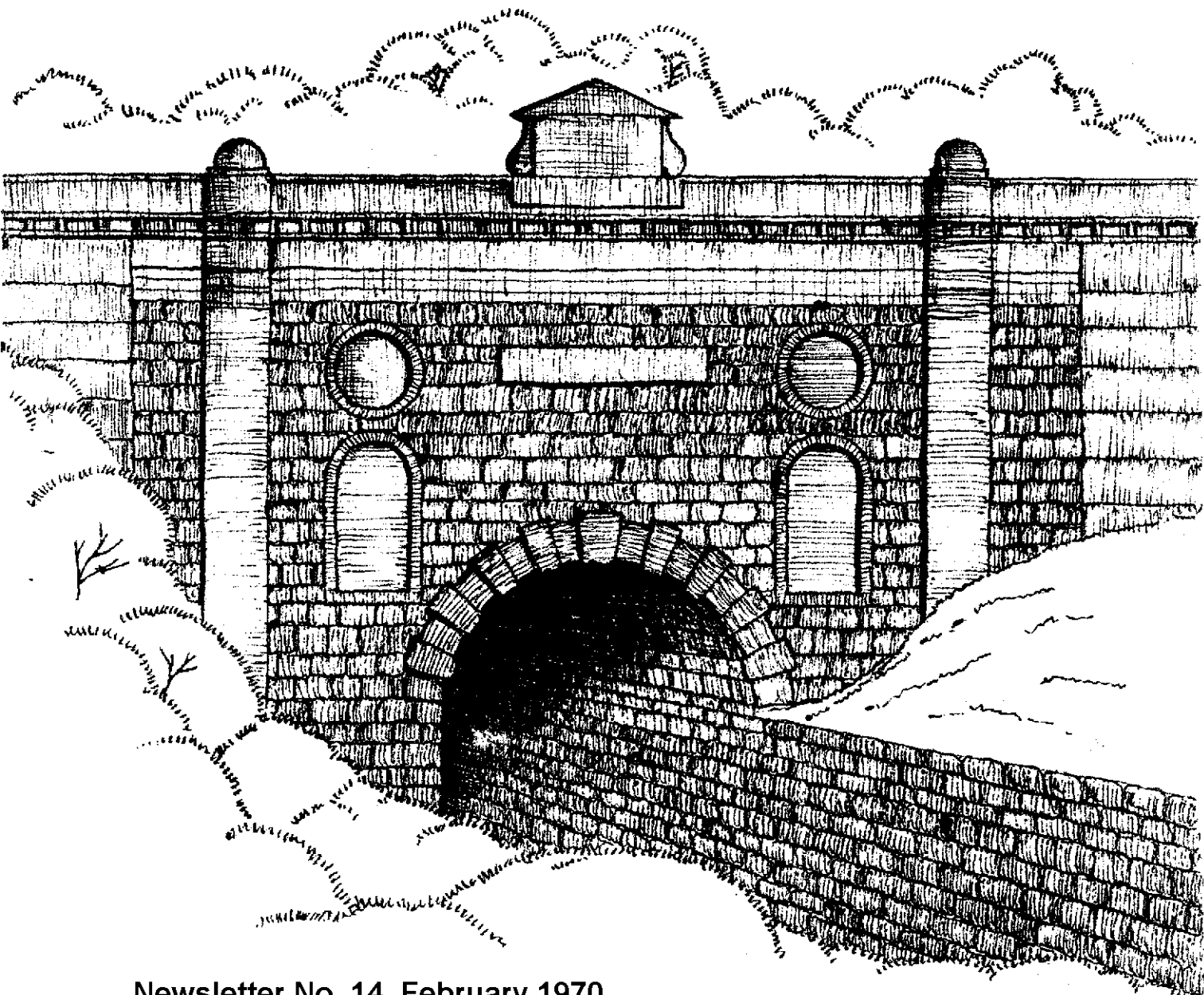


THE NEWSLETTER OF
THE GLOUCESTERSHIRE
SOCIETY FOR
INDUSTRIAL ARCHAEOLOGY



Newsletter No. 14 February 1970

GLOUCESTERSHIRE SOCIETY FOR INDUSTRIAL ARCHAEOLOGY.

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Editorial.

One has only to look at the number of reviews in this issue to realise that this has been a record year for new books recording industrial archaeology in this county. First published was the volume on the Industrial Archaeology of the Bristol Region; then David Bick's work on the Gloucester and Cheltenham Railway, and finally both a booklet and a book on the Thames and Severn Canal. At the same time work is proceeding on our own gazeteer and books on the Forest of Dean and Stroudwater Canal, so one feels that Gloucestershire is now in the forefront regarding published material.

To keep the county in this position I should like to make a plea that all the results of research and fieldwork are published as a book, booklet, article in a journal or in our own Newsletter. But first of all inform everyone when you are carrying out research on a particular subject; this serves the double purpose of trying to prevent duplication and also of attracting further information to add to your own. Sheets of unpublished notes lying on a shelf do not help anyone.

With regard to this Newsletter, members who attended the Annual General Meeting will already know that, due to increasing pressure of work, I have decided to hand over the editorship and Mr. Savory, a member of your Committee, has kindly offered to take on the work. I should like to thank everyone who has helped me in any way during these last six years and am sure that members will continue to support your new Editor. Also I consider that it is now time that a change should be made in the format and, as the possibility of including photographs is now being investigated. I am sure future Newsletters will have a new and improved look.

The Editorial does not necessarily express the views of the Committee. Due acknowledgement should be given by anyone publishing an article, or part of an article, included in this Newsletter.

