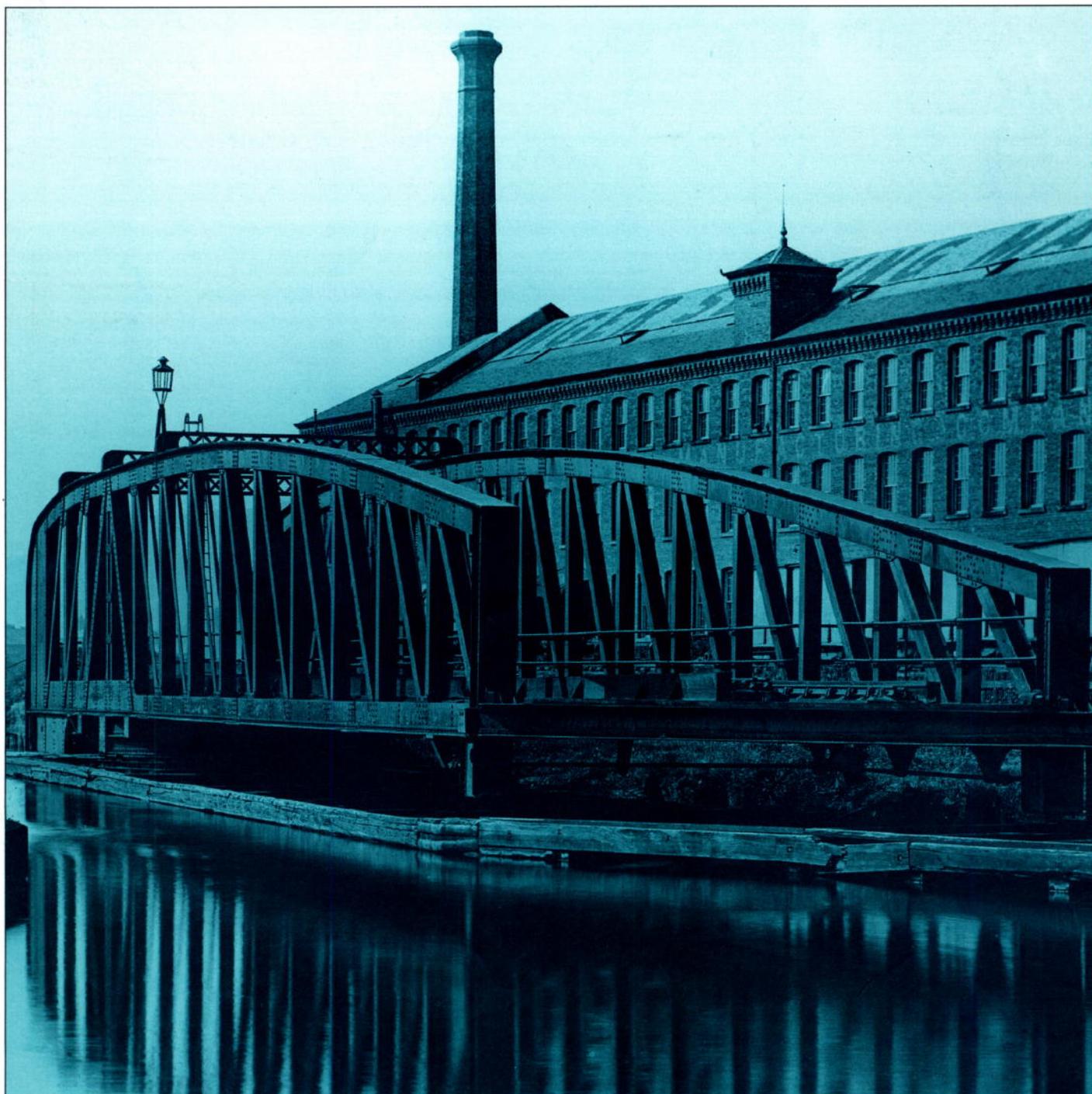


INDUSTRIAL ARCHAEOLOGY NEWS

105
SUMMER
1998

THE BULLETIN OF THE ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

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Polish coal mines • Stockport hatting • watercress beds • Torrs mills
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Crimes against the state? Surveying coal mines in Upper Silesia, Poland

Ray Riley

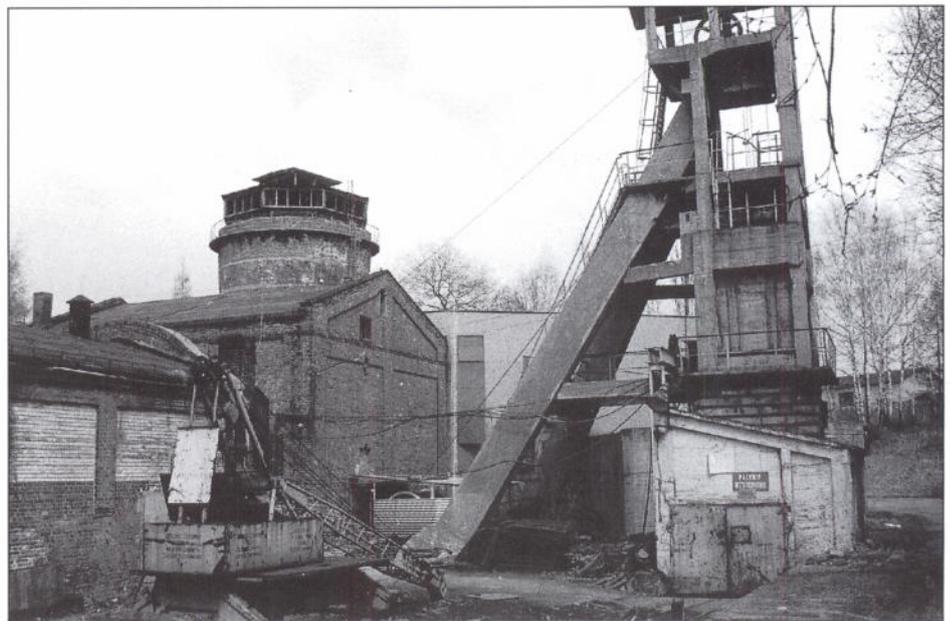
This paper describes the trials, tribulations and pitfalls of recording the IA of a large coalfield in Poland, a country emerging from decades of communism. There are some sobering lessons to be learned by all industrial archaeologists.

The majority of readers will be familiar with the problems associated with survey work in the field - the cold, the wet, the dirt, uncooperative owners, sites difficult of access - and with bureaucratic rules which are sometimes counterproductive. Rather few will have been in a position to experience the problems of recording in foreign countries, especially those whose attitude to industrial archaeology is ambivalent. The following remarks are based on the writer's work surveying coal mines in Upper Silesia in southern Poland during 1996-97. In some ways the situation there is as it was in the UK in the 1960s, when industrial archaeology was in its infancy, and so much needed doing by too few people. But there are some differences, many of which derive from what may loosely be called Polish culture.

During the communist period, 1947-89, the Upper Silesian coalfield was rapidly developed as a means of underpinning the industrialisation programme, and also as a source of hard currency through exports. Between 1947 and 1979 output rose from 46 to 197 million tonnes. There was much inefficiency, and under capitalism production has dropped to 130 millions, but nevertheless the coalfield is the largest in Europe outside the former Soviet Union. This contraction has been achieved through the closure of many pits which, as in the UK, are demolished as soon as possible afterwards, together with the disappearance of documentation. Since it was the oldest, and therefore the most interesting

pits which were being shut, there was an urgent need to record at least the surface installations. In 1996, well after closures had begun, I was asked to conduct a rapid six-month survey of the 65 collieries and approximately 400 shafts that remained. Because of the communist decision to go for production at all costs, many late nineteenth century and early twentieth century structures were retained, making the field a fascinating relic of German technology between 1880 and 1939.

The Cultural Heritage Centre in Katowice I worked for was established by the Ministry of Culture in 1994. It was ill-equipped for industrial surveys, being staffed by historians, an archaeologist, an art historian and a lawyer director who nevertheless did appreciate the urgency of the situation and recruited my services. The Centre has a very broad brief, but no statutory powers and no right of access to sites. It quickly became apparent that there was an overlap between my work and that of the County Cultural Monuments Department established during communism. This Department comprises a mere three people, of whom one, the director, is part-time. They have undertaken some survey work themselves, but during communism most surveys were effected by academics, mostly architects and engineers, under contract. However, no comprehensive survey of the coalmining industry had been carried out; the fullest work was a study of steam winding engines in place in 1984. In any event, such surveys that have been completed have never been published and there is no public right of access to them. Moreover, it was rather frustrating to find that this Department possessed the right of access, the right to inspect documentation and the power to schedule buildings, yet lacked the time to keep track of the rapid changes taking place. Additional overlap resulted from the devolution of much political power in 1989, causing



Circular masonry ventilating tower or évasée of 1898 and later reinforced concrete shaft, Debiensko colliery

Photo: Ray Riley

COVER PICTURE

Swing railway bridge over the Forth & Clyde Canal at Kilbowie in the 1930s, with the Singer sewing machine factory behind, from the Sir William Arrol Collection (see page 13)

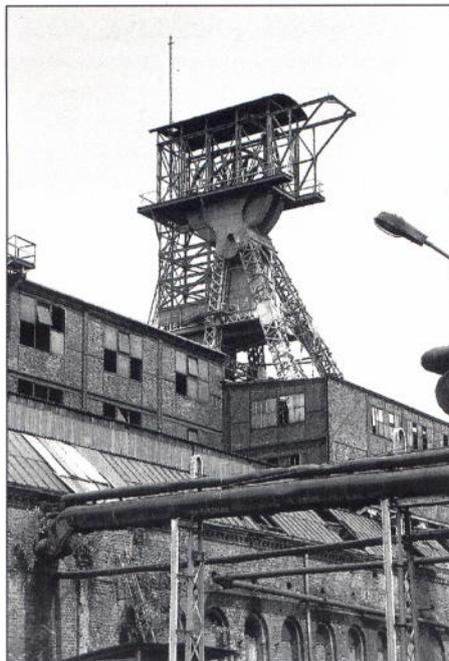
Photo: RCAHMS

some towns to try to preserve some mine installations; a small amount of survey work has been completed to this end.

The ideal strategy might have been to look at all the mines, but within the time scale this was impossible. I therefore decided to exclude mines sunk during communism, to dispense with measured drawings, to pay special attention to collieries to be closed, and to try to understand why building design took a particular form, and why it should change, rather than concern myself with fine detail. Since no technical help was available from the Centre, although I did have an assistant who helped with photography, the task of recording such a huge coalfield effectively single-handed was a little daunting.

This proved something of an understatement for a number of reasons. The original plan was to use a County Council taxi to reach distant mines. This worked on some occasions, but more often than not the taxi was commandeered at the last moment by an official with more clout, causing the visit either to be cancelled or the time of arrival to be drastically amended. Since many mines are in rural areas, to reach them could take up to three hours involving many buses and trains, with the consequence that the survey time was greatly reduced. Then, two weeks prior to the end of the work, I discovered that the Centre had its own car, but it had not been offered since it was thought that I would never be able to drive on the other side of the road - ironic since I had driven left-hand drive cars in just about every European country, Poland included.

