but regrettably the site is not to benefit from the new policy of archaeological investigation. Although spot-listed by the DOE, the London Works, Harewood Street, a small pre-1840 saw works has been demolished. The Crown Steel Works in Sylvester Street, which includes parts of a stove grate foundry built as the Charitrey Works in the 1840s, has been demolished alongside with part of the adjoining Sylvester Works. The listed early 19th century front wing has been kept but the developers have now applied for its demolition to improve access and parking. Sheffield Trades Historical Society is opposing this. Also in Sheffield, Joseph Pickering & Sons Ltd, cardboard box manufacturers, are moving from their Moore Street works after 120 years. A proposal has been made for demolition but the Listed Italian Renaissance terracotta facade, added in 1908 as part of a steel works extension, will be kept on one corner of the proposed new office block.

DEREK BAYLIS

WALES

The Welsh Mines Society Weekend was held in the Devil’s Bridge area on June 11–12 and a party of five Worcestershire members, including George Hall, visited Llyngegyddiel and Llwynlwyd Mines before reaching the Esparag Mwyn Mine where the Elvethen Mining Company are processing dump material to recover lead and zinc ores. The party then visited Temple Mine on the banks of the Rhedol. The AGM and members slide shows were held at the Woodlands Hotel at Devil’s Bridge. On Sunday, Simon Timberlake led the group to the Cwmystwyth mine where recently excavated open cast workings, begun around 1500BC for copper ore, were visited. The later dressing mill, erected in 1898, was also viewed but recent vandalism has placed the structure in jeopardy.

PETER NEAVESON

SOUTH EAST ENGLAND

Among the railway anniversaries which are becoming due, a popular Woking 150 festival was held in May to celebrate the arrival of the London & South Western Railway in 1838 and the beginnings of the development of the modern town of Woking.

The request for information on egg vending machines, similar to the one at Godalming, Surrey which was illustrated in the Bulletin 14:4 (Autumn 1987), has produced two responses, reporting sightings at Wareham Farm, Halnaker, West Sussex and in the village of Thir plow near Cambridge.

In the field of recording, Sussex IA Society have completed a survey of street furniture in Worthing.

The Godalming Water Turbine Trust, which is conserving a large Macadam-Fourneyron turbine of c1869 from a paper mill, has issued its first Newsletter. Interest is extending to other turbines in Surrey. A list has been obtained from Gilbert Gikles & Gordon Ltd of Kendal, Le Gear & Finke on Coal and Sand Mines, with particular reference to dome holes, with which many subsequent suburban housing developments are riddled. Finally Paul Sowan, in a talk on the geological and mineral resources of SE England, the next two lectures, by Jeremy Hodgkinson on Wealdon iron and Richard Williams on Lime kilns, both covered a long time span and Elizabeth Bennett dealt particularly with the medieval period in her talk on Tiles and Tileraking.

The theme, Extractive Industries, was introduced by Peter Robinson in a talk on the geology and mineral resources of SE England. The next two lectures, by Jeremy Hodgkinson on Wealdon iron and Richard Williams on Lime kilns, both covered a long time span and Elizabeth Bennett dealt particularly with the medieval period in her talk on Tiles and Tileraking.

Four sites were visited, starting with Swallow’s Tile Works at Cranleigh where a flourishing business is still carried on making roof tiles entirely by hand. The party then visited Betchworth chalk Pits and the associated lime kilns which include examples of rare Dietzsch kilns. Both archaeological and natural history organisations are involved in the efforts to ensure the future of this site. The next visit was to the Fuller’s Earth workings at Nutfield where staff of Laporte Industries led a tour of current and reclaimed pits and the processing plant. Finally there was a most enjoyable underground visit...
to the Godstone Quarry outside of the seven miles of working in the Main series, led by members of Subterranea Britannica and Unit 2 Cave Research and Exploration. Next year's SERIAC will be hosted in Sussex by the Amberley Chalk Pitts Museum on 11-12 March and the theme will be Museums.

Glensy Cracker

WEST OF ENGLAND

Steam Tug Mayflower, 1861

In 1861 Bristol Industrial Museum acquired its first (and, so far, only) ship. Mayflower had been built in Bristol in 1861 at the shipbuilding works of Stothert & Marten in Hotwells, at that time the only iron shipbuilders in the city. She was one of five sister ships for the Gloucester & Berkeley Canal Co in the 1860s and 1870s. After a working life of over 100 years, she was sold for scrap in 1967, but remained moored in Gloucester until purchased by the Museum, each of her owners over this period intending to restore her but lacking the wherewithal.

Upon her return to Bristol, a team of volunteers set about restoring Mayflower to working order, and to the typical appearance of a mid-19th century tug, of which type she is the only example. Although basically complete, she had been stripped of the majority of her brass and copper piping and was generally a very sorry sight. Six years and £30,000 later, she steamed again on 19 September 1987, and has since revisited Gloucester for the opening of the National Waterways Museum. Now the oldest tug in the world, the oldest Bristol-built ship afloat and the oldest copper piping, was welcomed in Gloucester.