Contributions and letters for the next issue will be welcome and should be sent to :-

Hon. Editor. G.S.I.A. Newsletter.

Gloucestershire Society for
Industrial Archaeology
Newsletter No. 14 February 1970

M.J. Savory
19, Miserden Road,
Cheltenham.

Canal Records from Gloucester Docks

Two years ago, when members of the Society were removing the pumping engine which used to supply the Canal at Gloucester Docks, they discovered a large quantity of old papers and volumes in the engine house, lying in an extremely dusty and confused state. These records were given a preliminary sorting by Harry Townley and subsequently deposited at the County Records Office by the British Waterways Board.

The collection, which included many heavy ledgers and boxes of correspondence, overflowed round the strongrooms of the Records Office and occupied several months in vacuum cleaning and dusting, but has now been arranged and is available for consultation.

The major portion of the documents relate to the Severn Commission, which administered the river from Gloucester to Stourport. Established in 1842, the Commission carried out various engineering works to improve the river, building locks at Maisemore, Llanthony and further up the Severn. It continued to administer the river until 1948. The collection includes many parliamentary papers, with informative minutes of evidence, in connection with the various Acts which allowed the building of locks, cuts, and other improvements. There are also nearly eighty parliamentary Bills of other projected canals and railways, together with reports giving the reaction of the Commissioners to them. Usually the Commissioners filed an objection, even though it might appear that many of the schemes would not have affected them directly. They had the gravest misgivings about the Great Eastern Railway and the Northampton and Banbury Junction Railway!

The Commission's records include some interesting old printed notices of tolls and bye-laws, and files of newspaper cuttings about their work. There are also useful printed minutes and accounts, together with a good series of letter books from the Clerk's office. It is, however, on the engineering side that the collection is of the greatest interest, for it includes a number of reports, estimates and plans relating to the improvements which the Commission carried out. From 1879 onwards, when H. J. Marten was appointed Engineer, an increasing number of records survives, and there are quarterly reports on the state of the navigation as well as many files on particular engineering works. For the earlier period, there is an interesting volume of reports by Marten's predecessor, E. Leader Williams, which relates to various undertakings with which he was connected, as well as to the Severn. Another useful volume contains the accounts of the building of the Upper Lode Lock at Tewkesbury in 1856.

Apart from the archives of the Severn Commission, there is a number of ledgers and other not very inspiring volumes from the Sharpness Canal and some of the narrow canals. Most of these date from only a few years before nationalisation, but there are four interesting port books recording the arrival and departure of sea-borne vessels at Gloucester, with details of their cargoes, 1937-48. Another item is a file of correspondence connected with the journey of the monkey boat Westminster from Newbury to Bristol in 1948,

which reveals clearly the poor state of the Kennet and Avon in its last years as a commercial waterway.

While many of these records are of interest and are now readily available for research, it must be admitted that there are notable gaps in the collection, particularly in regard to traffic returns and statistics. A full study of the Severn Commission would also require research at the British Transport, Historical Record Office, 66 Porchester Road, London, where the signed minutes and other important series of documents were taken some years ago.

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14.8.69.

Dear Editor,

Following the second successful G.S.I.A. visit to the Birmingham canals, I should be most grateful if you could publish an appeal to the following effect in the next edition of the "Newsletter".

As a member of the B.C.N. Society, I have been requested to assist with the compilation of a comprehensive record of B.C.N. architectural and engineering works, as a prelude to the preparation of a book on the subject.

Since most of the B.C.N. network is at present under threat of closure, this project is a matter of some urgency, and I should appreciate any offers of assistance with this work, which, it is hoped, will initially be carried out on the standard Council for British Archaeology record cards, with additional information where necessary.

Photographs, drawings, and other details of structures, basins and canals now obliterated would also be greatly appreciated, and in particular anything concerning canal/railway interchange basins and the octagonal toll offices.

Any material would be treated with utmost respect and any costs incurred would be repaid in full. My address is, Templeway, Lydney, Glos., GL15 5HU.

Some Textile Machinery Makers of Stroud

It is interesting that the great flow of textile machinery inventions in the 18th Century came, not from men used to designing or building similar machines but from Kay, a clockmaker, Hargreaves a weaver-carpenter, Arkwright a barber, Crompton another weaver who improved the spinning process, and Cartwright a clergyman. J. H. Clapham wrote, "The early wooden textile machinery was made by the men who used it, or directly to their order, by mechanics of many kinds, loom-makers, clockmakers, cabinet-makers, instrument makers". There was, indeed, no category of workers who could, in the last quarter of the century, be described as textile machinery makers. The relative unsophistication of much of the equipment meant that it was capable of production, partly by the carpenter who could put his hand to a loom frame as readily as to a chest or a roof-truss, partly by the cabinet maker whose skill produced the more delicate detail of the spinning wheel. Of the loom Duncan Bythel writes, "The materials used in its construction were easily obtained, and the mechanical principles on which it worked were primitive. In the mid-eighteenth century all the cloth produced in England, with the exception of certain articles in the small-ware trade, was woven on a wooden loom consisting of four uprights joined together by crosspieces at top and bottom to form the framework of a box. A wooden roller or beam was placed between the uprights at either end of the loom Two devices were added to the simple structure of the loom the healds were operated by means of foot treadles which raised and lowered the alternate warp threads (and) the lathe, which hung pendulum-like from the top of the loom (and) provided the bed along which the shuttle ran and enabled the weaver to beat each weft thread against the edge or 'feel' of the cloth already woven". (1)

The loom, with the exception of the healds and lathe which were basically hand made items, was thus easily within the competence of any joiner.