Having arrived at the mine, elaborate protocol had to be observed and valuable minutes would tick by as tea was drunk and opinions expressed about Mrs Thatcher, the future of Poland, holidays and the English language. There was constant difficulty in trying to convince managers that the kind of 'culture' I was concerned with was technical rather than historical and social. Almost everywhere I was given photographs of grim-faced apparatchiks to admire, and further time was spent on looking at miners' dress uniforms and non-technical documentation in little



One of only three remaining headstocks with pyramidal backstays, Petrowski colliery, 1902

Photo: Ray Riley

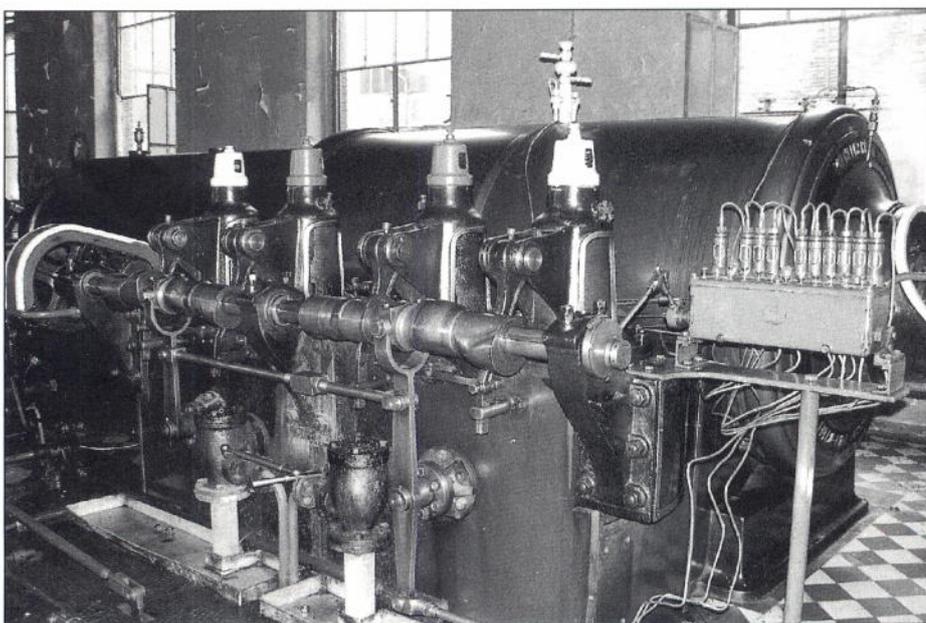
museums some of the mines had established. At one mine, the manager simply refused to visit the headstocks, saying that a general photograph could be taken from his window, and I was then directed to the museum. As luck would have it, some weeks later I was on a train which stopped close to the headstocks and I secured some good photographs, much to the horror of the passengers for whom such action was still a *crime against the state*.

In the absence of a statutory requirement to assist, the mines interpreted help in different ways. Some were excellent, providing knowledgeable guides and transport to all shafts, some of which are often some miles from the main site. Others declined to take me to peripheral shafts and to others which

had been closed. A few were most reluctant to allow me admission when they discovered I was not Polish, even though I was employed by the Ministry, and one mine refused me entry on the interesting grounds that the wording of their letter agreeing to the visit did not in fact allow admittance. Needless to say I took photographs of the all too visible headstocks from the road and departed hurriedly. All the mines possess technical documentation, but when they were produced (their existence was often denied) in most cases the sheer volume and lack of time for perusal unfortunately meant that little benefit could be derived. Most mines had commissioned exhaustive histories to be written by academics whose bent was not technical, although the early photographs were useful. The best history from an industrial archaeological standpoint was written by a staff member of the Zabrze Mining Museum; on my recommendation the Centre's director immediately offered him more money to work in Katowice, a proposal he accepted. Perhaps he will give momentum to further industrial archaeological surveys.

Being far from fluent in the Polish language was a distinct disadvantage, and far too often the discussion would follow the direction that my assistant, rather than I, thought appropriate. Further, my first assistant, an art historian who spoke English, sometimes found it difficult to believe the basis of some of my questions. Thus: why are there two sets of backstays at this shaft, or why is the heapstead so tall and narrow, or why was the shaft freezing process not used in sinking? Because they seemed obscure, she was reluctant to put them, but when she was eventually persuaded, the engineers immediately understood their relevance. Halfway through the project I was assigned a new assistant. He spoke no English, so I asked the questions in Polish; matters improved, even if I did commit the odd howler. Once, when asking if the coal mined was coking, I used the word 'kokosowy' (coconut) instead of 'koksucy'. The engineers fell about at the thought that an English 'expert' actually believed there was such a substance as coconut coal. My second assistant appeared to have slightly different priorities from my own, for everywhere we went he would meticulously note the names, and standing, of everyone we encountered. I later discovered that the information was for his reports which gave precedence to journey details and personnel met over what we had seen. When it rained he would put up his umbrella, making it impossible to take photographs. Since the rainfall of June 1997 was torrential, prior to the severe floods, outdoor photographs were at this time restricted to those I could take with both his and my camera, between making notes and trying to keep up with the main party. Fortunately, by this time I had become familiar with most structures and could afford to be selective.

However partial the survey may have been, it was by far the most comprehensive to have been carried out, enabling recommendations to be made to the County Council with regard to the rarity of particular artefacts. It is to be hoped that the allocation of such funds that are available for preservation and for the development of industrial tourism will take note of the fruits of the survey.



Valve gear of the steam winding engine by Wilhelmshütte, Sprottau, 1906, at the Centrum colliery

Photo: Ray Riley

Springhead Gardens and the watercress industry

David Eve

The artificial cultivation of watercress is an industry that has been largely neglected by both industrial archaeologists and agricultural historians. Springhead Gardens, are said to be the earliest site in Britain.

In the early years of the nineteenth century Springhead Gardens, near Gravesend in Kent, saw the first cultivation of watercress in artificial beds in Britain and so can claim to be the birthplace of the modern industry. The site (from TQ 617726 to TQ 617739) is now being reconsidered as it may fall within the path of the Channel Tunnel Rail Link.

Although watercress was an important Roman medicine and enjoyed a revival in Tudor England, the wild cress (*Nasturtium Officinale*) was always gathered from swift-flowing streams where it grew. The commercial cultivation of watercress under controlled conditions in prepared watercourses first appeared on mainland Europe. Although cultivated on a small scale in northern France during the fourteenth century the practice does not seem to have been very successful and was not taken up again until the late eighteenth century. The first reported modern industry was in the German Rhineland where beds had certainly been established by the end of the eighteenth century around the town of Erfurt. From there the technique was exported to France where a M Cardon established beds at Saint Leonard in 1811 and to England, where William Bradbury founded Springhead Gardens in 1805.

Bradbury's choice of the source of the River Ebbsfleet, known as Springhead and otherwise famous as the site of the Roman town of *Vagniacae*, is significant as it demonstrates all the conditions required for watercress cultivation. The spring itself supplied clean, relatively warm water with gently sloping topography (cress requires some 5-10 million litres of running water per hectare per day at a temperature of 10.6°C on beds with an optimum fall of 15cm per 30m). As media for watercress growth sandy soils do not retain enough water or allow an optimum depth to be maintained while clay and peaty soils can also be problematic. Chalk, as found at Springhead, is eminently suitable when given a gravel covering, perhaps on a puddled base, with soil on top for the roots to bed in and springs issuing from the Kentish chalk downs provided the perfect source of clean water for cress cultivation. The excavation of beds may require surprisingly large engineering works, for in addition to preparing the bed floor the gradient has to be carefully controlled to keep water flowing around the plants at a relatively swift pace but no so as to risk erosion of soil from the floor. Sluices and weirs are built to manage the water and often leats allowing drainage of the beds for cleaning, usually carried out in August or September.

A final, and perhaps crucial factor in Bradbury's choice of Springhead was its situation by the main road to London, the principal regional market where demand was increasing but the habitat of wild watercress was being destroyed. The same factors were also influential in the foundation of the French industry near Paris and later development of beds in England's Home Counties.

When Bradbury arrived at Springhead in 1805 he was a gardener from nearby Swanscombe and in search of work. He approached the owner, Thomas Colyer, with a proposition to improve and cultivate the river Ebbsfleet and in a few years the watercress beds became a commercial success. In 1818 Bradbury received a Royal Society Medal for his work and the following year retired, selling the lease for £600 and receiving a £500 bonus from Colyer.

By 1844 the new tenant, James Silvester, had extended the beds northwards along the Ebbsfleet and increased production. Not content with an expanding business Silvester, seeing Gravesend's popularity as a resort, developed the site as a tourist attraction: 'Springhead Gardens'. Fruit trees and strawberries were cultivated, a bath house, tea shop, pavilion and ornamental bridge were built and a small museum opened displaying Roman artefacts. Other attractions were more in the vein of pure showmanship and included wheat grown from grains reputedly found in an ancient Theban tomb, a zoo and gypsy fortune teller. Silvester died in 1849 and a boundary dispute arose between landowners on either side of the Ebbsfleet that was to result in visitor attractions operating on both sides of the river, including rival fortune tellers. From 1900 increasingly severe shortages of spring water afflicted the beds. By 1914 parts had reverted to marsh and eventually the whole system was abandoned, although the zoo and tea rooms were still operating in the 1930s.

The process of constructing watercress beds from what was described as a 'swamp' in Bradbury's time seems to have been rapid and it is telling that when he returned to the site in 1845 he had trouble recognising the layout of beds which by this time were nearly three quarters of a mile long. There seem to have been two distinct areas of cultivation, Springhead Gardens itself and the lower portion stretching down the Ebbsfleet valley.

The Springhead area is now the site of plant nurseries, partly built over the backfilled beds, and with the main channel of the Ebbsfleet only about a metre wide at its point of origin, though below the spring it widens to approximately six metres. By 1839 the Ebbsfleet had been widened at Springhead,

impounded by a dam or weir and had a channel bypassing its western side. This was probably a bed for cress cultivation and a distinct bank can still be seen between the present stream bed and nursery to the west that may have formed a division between it and the Ebbsfleet while a distinct rise in ground level is also noticeable at the site of the bed's western bank. The lower end of the bypass channel is marked by an embankment carrying a trackway from the nurseries across the river although this appears to be modern and no evidence of a previous weir, bridge or sluice can be seen.

From this point the river itself seems to have been improved for cultivation rather than a bypassing channel constructed. For at least part of its length earthwork banks, possibly supporting timber walkways for the workers, were constructed dividing the river lengthwise. A narrow leat parallel with the river on its west side was also built, perhaps to remove excess water, and later replaced by a pipeline. Few weirs or dams seem to have been used to control water depth despite the length of the cultivated area and although one can still be found not far below Springhead Gardens few other remains can be seen in the dense reedbeds that have grown up.

Two distinct forms of watercress bed layout seem to have been used at Springhead. Although the industry has now died out in Kent (but continues in a modern form in Hampshire and Wiltshire) the artificially constructed channel bypassing the Ebbsfleet is similar to remains found at several other Kentish sites and seems to have been a way of maximising the cultivated area close to the spring. Examples also exist of rivers or streams used as watercress beds but few are as long and always use many more weirs than the three identified at Springhead.