The CBA area of reference in CBA at the end of the 19th century, and is of great significance in relation to the industrial archaeological listings.

Buildings are listed for their general dating awards to fund an archaeological study.

The Birmingham City Centre Canal Walk project is also visited by the CBA for their work on the eighteenth century limestone quarry at this site. It is pointed out that any factors affecting eligibility for Listing, as indeed do the materials used in construction.

The second half of the policy document is devoted to possible adaptive re-use of farm buildings, and the problems which arise. Recommendations are made concerning what the CBA regard as preferred uses. More specifically highlighted are particular areas of controversy in adaptive re-use, such as the problems of external openings, and interior sub-divisions. The paper is to be welcomed, until recently, farm buildings have tended to be a neglected area of industrial archaeological study. In the past few years, however, the threat to these structures has been more fully appreciated. The formation in 1985 of the Historic Farm Buildings Group was a vital step forward, and a number of regional surveys—for example in Norfolk and Hampshire—are in progress. As the paper notes, some local authorities now provide guidance to owners intending to adapt redundant agricultural buildings for other uses.

The CBA document concludes that ‘conversion of farm buildings to some use which respects the envelope and the interior volume is perhaps to be preferred to one which breaks up the interior compartmentalisation of the space and requires a large number of new openings’. This is certainly the ideal to aim for, but it has to be said, that when the only alternatives are a less than ideal conversion or demolition, it may be necessary to be pragmatic in approach towards proposals for re-use. Every week, applications for the conversion of farm buildings arrive; I would argue that unless the design is very good, it is better to opt for partial adapta-

NATIONAL STONE CENTRE

Stone is represented in numerous aspects of our everyday life. It has been calculated that each of us, in one way or another, will make use of 350 tons of stone in our lifetime. For a number of years there have been plans to provide a central point of reference for the stone industry in the form of a National Stone Centre in a 50 acre complex of 6 abandoned limestone quarries at Wirksworth in Derbyshire, purchased in May 1984 (see Bulletin 13.1, Winter 1985). At last, after much preparatory work, the Centre as an educational charity has been established as a company limited by guarantee. The site will be developed as a major focus for the display and interpretation of geological and environmental aspects, and the past and present roles of the quarrying and processing of stone. In addition, the site and surrounding area is of immediate interest to the geologist, industrial archaeologist, and natural historian, with splendid opportunities for inter-disciplinary studies.

Site development begins in mid-1988. The first stage will cost £500,000, half of which will be spent on site works and landscaping as part of a grant-aided Derelict Land Reclamation Scheme. It is planned that the main works, access facilities, landscaping, trails, external exhibits, machinery and workshops, will be developed in order to receive visitors in 1989.

Grants towards the initial £250,000 will come from the Countryside Commission, Tourist Boards, the Nature Conservancy Council, the Development Commission, local authorities, and it is hoped, from a wide range of concerns involved in the industry. A promotional brochure sets out the details in order to assist in gaining the support which is still needed to carry the project forward.

The project Coordinator is Ian Thomas, who can be contacted at the National Stone Centre, Ravenston Road; Wirksworth, Derbyshire DE4 4FR @ 062982 4833. He would like to hear from anyone who is interested in the history of the stone industry or can provide information about old equipment, historical source material, or photographs.

Derek Brumhead

AWARDS

EUROPA NOSTRA

The Birmingham City Centre Canal Walk project has been awarded the Diploma of Merit by Europa Nostra. The 1 mile walk between Gas Street Basin and Aston Junction passes 13 locks.

LLOYD'S BANK AWARDS FOR INDEPENDENT ARCHAEOLOGISTS

Three industrial archaeological projects were included in this year's awards, made at the Society of Antiquaries annual dinner on March 29. Of the eight light equipment awards presented by Andrew Selkirk, Editor of Current Archaeology, two were for IA: Leicestershire Industrial History Society for the purchase of equipment for their work on limekilns at Callie Abbey, and Laurie Draper for publication of his work on twentieth century iron mines on the Isle of Raasay. The IA section of Derbyshire Archaeological Society was also awarded five dating awards to fund an archeometric test on their recently excavated 'white coal' kiln. Information about next year's awards, which are specifically aimed at voluntary groups and societies, can be obtained from Miss Winifred Phillips, Royal Archaeological Institute, 304 Addison Road, St John's Wood, London NW9 5EL.
AIA NEWSDESK

September 4 1988
STEAM DAY AND COMMERCIAL VEHICLE EVENT
at Beamish, North of England Open Air Museum, Stanhope, Co Durham.

September 9 – 11 1988
AIA ANNUAL CONFERENCE
at the University College of Swansea with additional programme following until Tuesday 15 September.

September 17 – 18 1988
LONDON AND BIRMINGHAM 150
Gala Weekend at the Birmingham Railway Museum, Tyseley. For details, SAE to the Museum, 670 Warwick Road, Tyseley, Birmingham B11 2HL.

September 19 – 30 1988
IRONBRIDGE TRAINING EXCAVATION IN INDUSTRIAL ARCHAEOLOGY
Working on a site in the Ironbridge Gorge with training in a variety of techniques, the excavation will build upon the success of the two week project organised in 1987. Information from the Ironbridge Institute, Ironbridge Gorge Museum, Ironbridge, Telford, Shropshire TF8 7AW @ 0694 2751.