The growing complexity of machinery, as refinements followed the classic inventions, the problems of equipping mills of ever increasing size, and the growing use of iron as the material of construction, brought about the rise of specialised machinery makers working to their own standardised designs; a group of men who built up businesses which in several cases continued as engineering firms long after their textile interest had declined to nothing.

The cloth industry of the Stroud valleys, the careers of individual clothiers, the history of particular mills, have long been the subject of study, but the rise of the machine makers whose machinery filled those mills, and produced the cloth, who laid the foundations of the district's current major industry, engineering, has received little attention. This paper outlines the work of the major producers of cloth machinery in the Stroud valleys.

It has been pointed out by Clapham that "by 1820-30 the professional purveyor of machines, made with the help of other machines, was just coming into use", in London and Lancashire. This was equally true of the Stroud valleys. A directory of 1820, for example, lists besides seven millwrights working in the area, four machine makers, Henry Hall of Lower Street, Stroud; John Price of Acre Edge, Stroud; Samuel Ogden of Minchinhampton and John Hardy of Painswick. A descriptive poem published by William Lawrence in 1824 says,

"Machines for manufacturing woollen yarn
Are made by men of an ingenious turn
Whose residence in Stroud commands respect"

Clearly machine making was a prosperous business. At the same time the lines indicate one feature of the local machine industry, that the emphasis in the early years was largely on machines for the carding and spinning processes. There was, in addition an important element of finishing machinery involved, but weaving was almost unrepresented. This, of course, follows the way in which the factory production of cloth developed.

The early mills were concerned, as manufacturing centres, with cloth finishing only. A typical mill description, in a mortgage of 1782 for Lightpill Mill, describes, "the Mansion House, the Gardens and Orchards, one Dyeing House and one Fulling Mill containing Two Stocks, and a Gig Mill". During the next few years the spinning processes moved into the mills, though not always with power-driven machinery, so that an advertisement offering Dudbridge Mill on lease in 1790 mentions "spinning jenny lofts, scribbling shops, stove, dyehouse,..... with a large roomy cloth mill adjoining consisting of a whole-stock, a half-stock and gig mill well supplied with water and a very good shear shop over".

The machinery in Lightpill Mill in 1811 was listed in an inventory and included:-

2	24" Carding Engines
2	24" Scribbling Engines
1	36" Scribbling Engine
1	80 spindle Billy
1	80 spindle Jock
1	60 spindle Jock
3	80 spindle Jennies
4	70 spindle Jennies

and, of course, stocks and gigs, and when Dudbridge Mill came on the market again in 1827 one building was described as a "Machinery Mill!"

Thus the prime demand from the mills as they expanded was for carding and spinning machinery; stocks they already had, while the invention of the rotary shearing machine led to a demand for these; but weaving, still predominantly a cottage industry even in 1840, presented no market for the rising machine makers and the number of local loom inventions, up to at least 1852, was negligible.

The earliest of these machine makers, and one of the most important, was Stephen Price. In 1807, in conjunction with Isaac Sandford of Gloucester, he patented a rotary gig, the severity of the brushing action being adjustable by raising or lowering hinged strips set between the banks of wire brushes, then in 1815 he obtained a patent for a helical bladed shearing machine only days after Lewis' similar patent.

Price's production was not limited to machines he had patented for as early as 1804 an advertisement in the Gloucester Journal concerning a mill sale in Dursley included in the contents "a 24" Carding Engine with Doffers for Scribbling (Price's made)". Another advertisement in 1814 refers to a scribbling engine for sale on his premises, while advertisements in 1820 for the sale of the contents of various mills mention scribbling and carding engines of 24" to 36" size. The sale of thirteen such machines in three mills, listed in one issue of the Gloucester Journal implies that these machines were quite numerous.

On Stephen Price's death early in 1820 the entire contents of his manufactory were advertised for sale and the extent of his production may be gauged from the fact that the sale was scheduled to occupy four days. It is equally clear that much of his machinery was of wooden construction, while it is likely that in addition to making machines he traded as a timber merchant, a combination not unusual, both John Hardy and later John Bucknall advertising themselves as machine makers and dealers in timber.

Besides large quantities of mahogany, veneers, crabtree planks, chestnut, oak, lime and beech the sale included four new 24" carding engines, several secondhand cards, four new 24" scribblers, a new willey, a new shearing machine and a new gig both to Price's patents, and a new cloth press "with wrought iron sides and cast iron top and bottom".

The working stock included 19 stone of wire, 140 sheets of tin plate, 19 steel plates, 77 cwt. of bar and hoop iron. Of equipment the list included in addition to a steam engine of unspecified size, two circular saws, anvils, forges, vices, grindstones "and other tools". The situation of Price's factory high in the town and far from the stream points the need for his steam engine to drive his circular saws and grindstones, while the absence of any mention of lathes or drilling machinery reinforces the belief that little or no machining was carried on.

The conclusion of the notice states that "from the unrivalled skill and abilities of the person by whom these machines were invented and under whose direction they were made, no comment will be deemed necessary to increase their value in the estimation of an enlightened public".

Despite the notice of the sale, Price's business appears to have passed to his son John, who from 1820 worked as an 'ironfounder, machine maker, timber, mahogany and iron merchant' in what was variously described as Acre Edge, Chapel Street and 'Price's Works', until 1848. By 1851 'Price's Works' were occupied by John Bucknall.