At present it is unclear just how the beds were constructed or what was their sequence of development but the Ebbsfleet's silting may have preserved not only the form of the beds but remains of sluices and weirs used to manage the water. Study of such remains could greatly aid an understanding of the construction and use of watercress beds in their earliest form and the way in which Springhead fits into the development of a neglected industry.



The watercress beds at Springhead Gardens before 1839

Torr Vale Mill and the Torrs

Derek Brumhead

In May 1997, the 53rd East Midlands IA Conference at New Mills paid attention to the cotton industry and the influence of the Torrs. The Royal Commission on the Historical Monuments of England had meanwhile surveyed mills in north-west Derbyshire, including a detailed study of Torr Vale Mill. Much of the physical detail of the mill described here is derived from the RCHME's excellent report.

The town of New Mills on the gritstone fringe of north-west Derbyshire is in an area of spectacular natural beauty standing astride the river Goyt at its confluence with the Sett, both rivers being deeply incised into an impressive sandstone gorge 80 feet (24 metres) deep. In the late eighteenth century waterpowered cotton spinning mills were built here. The gorge - formed by glacial meltwater about 15-20,000 years ago - was particularly suitable for mill construction. Rocky waterfalls and cascades in the river beds allowed the construction of weirs and a steady supply of water; there were good mill sites on a rocky terrace several feet above the water; and the sides of the gorge provided sandstone for building. Indeed, the removal of quantities of sandstone made ample room for the mills. Today, disused quarries in the Torrs are most probably the source of stone for the mills' construction.

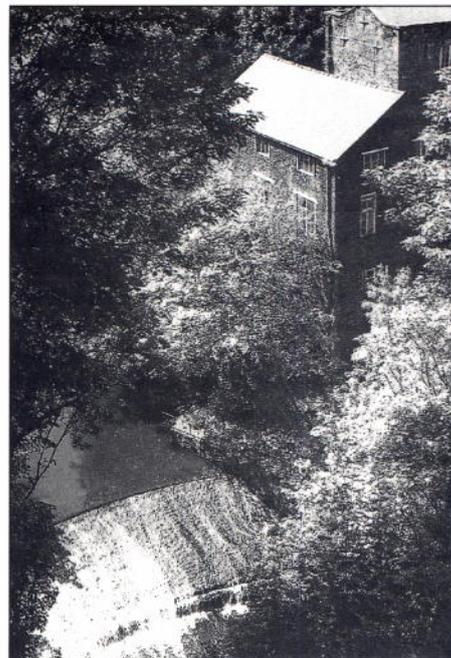
In 1788 Daniel Stafford, who occupied the corn mill in New Mills, took out a 99-year lease on a plot of land containing 30 perches within a bend of the Goyt on the Cheshire side of the river to build a cotton mill. The mill, which became known as Torr Vale Mill, was built in 1788-90 when it was recorded that there was a weir, a water course cutting through the promontory on which the mill was built, a bridge over the river, a mill and two other buildings used as dwelling houses and factories. No early plans have been found but the physical evidence of early surviving structures suggests that a building identified as the 'old mill' partly survived the rebuilding of the 1860s. Today, it can be seen that this building is too high above the river to have been water-powered, hence the conclusion that it was an unpowered loom shop.

Torr Vale Mill was extensively rebuilt in the 1860s to use a combination of steam and water power. The difficulties of access (there were only steep paths down into the gorge) and the cheapness of water power delayed the introduction of steam in such mills until the mid-nineteenth century. Manufacturers in such semi-rural sites were discouraged by the high cost of purchasing and installing steam engines, the large amounts of coal they used, the cost of an engine man and the difficulties of access. Yet even after the steam engines were installed, the waterwheels were not taken out of use, proving more economical when production was low. When the water level was low, waterwheel and steam engine were often coupled. It is interesting therefore that the RCHME survey confirms that in the basement of Torr Vale is evidence that the steam engine, installed in 1856, was flanked by two wheel pits. Steam engine and waterwheels were coupled by means of a clutch until about the 1940s. The engine was manufactured by Hick, Hargreaves of Bolton. Originally it had a low pressure

single cylinder but was compounded in 1862 following the rebuilding of the site. It ceased operation in 1952 and was removed soon afterwards.

By the late nineteenth century the site functioned as an integrated cotton mill with, unusually, both spinning and weaving in the multi-storeyed mills. This was probably determined by the constricted nature of the site which prevented the construction of single-storeyed buildings. Most of the buildings date from the second half of the nineteenth century, but significant structures survive from the original mill. There still remains an intact and relatively well-preserved complex of mills and ancillary buildings covering a wide date range, including the 'old mill', a five-storey cotton mill, a four-storey weaving mill, boiler house, chimney, offices, workshop and smithy. The rebuilding included a terrace of workers' houses named 'Torr Vale 1863' alongside the access road, with a manager's house at one end. In addition to its architectural significance, Torr Vale Mill is an outstanding example of the influence of topography on early industrial development, retaining a weir with related tunnels and watercourses. Its significance has recently been recognised by it being listed Grade II* by English Heritage.

Torr Vale Mill is the last extant mill in the Torrs. It has been in continuous use since 1788-80 to the present day, cotton towelling still being manufactured from imported yarn. Until the recent survey was made, it had not been realised that this is probably the longest period of continuous use of a cotton mill site in England. However, the current business has suffered problems, putting the building at serious risk. The search for funding is being pursued by the New Mills Conservation Area Partnership for conserving the mill and ensuring its future with new employment opportunities. An approach has been made to the



*Torr Vale Mill and its weir on the River Goyt, New Mills
Photo: Gordon Michell*

committee of the Prince of Wales' personal initiative 'Regeneration Through Heritage', a part of his Business In The Community organisation, to engage the interest and support of its members in finding a solution to this important building. The support in the community has been canvassed and a planning day was held in March to set up a Project Steering Group.

I am grateful to Mike Williams and Alan Stoyel of RCHME for providing me with a copy of their report and for allowing me to quote from its findings. It can be consulted at New Mills Heritage Centre (☎ 01663 746904). Allan Morrison, Department of Environmental Services, Derbyshire County Council, provided me with information on the strategy for the repair and re-use of the mill.



*The five-storey cotton mill (foreground) and the weaving mill (right) at Torr Vale Mill
Photo: John Humphreys, New Mills Local History Society*

Hats off in Stockport

Penny McKnight

An industrial era ended in December 1997 with the closure of Christy's hat manufactory at Higher Hillgate, Stockport, the sole survivor in an area once the nineteenth-century centre for British hatting. This event, and developments at the Stockport Hatting Museum, were notified by Roger Holden in IA News 102. Although some operations have relocated to Bury and the 'Christy & Co Ltd' trade name will continue to be used, many of the traditional hatting processes have been consigned to history. This paper outlines some of the historical developments and main processes involved.

Stockport developed a strong domestic hatting industry from the late sixteenth century. An alternative to spinning or weaving, hatting provided a useful supplement to agrarian incomes wherever the raw materials were in plentiful supply: wool or rabbit fur, copious quantities of soft water for felting and local supplies of fuel.

Beaver, imported from Britain's North American colonies, became fashionable for top quality hats. London-based companies concentrated upon the 'finishing' side, with fur supplied to northern commission hatters for the initial 'hood' forming stage, a highly skilled operation in which fur was formed in a durable felt cone of the correct size and proportions ready to be fashioned into a hat.

The Christy company was founded in 1773 by Miller Christy and Joseph Storrs at 5 White Hart Court in the City of London. Their first premises comprised only a small workroom and shop, but with rapid growth they had opened a factory at Bermondsey by 1804. It was largely concerned with finishing, however; hood-making being put out to hatters in Cheshire, Lancashire and Gloucestershire.

In 1822, Christys bought the Canal Street premises of their former commission hatter, Thomas Worsley, thus beginning a gradual move of operations to Stockport, and an expansion of the site into the largest nineteenth-century hat works in the world. In 1844 the adjacent Hillgate Mill was bought, in 1860 finishing was moved to Stockport, and in 1874, as Christy's smaller factory at Frampton Cotterell in

Gloucestershire was closed, an extensive new mill was built to the south to accommodate the removal of the workforce. In 1890 a full 1,554 people were employed on the 11-acre Hillgate works site.

Christys played a key role in the mid-nineteenth century transformation of hatting from a small-scale domestic craft into a fully mechanised, factory-based industry. Hatting was slow to mechanise, but Christys bought machines from America and Germany, adapting them at Hillgate. William Barber, employed by Christys from 1833 to c.1880, was a key figure in this period of innovation.

The hatting industry experienced a rapid decline after the Great War. The war killed links with international markets, whilst cheap wool-felts became available from multiple clothiers. Meanwhile, public transport and rising car ownership removed the need for weatherproof headgear, and fashions became increasingly informal.

Christys survived largely due to its size and prestigious reputation until 1966, when Associated British Hat Manufacturers Ltd absorbed the five remaining hat works of Stockport and nearby Denton, operating from the Hillgate site. The name 'Christy & Co Ltd' was readopted in 1980 when the company was taken over by Cadogan Oakley, who sold off the Canal Street and South Mill sites, leaving only Hillgate. In 1996, now owned by the Priory Company, only about half the floor space was being used and a mere 150 people employed. Of these only a minority were engaged in fur-felt hatting, most making riding hats (on a plastic base) and cloth caps and hats.

Continuing demand for high quality hats, such as top hats, dressage hats, bowlers and trilbies, has kept Christys traditional hatting industry just about alive, but only the finishing side will continue at Bury, the hoods being imported from Europe. The initial hood-forming processes have thus been lost, many of which were unique to the industry.

Hatting is a peculiar branch of the craft of felt-making, in which the fibres take on a rough conical hat shape from the start, and by repeated applications of water, heat, steam and friction, are gradually felted and refined in shape. The manual processes of wool-felt and fur-felt hatting were identical, but the mechanisms applied to coarse wools in the nineteenth century were unsuitable for the finer grade

furs. Distinctive fur-felt hatting machines thus developed.

Many machines used at Hillgate in the 1990s were around 100 years old. The decline of the industry, and associated closure of specialist hatting machinists, had frozen hatting technology in its early twentieth-century form. Furthermore, as hatting was not fully mechanised until about 1880, there had been little opportunity for innovation beyond prototype models. Even some of the manual craft processes, little changed since the sixteenth century, continued to be represented.

Operations began with the preparation of fur, largely imported hare and rabbit. A mix of furs was placed in a 'blending box', a large octagonal rotating wooden drum. Iron spikes within separated the fibres as the tumbling action mixed them together. The blended fur passed through 'conicals', in which a light vacuum loosened dead skin and dirt from the fur and separated it into individual fibres.

The fur was then cleaned and graded by a unique 'blowing machine', invented in the late eighteenth century in American and introduced to Britain by Christys in the 1830s. This winnowed the fur to sort the heavier waste, or 'degs', from the lighter 'kemps' for hatting. In a hollow box the fur was blown along by a fan and tossed by eight rotating 'prickers', cylindrical shafts of fine wire needles set along the base. The heavier waste fell between the rollers whilst the lighter fur emerged at the end ready for 'forming'.