September 30 – October 2 1988
NOTTINGHAM CANAL AND RIVERBOAT FESTIVAL
at the Victoria Embankment beside the Trent Navigation in Nottingham.

October 7 – 9 1986
HISTORIC FARM BUILDINGS GROUP CONFERENCE
at Highham Hall near Keswick. Enquiries to Susan Denyer, National Trust (HFGB), Roathy Road, Ambleside, Cumbria LA22 9UJ.

October 15 1988
EAST MIDLANDS INDUSTRIAL ARCHAEOLOGY CONFERENCE
at Wigston, Leics. Hosted by the Leicestershire Society, theme Framework knitting, to coincide with the opening of the Bushely End Frame-shops. Enquiries to Booking Secretary. @ 0533 867588.

October 20 – 22 1988
L’INDUSTRIE PATRIMOINE DE LA BANLIEUE
at La Courneuve, the ninth national conference on industrial heritage. Enquiries to the Assocation Banlieue Nord, 38 Avenue de la Republicque, 93120 La Courneuve, France.

October 27 1988
THE EARLY DAYS OF THE INTERNAL COMBUSTION ENGINE
at the Ironbridge Institute, Information as above.

November 1 1988
INDUSTRIAL ARCHAELOGY AS ARCHAEOLOGY
At the Ironbridge Institute. This course will consider whether IA is the handmaiden to history or genuinely part of archaeology. Information as above.

November 17 1988
THE ORIGINS OF INDUSTRIAL HOUSING
at the Ironbridge Institute. This course will provide a forum to debate the question of where and how specifically industrial forms of housing became established. Information, as above.

CONTRIBUTIONS FOR THE BULLETIN
Until further notice all contributions for AIA Bulletin should be sent to the Editors, Department of History, Loughborough University, Loughborough, Leicestershire LE11 3TU. They will welcome all items of interest to other members of the Association.

Copy date: Sept. 15 for November Bulletin

REGIONAL CORRESPONDENTS FOR AIA BULLETIN

There are two additions, below, to the list of area correspondents published in the February Bulletin, to cover the Northern region. The only area for which a volunteer is still required to complete our coverage of the country is the Home Counties (Oxfordshire, Buckinghamshire, Bedfordshire, Hertfordshire and Berkshire).

NEWS ITEMS

Rosedale Ironstone Railway Project
The North Yorks Moors National Park and the Cleveland Industrial Archaeology Society have invited volunteers to help with recording and conservation work along the length of the former ironstone railway in Rosedale. The build-
ings remaining include engine houses, workshops, kilns and workers’ cottages. The work is planned as a series of small group holidays to provide an introduction to practical industrial archaeology. Information may be obtained by sending a SAE to North Yorks Moors National Park (Dept RS), The Old Vicarage, Helmsley, York YO7 5BP.

The former workshop buildings in Rosedale, with the old them and up towards the head of the Dale.

Beehive Coke Ovens
The Industrial Section of the Derbyshire Archaeological Society has conducted several surveys in the last few years of beehive coke ovens in North Derbyshire. To enable us to evaluate the ovens which we have surveyed in a national context we would appreciate information on any other surviving beehive coke ovens in the rest of the United Kingdom. We would particularly like to know locations, numbers of ovens in the range, present condition and any other information relating to surviving ovens. Please send any information to Mark Sissons, The Cottages, Far Coton, Market Bosworth, Nuneaton CV13 0PJ.

NEWS FROM TICCIH
AIA is affiliated to The International Committee for the Conservation of the Industrial Heritage and the British delegate is Professor John Harris. The international secretariat is now established with Stuart Smith at Ironbridge Gorge Museum Trust. International conferences are held every three years; the sixth in September 1987 was at Leoben in Austria whilst the next will be in Brussels in 1990. The Council of Europe has arranged a conference on 'Mining Engineering Monuments as a Cultural Heritage' at the Bergbau Museum, Bochum on 4–11 September 1988. The Portuguese Industrial Archaeology Society are organising a week-long course on the history of the Glass Industry in September 1989. This Conference will commence in Lisbon on the 17th and then move to Barreiro and Marinha Grande, returning to Lisbon on the 23rd; details may be obtained from the Secretary, Rua Rafael Andrade 19, 3º-1100, Lisboa, Portugal.

Region 3: NORTHERN ENGLAND
Cumbria: M Davies-Shell, 12 St Mary’s Park, Windermere, Cumbria LA23 1AY.
Northumberland, Tyne & Wear, Durham and Cleveland: G Muirhead, 3 Barton Court, Seaburn Dene, Sunderland, Tyne & Wear, SR6 8PF.

Elbing Tide Mill
On National Mills Day, May 1st, the tide mill which was restored in 1980 as a working museum again entered the endurance mara-

THE BULLETIN

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ing, research, conservation and publication. It aims to assist and support regional and special-

TENVEHEADS PUBLISHING SERVICE, CORNWALL

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