One cannot, after 1820, differentiate between machines built by the two Price's as they appear in various mill sales, but it is likely that John Price continued making the same types of machines as his father and also extended the range. A letter dated 1845 says "I rather think the price of a new Willey by Mr. John Price of Stroud is £30", and sale notices refer frequently to 200 spindle mules and mention wool beaters 'by Price'. One reference to a 210 spindle mule 'on Price's principle' probably refers to the incorporation of John Price's only patent No. 4995 of 1824, while the constant reference to items by Price in almost every mill sale up to and even after 1870 indicates a substantial output of machines.

On his retirement in 1848 John Price sold the contents of his workshops and let the premises, house and paddock, an area of some two acres. In contrast to the previous description of the equipment in 1820, there had been a marked shift of emphasis to metal working. The foundry included a large crane and an 'extensive variety of machines, mule and other patterns'. There were seven turning lathes in addition to the contents of the smithy, but timber still played its part there being an extensive assortment of mahogany boards and 'a large quantity of mahogany staves glued up for cylinders and workers'. There was a stock of several tons of wrought iron and two new machines were included in the sale, a 40" scribbling engine and a 200 spindle mule.

John Bucknell followed Price in the premises and his first advertisements describe him as a millwright, engineer, machinist, and dealer in timber. In 1852 he re-opened the foundry on the premises and was, shortly afterwards, describing himself as an engineer, millwright, machine maker, iron and brass founder and was taking on turning, boring and planing. In addition he produced a range of steam engines up to 12 HP. After three years in the old Price's Works Bucknell moved in 1854 to the canal side foundry in Dudbridge, presumably taking over the equipment there as he sold from his Acre Edge works two steam engines of 24 and 4 HP. drilling and planing machines by Nasmyth and 8' and 6' lathes. It would appear that he had continued to produce some textile machinery as the sale included a new 40" 6-top scribbler and 40" grinders. It is equally apparent that the transition from wooden machines to iron was complete. Until 1851 timber had been an important part of this business, by 1854 it had vanished, the work was engineering and the tools machine tools. Bucknell's successors in Acre Edge are unknown and some ten years after his removal from the site the works were demolished in 1865.

By 1848 the business was in the name of John Ferrabee and Sons and after his retirement in 1852 as J. and H. Ferrabee. Henry Ferrabee left the business in 1855 and James Ferrabee continued alone. John, who died in 1853 is buried in Old Chapel churchyard Stroud, an engineer to the end, his tomb describing him as "of the Phoenix Ironworks, Thrupp

Under the sole control of James Ferrabee the policy of mixed engineering continued and steam engines became an important product, one being shown in the International Exhibition of 1862. James' most important textile machinery inventions were his fulling machine of 1861 and his card feed of 1858 which the Official Report of the 1862 Exhibition described as 'undoubtedly the best feed hitherto invented', a conveyor belt carrying the fleece from one card and clapping it transversely across the belt feed to the second.

In 1863 Thrupp Mill, long since known as the Phoenix Ironworks, was leased to George Wailes & Co. and Ferrabee moved to Port Mill, Brimscombe where he combined engineering with cloth manufacture, besides being active in local Liberal politics and holding the honorary position of Surveyor of Lower Lypiatt Tything, a post which made him responsible for the local roads.

A combination of fire and other misfortunes bankrupted Ferrabee in 1866 after which he worked as a consultant engineer till his death in 1873 at the early age of 54. One of his last commissions was to design the new Lodgemoor Mills after their destruction by fire in 1871. These buildings in blue, yellow and red brick comprise his most notable memorial.

In addition to shearing machines, dressing machines, fullers, card feeds and cloth presses local advertisements of mill sales mention 200 spindle mules and grinding machines for cards made by the Ferrabees.

George Wailes & Co. who followed Ferrabee at the Phoenix Ironworks continued much the same business and by 1876 George Waller, the then occupier was advertising fullers, rag engines, shearing machines and "every description of woollen machinery", and in another notice "Cloth, Silk, Shoddy, Flour Mills and Breweries etc. fitted", though over the years the cloth interest declined and the firm today has no textile machinery in its range of products.

During the same year that John Ferrabee took the lease of Thrupp Mill, 1828, new occupants moved in to Dudbridge Mill on the other side of Stroud. The property, comprising "a good Dwelling House, walled garden, Stock Mill, Gig Mill and Machinery Mill (4 Water Wheels)", was occupied by John Apperly. On his death his sons David and James took control but by the 1850's James appears to have turned his attention primarily to the development and production of cloth machinery, though he never described himself as other than a cloth manufacturer. From 1856 a steady stream of patents was granted to Apperly, though whenever mechanical detail was involved, rather than a general principle, his employee, William Clissold, was named as co-patentee. Apparently Apperly's skill did not run to solving the

mechanical problems raised by his ideas. These patents concentrated principally on the carding engine, the most important being No. 2874 of 1856 which described the Apperly Card Feed.

To obtain the maximum benefit from these patents Apperly established the Dudbridge Patent Machine Works in about 1858 and an advertisement of 1863 lists carding engines, machines for condensing yarn, doffers, oilers, shawl fringe twisting machines and water wheel regulators as his products and at the 1862 Exhibition the Apperly Feed was displayed on the carding engines of Platt Bros.

Stephen Price's patent for a rotary shearing machine was preceded by a matter of days by John Lewis' similar patent, both incorporating the device of a helical bladed cylinder though neither claimed originality for this, the patents differing in the methods adopted for pressing the cloth against the blade and for protecting the lists.

William Lawrence wrote, of Brimscombe,

"Near this, a factory stands of great extent
Where someone did a new machine invent
Instead of shears to cut or shave the cloth".