Forming is the creation of a flimsy 'body' of an oversized conical shape ready for felting. The 'fur former' was also American, introduced by Christys in the 1850s, and operated by two hatters. At one end the 'feeder' weighed out enough fur for one hat onto a moving belt (typically 2-3 oz). At the other end the fur fell into a chamber containing a large rotating cone of perforated copper or steel. A vacuum within caused the fur to be deposited on the cone in a light sheet, which was stabilised by a spray of hot water and then peeled off by the 'former'. The correct 'build' of fur was required, e.g. more around the juncture of crown and brim, and was achieved by the skilful adjustment of shutters in the side of the chamber.

The delicate body was then ready for 'planking' into a hard-wearing felt. The term derives from the earliest hatting days when six or eight hatters stood



Forming the first loose body using the fur former, manufactured c.1909 by Denton hatting machinists Turner Atherton
Photo: Penny McKnight



Stumping, using a multi-casse of a type common by the 1920s
Photo: Penny McKnight

at inclined benches around a central kettle of steaming water. The body was repeatedly immersed in water and then agitated at the plank with wooden pins to gradually mesh the fibres into a durable felt.

Mechanised planking was introduced by W. Wilson of Newcastle in 1859. By the early twentieth century two distinct types of machine had developed to carry out four successive phases of the fulling operation: 'hardening', 'settling', 'planking' and 'stumping'.

The hardener compressed a pad of several wet hoods between four grooved rollers, simultaneously oscillating and rotating. Between operations of the machine the pad was unwrapped for 'crossing', or folding in a new alignment to avoid irregularities or creases. For settling, the same machine was used with greater pressure applied.

The 'multi-casse' (derived from French manufacturers Casse) was used for planking. Each hood was passed between two banks of nine rollers, the felting assisted by an acid solution sprayed from above. Between each pass the hoods were checked for size and again crossed.

Stumping used a similar machine with greater pressure. To ensure an exact size, the felted hood was stumped beyond the required size and a 'stretching machine' then applied, i.e. a metal framework forced out within the hood.

The hoods were dried with warm air in a stove before passing to the proofing shop to be made

weather-tight. Soft-felts, such as trilbies, had a resin-based solution applied via 'roller proofers'. The proof was then driven into the felt by overnight stoving. The proofing of stiff-felts, such as bowlers and top hats, remains a trade secret.

Stacks of hoods were then immersed in dye vats, and a dye solution forced by pumps through every fibre of the felt.

The dyed hoods then began to take on a rough hat shape in the 'blocking shop'. Top hats continued to be blocked manually. The proof was softened in a kettle of hot water, and the shape formed over wooden or cast iron hat-blocks using irons, and a thread called a 'commander' to force down the crown and create the brim junction. The soft felts were blocked with a series of basic machines all of which pulled or pushed the hat into its first rough shape. The 'blocking machine' consists of a mould, an iron hoop to force down the felt, and a spray of hot water.

The final shape was given by a series of presses, central to which is the hydraulic press, invented by William Barber at Christys in 1850. Initially used for curling soft-hat brims, it was later adapted to press all types of hat. The hat is set within a heated 'press dish' of the exact size and shape required, and a rubber bag brought down and forced out within the hat. The press, replacing the labour-intensive process of hand-blocking, was kept secret by Christys for many months, and at one time the press shop was located in the kitchen away from prying eyes. The

secret was eventually leaked, however, and presses were soon being manufactured by machinists throughout the hatting districts.

Further processes within the finishing shop included 'pouncing' of uneven threads from the surface of soft-felts by lathes carrying abrasive paper, 'rounding' to trim the brim, 'flanging' in which a heated sand bag descended over the hat for a final pressing, and 'curling' to shape the brim.

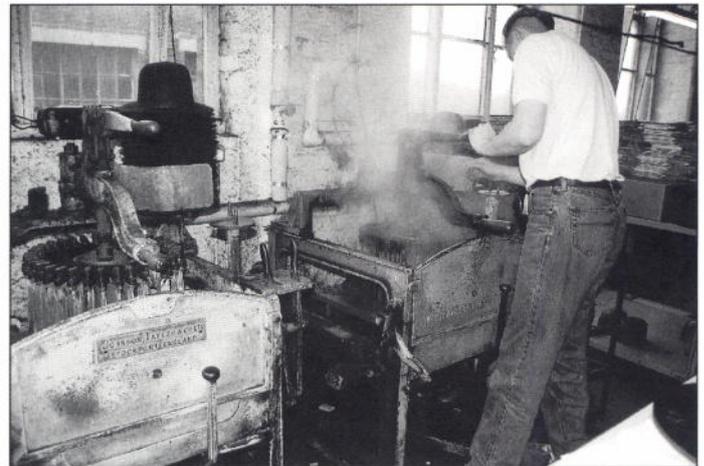
Stiff bowlers, and the silky 'napped' surfaces of top hats (created by felting a film of long hare fur onto a standard rabbit base), were finished by hand with brushes and soft velour pads at a 'louring' bench.

Finally, the hats were trimmed with hat leather and lining on a series of specialist sewing machines, the top hats being trimmed by hand.

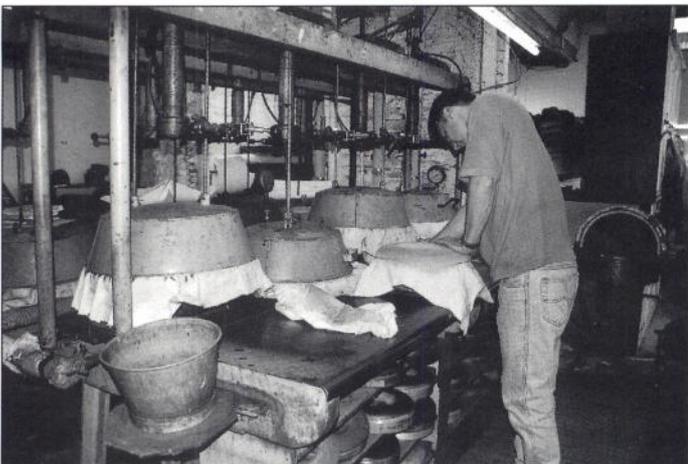
Christy's operations moved to Bury in January 1998, taking only the finishing side of the fur-felt hatting industry and six skilled hatters. Hoods will be imported from Europe. The finishing side will continue to use many of the methods and machines of the nineteenth and early twentieth centuries, but British hood-making has now ceased. Redundant machinery has been donated to the Stockport 'Hat Works' museum, due to move from the former Battersby's hat works on Hemphaw Lane to Wellington Mill in the town centre in 1999. Meanwhile, a history of over 400 years of hatting in the Stockport area has finally come to a close.



Using a stretching machine on stumped hoods to achieve precise proportions and size. These machines date from the early 1900s
Photo: Penny McKnight



The initial process in the finishing shop: setting and sizing to correct the hat size
Photo: Penny McKnight



Securing the hat for the final fine shaping under the sand bag of the flanging machine
Photo: Penny McKnight



The Higher Hillgate facade of Christy & Co Ltd

Photo: Penny McKnight

Secretary for the AIA

AIA Council has taken the decision that, with the growing complexity of AIA affairs, we can no longer manage on entirely voluntary labour. A paid secretary was needed and the School of Archaeological Studies at Leicester University, where *Industrial Archaeology Review* is now based, offered us favourable terms for accommodating a part-time secretary.

Morwenna Dissado was appointed on 2 March for an initial two-year period. Morwenna is a recent graduate in Archaeology and History from Nottingham University, who has not only worked on Roman excavations in Sicily but also had a summer job in the Prescott Watch and Clock Museum in Prescott, where she created a database to enable researchers to use the Edwardes collection.

As soon as she understands our diverse systems, Morwenna will be handling subscriptions, the membership database, Council agenda and minutes, publicity mailings and so on. She will also be a point of contact for IRIS, as well as handling more general enquiries about AIA. Since her appointment to AIA, she has also taken on a second part-time post as secretary to the Distance Learning Unit in the School of Archaeological Studies, so will be around on a full-time basis. She has an answerphone, so if you cannot contact her immediately,



Morwenna Dissado

she will be able to get back to you. We hope she will also be able to attend some AIA activities such as the Working Weekend and Conference, so that you will be able to meet her in person.

Morwenna's telephone number is 0116 2525337 and her e-mail number md39@le.ac.uk. Her address is the same as that for *Industrial Archaeology Review*, The School of Archaeological Studies, University of Leicester, Leicester LE1 7RH.

Changing fieldwork officers

The AIA Fieldwork Award scheme, which encourages high standards for

recording industrial archaeology by amateurs and professionals, has a new master. Shane Gould has taken over the task from Victoria Beauchamp, to whom the members of the AIA owe many thanks for her hard work in the past. By the time you read this, you will have just missed the 1 May closing date for entries for the 1998 Awards, so you have plenty of time to prepare for next year. If you require details of the scheme, please contact the new Fieldwork and Recording Officer:

Shane Gould,
Essex County Council,
Planning Department,
County Hall,
Chelmsford,
Essex CM1 1LF.

Conference visits

The 1998 annual conference of the AIA is being held at Seale Hayne Agricultural College, near Newton Abbot, Devon, from Friday 4 September to Sunday 6 September. Details from David Alderton, 48 Quay Street, Halesworth, Suffolk IP19 8EY. As has become customary at conferences, there follows the option of a week of field visits and lectures ending on Friday 11 September. Delegates should get a good feel of IA in Devon, and they might even care to taste some of Cornwall's IA by taking advantage of a visit before the conference on 2-3 September,

organised by Heritage of Industry on behalf of the AIA. For details, send SAE to Paul Saulter, 10 Coach Lane, Redruth, Cornwall TR15 2TP.