John Lewis was a clothier working Brimscombe Upper and Lower Mills and there is no evidence that he ever manufactured his shearing machine himself, his name never appearing in any list of machine makers or ironworkers. From the start the Lewis shearing machine was built for him by local engineers, and as a few years later the Ferrabees were doing this work it is probable that they were responsible for manufacture from the start. The Lewis's, John and William, were the sons of Joseph Lewis a corn miller and between 1815 and 1838 were responsible for some nine patents, all concerned with the cloth finishing processes. John, in addition to the shearing machine patent of 1815 had four patents in conjunction with his brother and William Davis for gig mills, polishing the face of cloth and modification to the shearing machine. William developed adjustable racks for drying cloth and a fulling machine, then in 1836 patented another gig mill, to be followed in 1838 by yet another, this time in conjunction with John Ferrabee.

The Ferrabee business ran for over a century through four generations. William Ferrabee moved to Stroud from Owlpen and worked with Butt a local blacksmith. In 1741 he married Butt's daughter and their son Edward (1747-1829) continued the business and there is some evidence that by 1770 he was working as a millwright in Thrupp Mill. Certainly a deed of 1792 mentions a foundry and workshop there, despite the mills main concern with cloth manufacture. An advertisement for the letting of Thrupp Mill in the Gloucester Journal of January 5th 1828, however, gives no mention of any activity on the site other than cloth making, and until after this date there is no positive evidence of machine manufacture by the Ferrabees'. It must be surmised that if Edward and John Ferrabee were working in Thrupp Mill before 1828 it was as employees of the

clothier Samuel Wathen rather than as independant manufacturers of machinery. How this is reconciled with the production of Lewis's shearing machine has not yet been determined.

John Ferrabee (1788-1853), the third of the line, expanded the business, his lease of Thrupp Mill in 1828 showing that he was turning the whole premises to engineering, a dwelling house and wet wool house being demolished, two water wheels and stocks being removed, the press house being made into a dwelling and a foundry being erected at the east end of the site.

At no time does the Ferrabee business appear to have depended solely on cloth machinery. Apart from the Lewis cutter the works were heavily engaged in agricultural machinery. The local newspaper advertised clod-crushers built by Ferrabee in 1837 and in 1847 a special catalogue was produced in connection with the Royal Agricultural Show. In 1830 one of Ferrabee's employees, Edwin Budding adapted the principle of the shearing machine to produce the lawn mower and with Ferrabee's help took out a patent on it. His employer purchased the patent rights and manufactured the mower in a range of sizes, modifying the design in later patents. Several thousands of these mowers were built in Ferrabee's works.

John Ferrabee was responsible for three-textile machinery patents, firstly a dressing machine in 1830 in which the teazle brushes were carried on endless belts across the width of the cloth, then eight years later, with William Lewis, he patented a rotary dressing machine. In 1836, in conjunction with Richard Clayburn, a consulting engineer, he took out one of the comparatively rare local patents for a loom drive.

It is tempting to look for a connection between John Bucknall's arrival at the Dudbridge Foundry in 1854 and the sudden development of Apperly's engineering interests. The foundry was on the edge of the land held by the Apperly's and there are no directory references to Dudbridge Foundry after the Patent Machine Works were established. The Price and Bucknall businesses had been heavily involved with carding machinery and Apperly's work was almost all in this same field. Bucknall moved to Dudbridge late in 1854, eighteen months later the first Apperly designs were forthcoming. No connection has been established as yet but the possibility of a link appears strong.

By 1876 the business had been acquired by four partners under the name of Cooke Vick and Company, who continued the specialisation in textile machinery. A trade card of unknown date suggests that the range of textile plant had been extended, listing:-

Carding Engines	Grinders Recovered
Carding Engine Turning Rests	Roping Machines
Turned Iron Doffers of All Sizes	Fulling ditto
Diagonal and other Feeding Machines	Washers
Condensers and Spools for ditto	Gig Mills
Engine Chain of Various Sizes	Indigo ditto
Grinding Machines for Carding Engines	Argol Grinding ditto

Woolen Shawl Fringe Twisting Machines
Clissold's V-Pulleys & Bevel-edged link driving belts
Clissold's Patent Equaliser for Carding Engines
Shafting, Plummer Blocks and Pulleys
Steam Engines

The Cooke Vick works, which continued to use the name of The Dudbridge Patent Machine Works was by 1879 known as Vick Lydiard & Co., Cooke having died and Lydiard, the third of the original partners having added his name to the company's title. The premises would appear to have been those marked on the 1881 O.S map as the Machine Works, lying between the old course of the Nailsworth stream and the flour mill, incorporating the old clothier's house of the Fowlers. Playne in an essay on "Old House near Stroud" notes 'There is a good specimen of the old style of cloth manufacturers house near the main stream at Dudbridge now occupied by Mr. Lydiard of the engineering firm carrying on the manufacture of machinery there'.

In 1891 the business was acquired by J. D. Humpidge, H. Theo Humpidge and G. E. Snoxell, who had an engineering business in Gloucester. J. D. Humpidge was a designer of gas engines and it seems that the Dudbridge Factory was turned entirely over to their production, an adjoining firm, H. G. Holborow & Co., steam engine manufacturers, being taken over in 1894. In 1899 the company, after a brief period as Humpidge and Holborow, was renamed the Dudbridge Ironworks. Although this firm continued until 1925 the connection with cloth machinery was entirely broken and its relevance to this history ceases. It is perhaps worth noting that a directory of 1876 described H. G. Holborow & Co. as cloth machinery makers. This single reference is the only evidence of any association with this trade, their advertisements making no allusion to it whatever. One must conclude that the directory compilers had confused them with Cooke Vick & Co. on the neighbouring site and that Holborow's business was confined to ironfounding and steam engine manufacture.

The three works described, Price's, Phoenix Ironworks and the Dudbridge Patent Machine Works were the three most prominent centres of textile machinery manufacture in the Stroud area. There were many inventors, both in the mills and outside, some of whose ideas saw realisation, there were other engineering firms who built machines, but never, it would seem, on the same scale as those mentioned and today the manufacture of cloth machinery is dead in the Stroud valleys. The era is over, an era important in that it laid the foundations of engineering in the district.

One must ask what remains of the work of these pioneers. Of Price's machinery, nothing that is identifiable so far as is known, though one is not without hope that some of the small rural mills particularly in South Wales, may yet yield some examples. From the Phoenix Ironworks several fulling machines bearing the plate of J. & H. Ferrabee survive in Stanley Mill and a Lewis cutter, much modified, is preserved in the Esgair Moel mill in the Welsh Folk Museum, as is an Apperly feed.

It is important that a search be made for other examples so that they may at least be recorded in detail and, if possible, preserved. Should a Gloucestershire Industrial Museum ever be established the cloth industry would form a vital part, and the machinery displayed should be that made locally, part of the history of two industries, cloth and engineering.

R. L. Rose

Stone Mines in the Cotswolds

An intensive field-work survey has been started by a small group of members. The intention is to obtain as much practical knowledge of the stone mines in the area as possible.

Although only two excursions have so far been made, the group has been able to explore a number of mines, whose existence was hitherto not definitely established. It has also found one where stone is still being extracted and some of the methods are decidedly novel by local standards. Various tools have already been found in one of the mines which had apparently not been entered for many years. Interviews with local inhabitants are providing an invaluable source of information, both as regards sites of the mines, methods of working, ownership and various other matters.

It is becoming fairly clear that far more mining has been conducted in the Stroud area than is generally supposed. This is to be expected as there are very few large open quarries in relation to the large amount of stone which has been used in domestic and industrial buildings in the area.

It is intended to publish a definitive account of the Cotswold stone mining industry when the group has completed its current programme of field work and historical research. A number of interesting new discoveries have already come to light, although it would be premature to say too much about them at present, as they have not yet been assessed.

Harry Trwnley

David Bick

An Atmospheric Engine House in Gloucestershire

Recently I promised the Editor an article for this Newsletter on the supposed discovery of an eighteenth century Newcomen atmospheric engine house in Gloucestershire. Now, the picture looks much less certain but having committed myself, here is a somewhat discussive account of the whole business, so far as it goes, which will at least serve to warn against the dangers of a hasty judgement.

To begin with, a little must be said respecting beam engines and their development for mine pumping. After Newcomen invented the first practical steam (or atmospheric) engine about 1712, the original layout of a vertical cylinder connected to the mine pumphods via a massive rocking beam continued in fashion almost exclusively until the 1880's when more modern pumping methods began to appear.

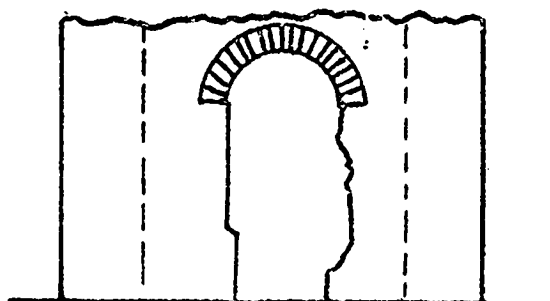
The Watt improvement of a separate condenser and the later Cornish modifications of the original concept did not alter the basic configuration. However, Watt and Cornish engine houses though similar to each other in most features, differ in certain respects from the Newcomen buildings. Before 1790, these were very tall because the cylinder was fixed above the boiler. Afterwards, with the boiler alongside in a 'lean to', the cylinder could be bolted directly to the engine house floor. The other important differences between Newcomen and later engine houses arose from the latter having to cater for the separate condenser. The wall supporting the bob (beam) invariably contained a narrow but high opening, rising from below ground level, and containing a door below which ran the pipes to the outside condenser. Also, between the cylinder foundations and the bob wall was a deep pit for the cataract (speed regulating gear). Finally, the pre 1790 Newcomen engine houses had massive transverse timbers from wall to wall, supporting the cylinder above the boiler, and the smoke stack was usually in one of the side walls - not at the end of the building as in later practice.

Because Newcomen engines consumed coal at a great rate, their popularity declined rapidly on the introduction of the Watt engine, except at collieries where plenty of very cheap low grade fuel could be had. In fact, one such engine remained in use until just before the war at a Bristol pit.

As regards present day remains in Great Britain, a late eighteenth century Newcomen engine survives at Elsecar near Rotherham; elsewhere there are at most one or two ruinous engine houses of the period. I know of only one possible Boulton & Watt engine house (in South Wales) and none with the machinery, but there are, of course, a number of Cornish engines and many houses still extant.