New members

The AIA welcomes the following new members:

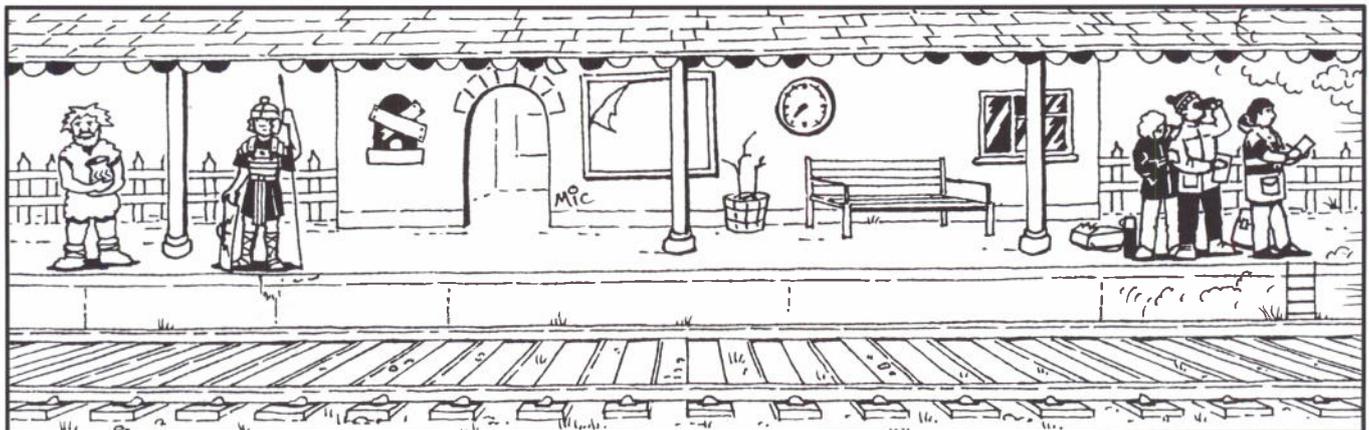
- Derby Industrial Museum, Derby
- Ian Ayris, Newcastle upon Tyne
- Jon Binns, London
- John Charles, Bathmen, Netherlands
- John Clayson, Newcastle upon Tyne
- Sue George, Leigh on Sea
- Mrs S.A. Hadcock, Loughborough
- Andrew Hayden, Wakefield
- Iain Hedley, Wallsend
- John Hinselwood, London
- Mrs A. Ingham, Clitheroe
- Griffith Jones, Blaenau Ffestiniog
- Allen Kaye, Welwyn Garden City
- Adriaan Linters, Kortrijk, Belgium (re-joining)
- R.F. Prestney-Archer, Bedford
- John & Sylvia Samms, Laxfield
- Jon Sass, Grimsby
- Cormac Scally, Belfast
- Roger Steels, Lavendon
- Ian Stokes, Perth
- Martyn Taylor, Orpington
- Mark Walters, Montgomery
- Erica-Jane Waters, Hereford
- H.J.C. & P.J. Weighell, Leamington Spa
- Robert Willan, Bradford

Why are harmless trainspotters so derided by the media? This seems especially prevalent in advertising. No other sub-group is so mercilessly criticised. It would be totally unacceptable to treat an ethnic or disabled minority in this way. In some circles 'trainspotter' is used as a term of abuse. Have you heard the joke that 'some people thought there were not enough trains in the film Trainspotting'?

COMMENT

A problem for industrial archaeology is that some of this baiting could rub off on us. A traditional archaeologist talking to me and trying to explain the mystery some dirt archaeologists felt surrounded our subject made the comment that they thought industrial archaeology was 'rather like trainspotting'.

Robert Carr



PREHISTORY

ROMAN

INDUSTRIAL

THE THREE AGE SYSTEM

Readers are encouraged to write to the Editor with their views on matters raised in IA News, or other current issues.

Iron plate quiz time

Shortly after receiving our copies of *IA News 104*, I thought that as Hill & Smith's Ironworks are one of the Black Country's famous and long established firms I must take the article along to the works and try to obtain some information on the iron plates.

Hill & Smith Ltd are still (for a few more weeks) on the same site on which they were established in 1824 in Brierley Hill. They have been famous iron founders and engineers since this date and many of the countless miles of motorway safety barriers (referred to as crash barriers) to be seen on our motorways and other roads today have been supplied by this firm.

I had an interesting conversation with their Sales Director, Mr John Fellows, who immediately said that the plates in the photograph looked like some of the many cast iron plates that they had produced in the past to cover the floors of iron works and rolling mills, etc. throughout the country. These heavy duty plates were very popular in ironworks when hot metal bars had to slide across the floor or iron wheeled trolleys transporting lumps of white hot metal to the shingler are hurriedly moved from puddling furnace to hammer.

Ron Moss, Chairman Black Country Society IA Group, 56 Lawrence Lane, Cradley Heath B64 6EU

Further to the Noticeboard article in *IA News 104*, I am pleased to inform you that the cast iron slabs shown in your photograph are in fact shooting butts. I was involved in restoring a similar set whilst I was at Ironbridge, which were situated near Newport, Salop, and in fact they can be seen from the new Newport bypass. The story, I was told, was that similar sets were set up throughout Britain during the Napoleonic Wars so that the local Yeomanry could have some target practice. Possibly this date is a little too early. However, certainly the ones at Newport have evidence of where soft nosed bullets made little indentations and then high velocity rifles had made holes straight through the cast iron slabs, perhaps during the Second World War.

Presumably there were at one time many of these all over Britain - I wonder how many still survive.

*Stuart B. Smith
The Trevithick Trust
Chygarth Beacon Terrace
Camborne TR14 7BU*

Relating to the query about the cast iron plates near Hollins Crag in Little Langdale, I have always assumed they were targets erected for rifle practise by the military. To my knowledge there are at least two similar sets within the old Westmorland and Lancashire boundaries of the Lake District National Park. One of these is above Hunting Stile near Grasmere (NY 326062), the other is near Boo Tarn, off the Walna Scar Track, Coniston (NY 283967). This one is clearly shown to be a rifle range target on the 1892 edition six-inch OS map.

*Peter Fleming
13 Harrel Lane
Barrow-in-Furness
Cumbria LA13 9LN*

Surely this photograph is self-captioning? To judge by the startled expression on the gentleman's face, he has suddenly found it to be a very public convenience!

*Paul Sillitoe
2 Oaken Clough Terrace
Ashton under Lyne OL7 9NY*

Belfast truss roof

I found the article on the Belfast Truss in the current edition of *IA News* fascinating and nostalgic.

As a former ICI scholar, the company had a wide range of Belfast truss buildings in Scotland, North Wales and Teeside. Indeed on one occasion, intent on improving the design of the standard truss, much time was spent on an 'improved' Belfast truss. Unhappily when snow loadings hit these 'improved' trusses they were not equal to the extra loading. The engineer responsible for the 'improved' truss was a Mr Golding.

I am sure that some of those many buildings may still survive at Ardeer Stevenston Ayrshire and Mold, North Wales. I should be pleased to hear of further 'Belfasts' still performing happily.

*T. Kenneth-Duncan
8 Glenhurst Road
Henley-in-Arden
Solihull B95 5HZ*

Editor's note: *Drs Gould and Montgomery would also be interested in examples not already notified to them. They may be contacted at the Department of Civil Engineering, Queens University, Belfast 7.*

Adaptive reuse of mills

I was interested to see mention of the West Mill, Huddersfield, in the Yorkshire & Humberside Regional News in the last *IA News*, referring to its being awarded the 1996 Ironbridge Award for the adaptive reuse of a historic building. I was involved in its conversion with other structural engineering colleagues at Ove Arup & Partners c.1991-4. I knew that it had received a Civic Trust commendation and had been entered for, but sadly failed to get, a Europa Nostra award.

The 'virtue' of the scheme in a sense is that it shows what can be done with the 'typical' mill as opposed to the 'spectacular' (e.g. Saltaire, Dean Clough). It also benefited greatly from a sympathetic architect who was eager to celebrate the original materials - cast iron beams and columns, light wrought iron roof trusses, brick jack-arched flooring, stone external walls - and who achieved this by exposing them throughout the scheme. Despite this, the building is heavily serviced with raised floors. And it is very popular with its users.

I presented a paper on the mill's conversion to the Institute of Structural Engineers in London in February. Also, the mill is used as a refurbishment teaching project for the MSc course in Structural Design at University College London, to encourage young engineers to deal caringly with such structures.

*Michael Bussell
23 Fitzgeorge Avenue,
London W14 0SY*

Francis Trevithick

A researcher in Cornwall who is endeavouring to write the history of Richard Trevithick's work in South America, has discovered that Francis Trevithick, his father's biographer, had four folio books including at least 200 manuscripts which were the final draft for his famous book on the life of Richard Trevithick. These books were actually on display at Leicester Museum for two years in the 1960s and at the time were owned by Mr K. Knight of The White House, Corby. Leicester Museum has been very helpful, but unable to trace Mr Knight and all other enquiries have failed to trace the existence of these four volumes of manuscripts.

Could anyone with information contact me at the Trevithick Trust.

*Stuart B. Smith, Chygarth,
Beacon Terrace,
Camborne TR14 7BU*

Power stations

As part of a research project 'Industrial Archaeology' under the supervision of Adriaan Linters at the School of Architecture, Sint-Lucas, Ghent, Belgium, we are looking for information on the conversion of (redundant) power stations. Can you help us? Specifically, we are looking for (1) information about power stations in your country that are no longer in use or are about to shut down; (2) information about the regeneration, transformation, or conversion of power stations, i.e. with new functions, such as the new Tate Gallery in Bankside power station, London.

Thank you very much! All information is most welcome.

*Frederik Dams
Nederlandlaan 382440 Geel
Belgium*

HEP in Snowdonia

I am writing to enquire if you can help me with some research. I wish to write the biography of Mr (Major) Arthur Lockwood, a mechanical and electrical engineer who, I believe, was the engineer in charge of the building of the Hydro Electric Cwm Dylfi Power Station in Snowdonia, which opened in 1906. I believe he was born in the Manchester area, and went on to become the manager of the power station.

I wonder if anyone could suggest where or whom I might contact to find records of this early power station and its operation.

*Harvey Lloyd
6 Aldenham Close
Caversham Park Village
Reading RG4 6RR*

Wellhead machinery

Is there anyone out there in the world of IA who is an expert on wells and the machinery found on top of them? Locally we have found two sets of wellhead machinery whose exact function we are unsure of. One is made by the local firm of Brown & May and thus is before 1913 when they went out of business. The farmer on whose land it stands is keen to see it go to a good home and our own Museum in Devizes is going to take it. However, I should like to know exactly how it works.

*D.L. Roseaman
Chairman IA Committee
Wiltshire Arch. & Nat. Hist. Soc.
101 Westbrook, Bromham
Chippenham, Wilts SN15 2EE*

Cornish flagship launched

The despair accompanying the closure of South Crofty, Cornwall's last tin mine, on 6 March has been dominating local headlines but all is not doom and gloom when it comes to the promotion of industrial archaeology in the county. As reported last year (*IA News 101*), the Trevithick Trust has been developing Taylor's Shaft, part of the Cornish Engines, as the focus of a new centre for Cornwall's Industrial Heritage.

Whilst the large pumping engine and engine house were preserved and later managed by the National Trust for many years, the surrounding land was only recently purchased by Kerrier District Council. The buildings have now been stabilised by the Council with the help of Groundwork Kerrier, and the famous chimney with EPAL (East Pool & Agar Ltd) down the side completely rebuilt. The compressor house has been re-roofed using original materials which necessitated the complete

rebuilding of the existing roof trusses in timber which, because of their size, had to be imported directly from America. Converted into a visitor centre, this was officially opened on 9 December 1997 by Nigel Griffiths, Minister for Consumer Affairs.

The Trevithick Trust, in conjunction with Kerrier Council and the National Trust, will continue to develop the buildings at Taylor's Shaft into a major tourist facility. The next phase is to provide a classroom and convert the old winding engine house into a large audio visual theatre where visitors can be told the story of Cornish engineering and mining. After further displays and the opportunity to look up the famous chimney, the tour will finish in the refurbished pumping engine house. Particular care is being given to ensure that all the site is accessible to disabled visitors, and all labelling at present is duplicated in Braille. All this will be aided by a grant of £1.1 million from the Heritage Lottery Fund announced last November.