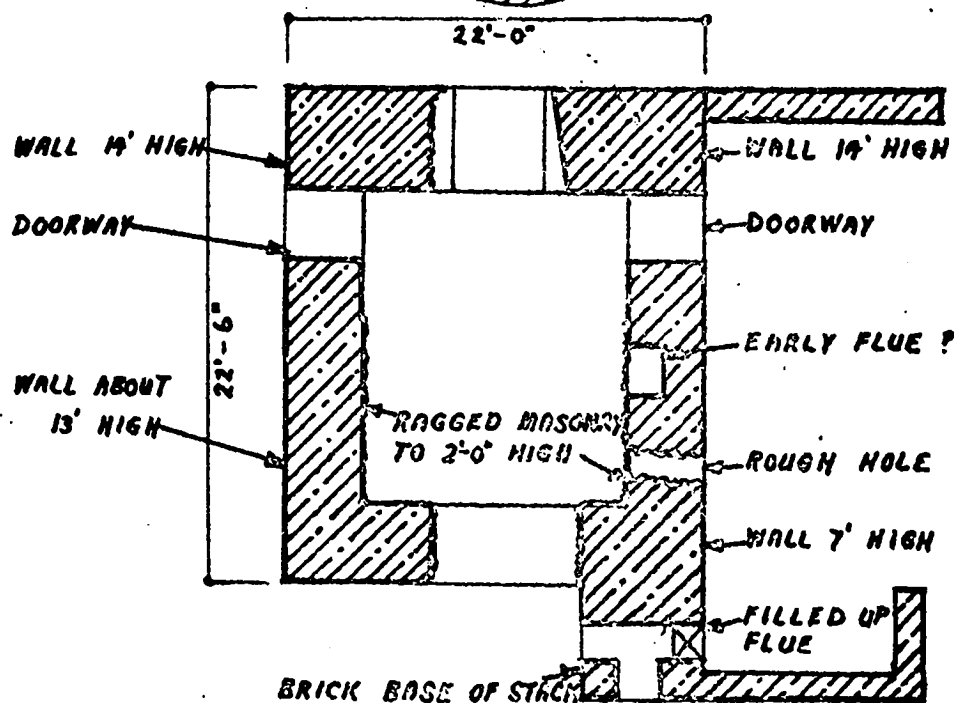
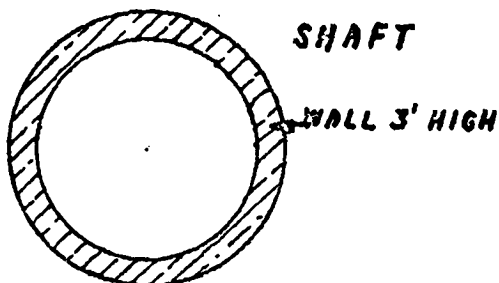
ENGINE HOUSE AT CROMHALL

SITE - 1 MILE SOUTH OF THE CHURCH

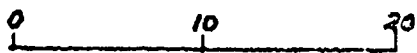


VIEW FROM SHAFT

PROBABLE SIZE
OF CYLINDER
= 40 INCHES



SCALE



FEET

We will now return to the story which began over twenty years ago when I tried to locate a lead mine marked on an old plan of the Tortworth area. To the south, at Cromhall, old workings were found, but turned out to be remains of a colliery with an open shaft and derelict building alongside. Then, some months ago, I came across a reference in Gloucester Record Office to a 'fire engine' at a Cromhall colliery in 1786, and wondered if the old building had once housed it. Confirmation seemed to come from Anstie's 'The Coalfields of Gloucestershire and Somersetshire' published 1873 (and about to be republished) for according to this, the colliery started in 1778, closed 1786 and re-opened in 1812 for a few years, since when it had been abandoned. The engine, 'supposed to cost £700', was valued at £350 in 1786 and at so early a period must have been a Newcomen. Watt engines were then hardly available and the records show no sale to the area.

A visit to the site several weeks ago found the old building in a great ruin, almost quite obscured with ivy, brambles, nettles and with tall elder bushes almost impenetrable within. Here had obviously been a beam engine house - the massive beam wall and its proximity to the shaft left no doubt - but time had reduced its height to a mere fifteen feet, half of the probable original stature. However, though a high arched opening in the bob wall did not exactly suggest Newcomen, certain other features did. These were:

- a. Unusually thick side walls, probably necessary to support the cylinder? (out of 36 engine houses measured in detail, only one had thicker walls; this being an enormous one hundred inch house at Talargoch, erected in 1860).
- b. One side wall contained what seemed to be a chimney flue for a boiler, and ragged masonry facings low down on the inside walls could have been the vestigial remnants of the boiler surrounds. (It should be mentioned that at some stage, the engine house had been turned into a shed, with now a derelict corrugated iron roof sagging above).
- c. There were no signs of a cataract pit.
- d. A 'lean to' boilerhouse and remains of a stack alongside, appeared to be later than the main structure.
- e. The timber joists supporting the tin roof were well set into the side wall (as far as could be viewed through the ivy) and the slot width seemed sufficient for the massive timbers needed to support a Newcomen cylinder.

We gained permission from the farmer to clean up and measure the site and came away fairly sure that we had discovered an early Newcomen engine house, which had been converted to accept a Watt or Cornish engine at the 1812 reopening.

During the next visit, the old roof was removed, the inside cleared out, ivy sawn through and partially torn down as well as cutting nettles, brambles, etc. But, even before completing this part of the job, doubts about a Newcomen history amounted to more than the opening in the bob wall - the recesses for holding the cylinder timbers were too small and did not penetrate far into the wall, the 'lean to boilerhouse' was in some respects contemporary with the main structure; and lastly, the ragged masonry which I had taken to be the boiler surrounds, now looked more like the remains of a cylinder foundation, removed at the time of conversion to a shed. However, there were no signs of a cataract pit.

we decided to dig a few trial holes and everywhere came to a crumbly mortar base only a few inches below the earth floor. This could not be explained. Other doubts arose when a more careful look at Anstie's remarks showed that he referred to the mine as being 'at the side of the turnpike road' which in fact it is not, being some three or four hundred yards away. Also, the one inch first edition Geological map (c 1850) shows an 'engine' at the side of the road to the North East of the site, a location now built upon by houses.