It is also an aim to enthuse visitors and local people to visit other industrial sites in the area, such as the Mineral Tramways Project (a network of miles of paths and cycleways) and their Visitor Centre at Old Cowlin's Mill; they will be encouraged to explore the Great Flat Lode, King Edward Mine or walk the route between the mining ports of Portreath and Devoran. Other sites nearby include the recently created Conservation Area of Tuckingmill with its famous fuseworks or the fascinating Methodist sites at Gwennap Pit, Billy Bray's chapel or Carharrack Methodist Museum.

This is also a countywide initiative, and visitors will be informed of sites in other districts, such as the mining remains in the St Just area including Geevor Tin Mine, Levant Steam Engine, Botallack and Cape Cornwall; the Wheal Martyn Museum in china clay country; or the geological delights of the Camborne School of Mines, the Royal Geological Society Museum in Penzance or the Royal Cornwall Museum in Truro.

This flagship project for the Trust will be reflected in the change of name from 'Cornish Engines' to 'Cornish Mines and Engines'. The possibilities are endless and, with luck, the development at Taylor's Shaft will lead to many more jobs based on tourism, and a greater awareness of industrial history throughout the county.

Improving public access to industrial heritage

The English Heritage Policy Statement on Industrial Archaeology published in 1995 confirmed that 'public appreciation of the industrial heritage will continue to be promoted through education and publication and through access to, and the interpretation of, our historic properties.' English Heritage is now developing this policy initiative and have commissioned a study of public access to England's industrial heritage.

This involves a study of over 500 preserved and publicly accessible sites across the country. *The study of Public Access to England's Industrial Heritage* will be ready in mid-1998, and will provide a national overview of the ways in which historic industrial buildings and monuments are currently maintained, managed and presented. It will also explore ways in which English Heritage and other agencies might open more doors to the public appreciation of these places in the future. Examples in the survey range from an eighteenth-century blast furnace managed by a

National Park authority to a former mill engine operated by a preservation trust.

A trio of Yorkshire-based companies has been appointed to undertake the study. Lead consultant Dr Simon Woodward is relying heavily on the help of site managers with a questionnaire and telephone interviews. With their co-operation it should be possible to highlight those areas which show the greatest need, and the survey will provide a valuable snapshot of the current arrangement for access to education programmes and other activities.

The survey will look at the impact of visitors, including the demonstration of equipment and processes, on the historic fabric of the buildings. Where a relevant craft is being demonstrated, operational and safety issues will be examined. Technical training and the extent to which traditional skills are encouraged will also be assessed. In all cases, both the opportunities and the constraints of public access will be studied.

Since the early 1980s, English Heritage has offered grants in excess of £18m to voluntary groups, public agencies and the private sector to help preserve and maintain historical industrial sites. Local authorities and others have made substantial commitments and more recently the Heritage Lottery Fund has also contributed greatly to sites associated with industrial, transport and maritime history. As demand increasingly outstrips available funding, the needs assessment survey will help to identify priorities for action.

It is hoped that there will be a good response and enquires relating to the study should be addressed to Dr Simon Woodward, PLB Consulting Ltd, Unit 14, The Maltings, Castlegate, Malton, North Yorkshire YO17 0DP. Copies of two leaflets, *Industrial Archaeology: A policy statement by English Heritage*, and *Conserving the inheritance of industry: English Heritage grants for industrial archaeology 1984-93*, can be obtained from English Heritage Customer Services, (0171 973 3434).

Historic hospitals

On 14 November 1997, it was announced that all the 33 historically important hospital buildings and structures recommended by English Heritage had been listed. The buildings are on 18 NHS sites that are either redundant or likely to become so in the near future. The recommendations resulted from a survey of around 400



Restoration under way at the compressor house, Taylor's Shaft

Photo: Trevithick Trust

hospital sites which may become surplus to NHS requirements.

Bolton chimney heritage

A study has been commissioned to determine the feasibility of utilising the Barrow Bridge Chimney as a heritage centre for the benefit of the local community and visitors to the area. The Grade II listed chimney of 1863 is brick built and octagonal in section, and served the former Halliwell Bleach Works, owned by the Ainsworth family who also owned Smithills Hall. It has a potentially important role to play in interpreting the history of the locality. Barrow Bridge, built by Robert Gardener, was a model industrial settlement of the nineteenth century. The village's social, educational and economic life was completely integrated to form a close-knit community.

Brighton's millions

The West Pier at Brighton, England's only Grade I listed pier, is to receive £10 million lottery money as part of a £34 million restoration scheme over the next three years. The structure of the 1860s pier was deteriorating when closed in 1975 and has been damaged by storms ever since.

South Kensington station to be redeveloped

Readers of *IA News* will have passed through South Kensington LT station in London on their way to the Albertopolis museums. The District and Circle Line surface station has a nice period feel appropriate to the kind of museum experience we have come to expect from South Kensington. However, this is likely to change in the near future because a redevelopment scheme for the station has been approved, despite considerable local opposition. Many LT stations, especially those by big name architects of the 1930s are listed but South Kensington does not have this protection. The subway to the museums, convenient in wet weather, is also to be 'improved'.

Robert Carr

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IA NEWS**

**See page 15 for
details**

Portuguese textile museum moves

The Museu de la Indústria Têxtil is now located at Rua José Casimiro da Silva, Outerio - Calendário, 4760 Vila Nova de Famalicão, Portugal. (052 313986. The director is Agostinho Fernandes.

Banbury Canal project

The Trustees of the Heritage Lottery have agreed a grant of £2.2m for a new Museum and Canal Heritage Centre at Banbury. The partnership bid for the project was made by Cherwell District Council, British Waterways and Oxfordshire County Council. The new museum and centre will be based on Tooley's Boatyard, the last narrow boat building yard still working. The yard, beside the Oxford Canal, dates back to the 1790s. The site includes two scheduled ancient monuments, a smithy and a dry dock. The yard is widely credited as the birthplace, in 1945, of the campaign led by the Inland Waterways Association to retain and restore the declining canal network.

Farnham pottery saved

The craft pottery at Wrecclesham in Farnham, Surrey, established by Absalom Harris in 1872 and still being worked by members of his family some 125 years and five generations later, has been bought by the Farnham (Building Preservation) Trust.

For a number of years the pottery has continued to work on shoestring finances, largely caused by cheap foreign imports of terracotta garden ware, one of the Wrecclesham specialities. This was overcome in recent years by selling off almost two thirds of the pottery site and the Harris family home for residential development. Unfortunately, this did not ensure a secure future and it became apparent that the surviving pottery buildings were threatened by demolition for possible further housing development.

The buildings make this site so special, for when Absalom Harris took over the former farmyard, he produced a large proportion of the materials which were used to build the pottery. These included bricks, tiles, drainpipes and window frames, all in terracotta, as well as the more common architectural finials and the like. Surprisingly, the pottery is only locally listed by the borough council, although in a conservation area, and seems to have no further statutory protection despite its importance locally and, on a specialist scale, nationally.

Particularly important features include a surviving brick-built bottle kiln, some magnificent carved brick chimney stacks and an arch built of faience in the image of an owl with outstretched wings. The bottle kiln is now a very rare survivor in this part of the country.

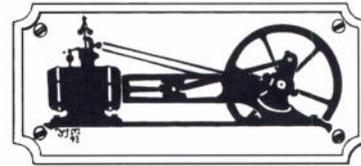
Unfortunately, due to financial restrictions, the buildings have become rather delapidated in recent years and the Farnham Trust is undertaking major works to reinstate the pottery to its former glory for future generations to enjoy. The first phase will be to restore a portion of the site for the Harris pottery firm to reoccupy and continue the living tradition of pottery making here. The resurgence of interest in architectural terracotta would seem to indicate a secure future for the company. Once completed, refurbishment of the remaining buildings will get under way to provide accommodation as craft workshops and exhibition areas. It is hoped, in particular, to attract potters who will carry on the tradition of the site.

Chris Shephard

New Greenwich society

As an industrial centre the area of the London Borough of Greenwich once rivalled in size places like Derby, Oldham or Salford. One of the most important industries has been armaments - from the days of the Tudor armoury in Greenwich to the might of Woolwich Arsenal, which employed 80,000 workers at its height. It has been a major centre for many others, such as cables, motor cycles, chemicals and shipbuilding. Most of the areas of these factories are now subject to redevelopment. Plans are in hand for the huge acreage of the Arsenal site, which includes 19 important industrial buildings (eight listed) and once boasted its own canal and railway. There are also massive plans, including a liner terminal, for the area around Deptford Creek and of course the Millennium Dome, the surrounding of which was intensively industrialised for over 200 years and still includes two large operational factories.

For this reason a group of GLIAS members decided to start a Greenwich Industrial History Society, so named to



Heritage Engineering

Consultants and contractors in the restoration of historic engineering including feasibility studies for Heritage Lottery Fund and ERDF funding. Recent projects have included restoration work on P.S. Waverley, a Victorian Underground Car, PS Maid of the Loch, a scheduled Bascule Bridge, various wind and watermill work, and a successful HLF/ERDF study for the Scottish Mining Museum.

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include the important Labour Historians based at Greenwich University. After two meetings, everyone has been surprised at the positive response from Borough residents as well as very good press coverage. We have clearly struck a chord. The group will be an autonomous sub-group of GLIAS, while working to build links with other local organisations. The area covered will include the old boundaries of Greenwich and Woolwich in Kent, rather than the modern London Borough.

At our second meeting, Jack Vaughan, the new Chairman, talked on Woolwich Royal Dockyard, where many important ships were built from Tudor times onwards. We have begun a project with the Kent Underground Research Group to investigate a sand mine in the posher part of Greenwich - mining and limeburning were once important industries here. Riverside trades are not being neglected and members hope to become involved in a fight to preserve one of the last boat repair yards left on the Thames. We are also hoping to look at a local authority depot, which once housed an early municipal waste/electrical generation plant. Some other members are investigating local weighbridges. All this and we haven't been near the Dome site yet!

One of the aims is also to publicise the wealth of industrial heritage in this area so that when the visitors come we will be ready to show them that Greenwich had more than palaces and kings. Anyone with a knowledge of, or interest in, industrial history in

Greenwich (and North Woolwich) is encouraged to contact Mary Mills, 24 Humber Road, London SE3, ☎ 0181 858 9482.

Mary Mills

Glass steps

The Monuments Protection Programme Step 3 reports on the Glass Industry are available for consultation in the Ironbridge Library.

Rebuilding Waverley

Yes, the P S *Waverley* really is to be rebuilt (see last issue of *IA News*), starting this autumn to be ready for the 1999 summer programme. £3 million of Lottery Money will be used in the refurbishment. If you want to take a final trip on *Waverley* in her old condition, you only have this summer when the paddle steamer will be visiting various parts of Britain. She should be in the South East in May, so don't delay. For information on the 1998 sailing programme contact the Barry office, ☎ 01446 720656.

Robert Carr

TICCIH decisions

The Greek conference of The International Committee for the Conservation of the Industrial Heritage was reported by John Crompton in the last *IA News*. One of the conference decisions referred to in his article was to encourage direct individual membership. This costs 20US\$, or 50US\$ for groups, and gets members the quarterly newsletter and free access to the three-yearly and various intermediate conferences. The

Membership Secretary is Dr Maria Teresa Maiullari, Ecomusée Le Creusot, Château de la Verrerie, BP53 - 71202 Le Creusot Cedex, France.

Another decision was to set up specialist sections, and two have already been getting going, one devoted to international mining heritage, through Richard Williams, who is at 28A Cross Street, Camborne, Cornwall TR14 8EX, heritage@mail.zynet.co.uk. The other is concerned with textile industries, and is here at Museu de la Ciència i de la Tècnica de Catalunya, Rambla d'Ègara 270, 08221 Terrassa, Barcelona, Spain. Both aim to improve communication between TICCIH members with a particular interest in these fields.

James Douet

Did you see ... ?

As part of the BBC's 'Water Week' season at the end of March, BBC Two slipped in three 5-minute films entitled 'Water Works', a quick look at Victorian water architecture - water towers, pumping stations and drinking fountains.

Water museum lectures

To complement the Kew Bridge Steam Museum's new Water For Life Gallery, environmental historian Raymond Smith will be delivering a series of five lectures. These are taking place in the museum on Saturday mornings at intervals from May 1998 to January 1999, on the themes of the environment and water, the growth in demand for water, village water supplies and the problems of sewage

and pollution. Sewers were created as land drains but in the nineteenth century they became choked and stinking outlets for the increasingly popular water closets. Thus began the concept of sewage disposal and treatment. River pollution is, apparently, not a new problem - the first legal attempts to control it date from 1388. For further information and a booking form, contact Jo Willis at Kew Bridge Steam Museum, Green Dragon Lane, Brentford, Middx. ☎ 0181 568 4757. Fax 0181 569 9978.

Explosive episode

The Royal Naval Cordite Factory Association is being launched on 23 May with a day held in association with the Centre for the History of Defence Electronics at Bournemouth University. It is a little known fact that Dorset was the site of a major explosives manufactory for over 50 years. Holton Heath, near Poole, opened in 1916 and eventually covered 500 acres of heathland. It was served by a narrow gauge railway with 14 miles of track and at its peak the factory employed several thousand people. The manufacture of cordite ceased in 1946 but other explosives continued to be produced until 1957. Much of the area today is a nature reserve, with the rest to be developed for industry, housing and recreational use. For details of the day, 'An Explosive Episode in Dorset', please contact Katherine Barker, Continuing Education Office, School of Conservation Sciences, Bournemouth University, Poole BH12 5BB. ☎ 01202 595516, fax 01202 595255.

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Short Notices

Bricks and Brickmaking, by Martin Hammond (Shire Publications Ltd, 1998) 32pp, 51 ills, £2.95 ISBN 0 7478 0067 7.

A reprint of the second edition of a handy book first published in 1981 as album number 75 in the popular and attractively priced Shire Album series.

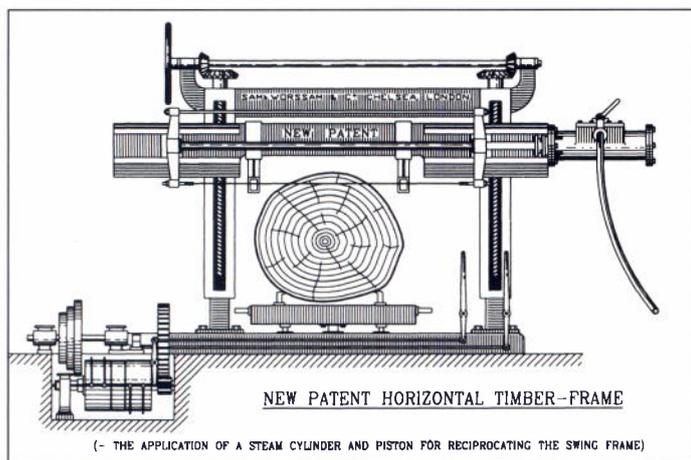
Raymond Rochette dessins (L'Imprimerie Buguet-Comptour à Mâcon, 1997) 64pp, 40 ills, ISBN 2-902535-11-2.

This is a catalogue of the works of the French artist Raymond Rochette which was staged at l'Ecomusée au Musée de l'Homme et de l'Industrie at Le Creusot from December 1997 to March 1998. The subjects are industrial workers, processes and machines.

The Heritage Atlas - 3: Warehouse Album (The Field Archaeology Centre, University of Manchester, 1997) 59pp, 64 ills, £3.50 ISBN 0 9527813 5 2.

A selection of 19 short contributions dealing with the origins of warehouses, their form and function and their development and research in the late twentieth century.

The Old Horizontal: An Almost Forgotten Reciprocating Log-saw, by John Hermiston (1995) 128pp, 70 ills, £12.75 plus £1p&p from Wycombe Local History & Chair Museum, Priory Avenue, High Wycombe, Bucks HP13 6PX.



A useful addition to the literature on frame saws, summarising three years' research into one type of horizontal reciprocating saw, in use throughout Great Britain for over a century and about which little is to be found in woodworking machinery literature. The book contains material relevant to the industrial archaeologist, such as types of saws, makers and their history, although it has been written primarily for the remaining horizontal frame saw owners, as well as industrial museums and libraries with particular interests in woodworking machinery.

The Sir William Arrol Collection (RCAHMS, 1998) 47pp, 28 ills, £3.00 ISBN 1 902419 00 6.

A guide published to assist access to the Scottish material within the Sir William Arrol Collection, whose varied and fragile nature render it unsuitable for free-range consultation in the National Monuments Record of Scotland. The catalogue is arranged primarily as a site-based gazetteer listing associated photographs, manuscript material and drawings together with published material deposited in the NMRS library. Sir William Arrol (1839-1913) was one of the great Victorian contracting engineers. Illustrations in the catalogue include huge dockyard cranes and bridges, among them steelwork for the Forth Road Bridge built by Arrol's firm in 1960.

Twyford Pumping Station, by Edwin Course (Twyford Waterworks Trust Ltd, 1997) 32pp, 16 ills, £5.00, ISBN 0 9532517 0 5.

An account of Twyford Waterworks based mainly on material held in the Southampton Record Office, the Cope Collection in the Hartley Library of Southampton University, the records of Southern Water Services and Twyford Waterworks Trust.

Local Society and other periodicals received

Abstracts will appear in *Industrial Archaeology Review*.

After the Storms, English Heritage, October 1997

IA: The Journal of the Society for Industrial Archaeology, Vol.23, No.1, 1997

BIAGscope (Newsletter of Berkshire IA Group) 37, Winter 1997/98

BIAS Journal (Bristol IA Society), 28 (1996) & 29 (1997)

Context, No.56, December 1997

English Heritage Annual Report & Accounts 1996/97

Focus on Industrial Archaeology (Southampton University IA Group), No.49, December 1997)

GLIAS Newsletter (London) No.174, February 1998

Grants 1996-97 by English Heritage

Historic Farm Buildings Group Newsletter, No.23 (June 1996), No.24 (January 1997) & No.25 (January 1998)

Institute of Historical Building Conservation News, 3, November 1997

Industrial Heritage, vol.16, No.1, Spring 1998

Journal of the Norfolk Industrial Archaeology Society, Vol.6, No.2, 1997

La revue, Musée des arts et métiers, No.19, June 1997

Modern Records Centre Information Bulletin, No.63, February 1998

The Mundling Stick (Newsletter of the Lion Salt Works Trust), Vol.3, No.4, Winter 1997; Vol.4, No.1, Spring 1998

Nottinghamshire Industrial Archaeology Society Journal, Vol.22, Part 2, October 1997

Panel for Historical Engineering Works Newsletter, No.76, December 1997

Scottish Industrial Heritage Society Bulletin, No.3, February 1998

Scottish Industrial Heritage Society Newsletter No.38, Winter 1997

Somerset Industrial Archaeology Bulletin, No.76, December 1997

Suffolk Industrial Archaeology Society Newsletter, No.61, January 1998

Sussex Industrial Archaeology Society Newsletter, No.97, January 1998

Sussex Industrial History, Issue 27, 1997

Trevithick Trust Newsletter, No.14, February 1998

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Scotland

The latest meeting of the Scottish Industrial Archaeology Panel (SIAP), held at the University of Glasgow on 19 March, continued to build on previous co-operation between organisations with a common interest in Scottish industrial heritage. Perhaps the most important initiative has been the production of a leaflet by SIAP designed to provide information on the many archives and organisations from whom help can be sought by those anxious not to dispose of or destroy industrial records. The information in the leaflet has already proved to be valuable, and was instrumental in helping Long Airdox transfer its huge archives relating to coal-mining machinery to the appropriate organisations.

Long Airdox's Flemington Electrical Works (originally Anderson Boyes of Motherwell) closed in March 1998 after 99 years pioneering the design and manufacture of mining machinery and associated electrical equipment. The company, whose production capacity is being moved by its American parent to Virginia, greatly assisted with survey work carried out by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS), and in addition to important archive material, has also donated an AM500 Longwall Cutter (35 tons and 40 feet long) to the Scottish Mining Museum at Lady Victoria Colliery.

A further closure in the Motherwell area has occurred with the transfer of Cummins Diesels engine-making capacity from their Shotts plant to Darlington, also in March. Shotts was the first plant to be built by Cummins outside Columbus, Ohio, and was developed in the 1950s by adapting a former textile mill. It was further expanded in the 1960s, and in 1980 when the factory received a design award. Throughout its existence, the plant regularly won productivity and research and development awards, and was at the forefront of the development of engines for new generations of railway passenger trains, such as 'Sprinters'.

On a more general note, the future of many historical industrial sites is likely to be influenced by recent changes in government policy which favour the development of 'brown-field' (often industrial) locations instead of the further consumption of 'green-field' sites. It remains to be seen if there is an increased flow of planning applications relating to important

industrial buildings in the coming months, both north and south of the Border.

Meanwhile, industrial heritage continues to generate considerable interest in Scotland. In November 1997, there was a well-attended Scottish Archaeological Forum one-day conference at Edinburgh University entitled 'Current Perspectives on Scottish Industrial Heritage'. More recently, the Scottish Industrial Heritage Society co-organised a conference on the 'Scottish Iron Trade', held in Falkirk on 14 March 1998, which proved to be a very rewarding day and was so popular that people had to be turned away.

So far, this has been a good year for Sir William Arrol, with the new funding from Railtrack ensuring that the maintenance of the Forth Bridge is gathering momentum. In addition, RCAHMS has now published its catalogue of the Scottish holdings of the Sir William Arrol Collection (available from RCAHMS for £3), and is preparing a bigger volume to cover the entire collection, which includes structures in the rest of the UK and overseas. On a rather less obvious note, it is also good

to hear of the large Lottery Grant award to Brighton's West Pier, Arrol having worked on its construction in his early days as an engineer.

Finally, the Scottish coal industry continues to attract attention, having been reduced to just one deep mine (the Longannet Complex) following the demolition of Monktonhall Colliery near Edinburgh, Scotland's last survivor from the 1960s 'super-pit' era. More encouraging, however, is the news that the Heritage Lottery Fund have awarded the Scottish Mining Museum at Lady Victoria Colliery a grant of £3.5 million, which will form the major funding behind a £4.8 million development plan.

Miles Oglethorpe

Greater London

There is now a definite policy nationally to develop brown-field sites for new buildings rather than encroach further on the countryside. In London, the effect will be most pronounced. Already we see almost every nook, generally until recently of industrial archaeology interest, having small houses, usually 'starter homes', crowded in by the builders. Inner-block housing, until

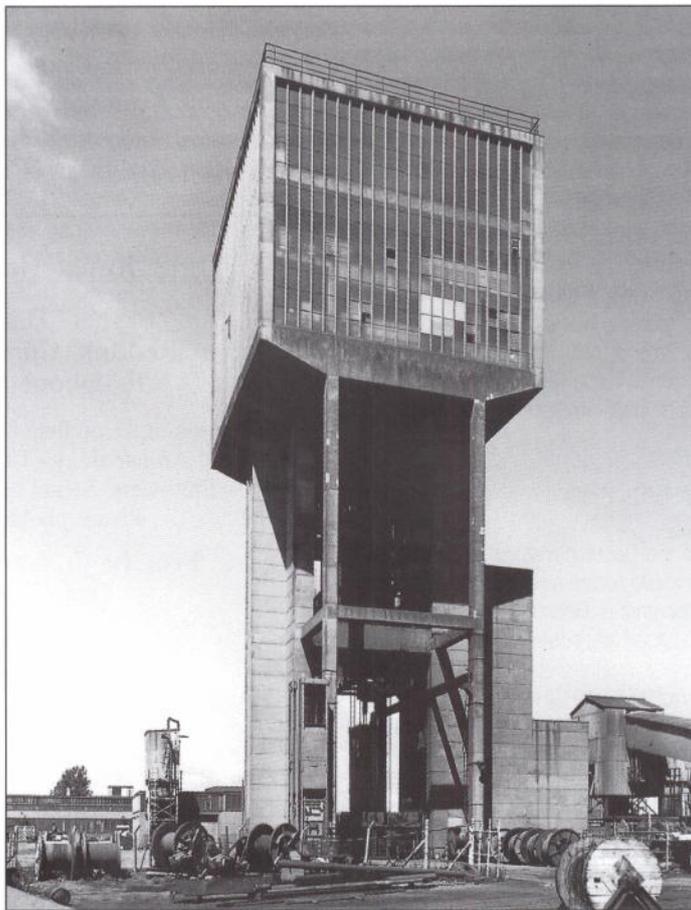
recently associated with mid-nineteenth-century Manchester or perhaps Ghent in Belgium, is becoming commonplace here and now.

We are very much in a Meat and Poison situation. One man's eyesore is another's industrial archaeology. Industrial archaeology as we know it, in the sense of looking at sites, is now likely to come to an end in the very near future and in 2000 plus the main legacy from the Victorian and Edwardian periods will be restricted to housing in cities like London.

Arsenal football ground at Highbury is closely hemmed in by good Victorian houses and the Club's desire to enlarge the ground is not popular with local residents who already find the huge and recently enlarged stadium overbearing (see *AIA Bulletin* vol.19 no.1 p13). A tall new North Stand was completed in 1993. The art deco entrance and East Stand in Avenell Road are listed. This eastern facade of 1936 is highly thought of in some architectural circles and has been compared with the railway station in Milan. It poses another problem for the Arsenal directors who also have their own football fans, the customers, to satisfy.

There is now quite a serious possibility that the Club will move to Wembley Stadium which offers a great deal more space. Arsenal might buy the stadium at Wembley which is due to be almost totally rebuilt in the next few years. However we again come up against the problem of listed buildings. The rebuilding at Wembley to provide twenty-first-century facilities, unlike the present ones which are redolent of the days of cloth cap supporters, will all but obliterate the famous stadium. Only the two white towers would remain. An alternative suggestion is that Arsenal should move to a new stadium to be built on derelict land to the north of King's Cross station. At one time a move back to Woolwich using land made available by the closure of the Arsenal was contemplated, but perhaps South East London is no longer fashionable enough for a major football club.

A rapid rail link which is nearing completion is that from Paddington station to Heathrow airport. New overhead electric trains are already running from London to Heathrow Junction and in the summer of 1998 should start using the tunnel beneath part of the airport direct to the airport terminals. To construct this new railway something had to go and in this case it was derelict land which remained from



No. 1 shaft winding tower, Monktonhall Colliery, Midlothian, demolished in January 1998. This was the last of the super-pits opened in 1965 during the nationalised era. Output finally ceased in 1997
 Photo: RCAHMS



The eastern stand of Arsenal football ground, said to resemble the pre World War II Milan railway station
Photo: R.J.M. Carr

brickmaking in the nineteenth century. A canal relic which was obliterated, near where the new line turns south off Brunel's old GWR main line, was Broad's Dock or Pocock's Dock, situated on the south side of the Grand Junction Canal main line. Brickmaking was common throughout the area in mid-Victorian times and there was quite a network of minor canals associated with this industry. By 1900 not much remained and the brick transporting canals no longer show on recent editions of the Ordnance Survey.

Brunel and Wyatt's Paddington station, listed Grade I, is being knocked about a bit to improve facilities for the new airport passengers. It will become possible for airline passengers flying from Heathrow to check in baggage at Paddington and thus have a more comfortable time from then on. It is being stressed that the new work at Paddington is respecting the original design of the station and the rail link is being promoted along the lines of realising I K Brunel's dream of the 1830s that a journey from London to New York would commence at Paddington railway station. From an industrial archaeological point of view the new trains will connect Paddington Station, which is listed, and the 1950s

airport control tower, which enthusiasts for the period would like to see listed. It is already on the local list.

The formation in January this year of a Greenwich Industrial History Society is reported on elsewhere in this issue. On the Greenwich Marshes near Blackwall Point the gigantic Millennium Dome is taking shape. While not yet industrial archaeology, the building will be redundant in three years time and no doubt the question of adaptive reuse will then arise. We do not have long to wait. The area was until recently dominated by the former South Metropolitan gasworks, the second largest in Greater London and the southern counterpart of Beckton on the north bank of the Thames. The Greenwich Industrial History Society intend to produce a book on the industrial archaeology of the Greenwich Marshes for sale during the Millennium celebration period. There used to be a big dry dock at Blackwall Point, in use for ship repair until the 1920s, and a large commercial wet dock on the Marshes was planned in Victorian times but nothing came of it. The Marshes were also the site of the infamous explosion of a Trevithick high pressure boiler in 1803.

Robert Carr

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For further details, contact the Editor.



16 May 1998**EMIAAC 55**

at Loughborough Grammar School, Loughborough, East Midlands Industrial Archaeology Conference, entitled 'Leicester's Water Supply: I'll Drink to That...!' Lectures and afternoon visits. For details, send SAE to Mark Sissons, 1 Far Coton, Market Bosworth, Nuneaton, Warwickshire CV13 0PJ.

15-17 May 1998**NAMHO FIELD MEET '98**

at Nenthead, Cumbria, with surface and underground field visits. Details from Sheila Barker, The Rise, Alston, Cumbria CA9 3DB.

7-17 June 1998**MILLS TOUR OF CYCLADIC ISLANDS**

wind and water mills of Greek islands of Andros, Mykonos, Paros and Tinos. Details from Alan Gifford ☎ 01283 702299, or full itinerary and booking details from Island Holidays ☎ 01764 670107.

13 June 1998**EAST OF ENGLAND REGION IA CONFERENCE**

at Bury St Edmunds, lectures with field visit. Booking forms and further details

from Mrs B. Taylor, Crown House, Horsham St Faiths, Norwich NR10 3JJ.

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mining study tour, with discount for AIA members. Full details from Atalaya Tours Ltd, Ceinionfa, Capel Dewi, Aberystwyth SY23 3HR. ☎/Fax 01970 828989.

**25-26 June 1998
CONFERENCE ON THE HISTORY OF SCIENCE AND TECHNOLOGY IN EDUCATION AND TRAINING IN EUROPE**

at the European Parliament, Strasbourg, to review the role of the history of science and technology in education and training. Details from Prof Claude Debru, Centre Européen d'Histoire de la Médecine, Faculté de Médecine, 4 rue Kirschleger, 67085 Strasbourg Cedex, France, Fax 33 3 88 24 33 01.

**26-27 June 1998
SHIP DATABASE WORKSHOP**

at Newcastle University, an opportunity for developers and users of ship databases (ships built, types, wrecks,

etc) to meet and discuss. Contact Dr I.L. Buxton, Department of Marine Technology, University of Newcastle, Newcastle upon Tyne NE1 7RU.

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**23-26 August 1998
STEAM AND WATER IN THE WEST COUNTRY**

at Dillington House, Ilminster, course on canals, drainage, pumping, nuclear power and railways, mainly in Somerset. For details, contact Denise Borer, Dillington House, Ilminster, Somerset TA19 9DT. ☎ 01460 52427.

**2-3 September 1998
CORNWALL WITH THE AIA**

at Camborne School of Mines, an opportunity to spend two extra days even further west before the AIA Conference. For details, send SAE to Paul Saulter, 10 Coach Lane, Redruth, Cornwall TR15 2TP.

**4-11 September 1998
AIA ANNUAL CONFERENCE 1998**

at Seale Hayne Agricultural College, near Newton Abbot, Devon. Friday seminar and weekend conference followed by programme of field visits and evening lectures. Booking forms and information from David Alderton, 48 Quay Street, Halesworth, Suffolk IP19 8EY.

**10-13 September 1998
INTERNATIONAL EARLY RAILWAYS CONFERENCE**

at St John's College, Durham. Sponsored by Beamish Museum, The Newcomen Society, The Locomotion Trust and the Institute of Railway Studies. Enquiries to NEEHI (Railway Conference), Department of History, 43 North Bailey, Durham, DH1 3EX. ☎ 0191 374 2013

**11-13 September 1998
CULTURAL HERITAGE OF THE INDUSTRIAL PERIOD**

at Stockholm and Norrköping, Sweden, international seminar on the cultural heritage of the industrial period. For information, contact Inger Jonsson, Head of Research Department, Museum of Work, Laxholmen, S-602 21 Norrköping, Sweden.

☎ +46 11 189800, Fax +46 11 182290

**10 October 1998
WATERWAYS HISTORY CONFERENCE**

at Birmingham Central Library, to build on last year's successful conference in Manchester. Details from Tony Conder, National Waterways Museum, Llanthony Warehouse, Gloucester Docks, Gloucester GL1 2EH.

☎ 01452 318054.

Information for the diary should be sent directly to the Editor as soon as it is available. Dates of mailing and last dates for receipt of copy are given below. Items will normally appear in successive issues up to the date of the event.

**INDUSTRIAL ARCHAEOLOGY NEWS**

(formerly AIA Bulletin ISSN 0309-0051)
ISSN 1354-1455

Editor: Dr Peter Stanier

Published by the Association for Industrial Archaeology. Contributions should be sent to the Editor, Dr Peter Stanier, 49 Breach Lane, Shaftesbury, Dorset SP7 8LF. News and press releases may be sent to the Editor or the appropriate AIA Regional Correspondents. The Editor may be telephoned on 01747 854707.

Final copy dates are as follows:

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



The water tower of Battersby's Hat Works, Hemshaw Lane, Stockport, rebuilt after a fire in 1906 (see page 6)
Photo: Roger Holden