Summing up, there is an engine house here, but did it once shelter a fire engine? More documentary and field work will probably provide an answer, but I fear it will be one of disappointment.

D. E. Bick
29.9.69

See also article "A Steam-Engine at Cromhall" in Newsletter No.2 page 16.

Editor

Correspondence

53, Park Street,
Bristol,
BS1 5NT.
29.10.69

Dear Editor

About a year ago I began full time research into the history of the Stroudwater Canal which runs from Framilode to Walbridge. In due course, this will be published by David and Charles Ltd., in their 'Canals of the British Isles' series.

I am particularly anxious to trace any known records of this canal, other than those in the County Records Office or the Gloucester City Library, and any local individuals who may have any particular knowledge of the canal. Would it be possible for you to include a short note to this effect in the Journal, which I know has a considerable circulation in this part of the world among individuals with historical and archaeological knowledge.

Yours sincerely,

Gloucestershire Society for
Industrial Archaeology
Newsletter No. 14 February 1970

M. A. Handford

Protection of Industrial
Monuments

There are two ways in which an industrial monument can be given a measure of statutory protection. If it is a building (like a windmill), or if it is housed in a building, the building can be listed in the normal way under a 32 of the 1962 Town and Country Planning Act. ~~It~~ Whether or not it is a building or is housed in one, it can often be 'scheduled' as an ancient monument under the Ancient Monuments (Consolidation and Amendment) Act 1913 (s 12). This means that the owner must give three months' notice to the Ministry of Public Building and Works before destroying it, altering it, or adding to it.

As far as the 'scheduling' procedure is concerned, the situation has been made clear by a memorandum issued to its Inspectors by the Ministry of Public Building and Works. There had been some doubt about how far it was proper to use this procedure for industrial monuments whose interest and value lay more in the machinery or working parts than in the building that housed or supported them. There was also the consideration that the Courts had held that many types of machinery were trade fixtures which could be removed by tenants, even though damage to the fabric of the building in which they stood might be caused in the process. After mentioning these two points, the Ministry memorandum goes on:

"It is now thought, however, that industrial monuments, though they are capable of movement or contain moveable parts, can be considered for scheduling. Some, such as windmills, post mills or canal locks with their gates, are manifestly structures and there can be little doubt that they qualify as ancient monuments. Other cases are more open to doubt, but it is thought that in certain circumstances an object may be regarded as a structure, despite enjoying the legal status of a trade fixture. But it is important to stress that each case must be considered on its merits - no rules can be formulated.

"To be a structure, an object must normally be or have been ...

- a) permanently fixed in position, with its movement (if any) in some way permanently circumscribed;
- b) sufficiently massive to be described as a structure without offending against common sense;
- c) assembled and erected on the site and not removable without having to be dismantled.

Examples would be stationary cranes. A locomotive or fully mobile machine, on the other hand, would obviously not qualify.

"Movable parts of machines may be regarded as part of the schedule. They are so inextricably associated with their buildings that the only choice is between destruction and preservation in situ. This point is important. It may well be argued (e.g. in historic printing works) that there is no point in preserving certain machinery which can, notwithstanding aesthetic educational objections, be readily removed from, or stand alone without, its original building. This is thought to belong properly to the field of museum exhibits, and any attempt to schedule it might prove ineffective. There may, of course, on grounds of historic interest, be a case for scheduling the building alone, if it is contemporary, or nearly contemporary with the building.

"Many large machines, such as Cornish and other stationary steam engines, cannot be removed from the building without removing essential parts of the building itself, and vice versa. Despite the different legal status of their machinery, it is thought that large engines of this sort have notable features in common with windmills, and can properly be regarded (with their buildings) as structures and can therefore be scheduled."

The memorandum ends by stressing that the Ministry's policy is to secure the preservation of 'outstanding manifestations of the Industrial Revolution', whether scheduled or not.

So far 66 industrial monuments have been scheduled as ancient monuments by the Ministry of Public Building and Works. 44 of these are in England, 10 are in Scotland, and 12 are in Wales. In a number of cases scheduling has resulted from suggestions made by local amenity societies. The Ministry is always willing to consider further suggestions, and these should be addressed to the Chief Inspector of Ancient Monuments (A. J. Taylor Esq, MA, FSA, FR Hist S), Sanctuary Buildings, Great Smith Street, London S.W.1 (telephone 01-222 7790). Suggestions should include the full address of the monument with an Ordnance Survey grid reference; details of its original function, its architectural and/or mechanical character, and its present condition; its dimensions and its date; an assessment of its value in terms of industrial history; and sufficient photographs to illustrate its qualities.

It should be emphasised that the Ministry has to be realistic when considering suggestions. There would normally be little point in scheduling a monument if its condition were so poor that the cost of restoration would be prohibitive, or if planning permission had already been given for a development that would necessitate its removal. It will therefore repay local amenity societies to submit suggestions well in advance of any firm redevelopment proposals and while the monuments concerned are still in reasonably good condition.

Some societies may therefore wish to undertake comprehensive surveys in their areas. To avoid the risk of duplication, such work should be carried out in co-operation with the Industrial Survey. Established in 1963 by the Ministry of Public Building and Works, this scheme has been the responsibility of the Council for British Archaeology since 1966. Standard record cards are used, and supplies of these (price 5s per 100 post-free), as well as further information about the Survey, can be obtained from the Council at 8 St. Andrew's Place, Regent's Park, London N.W.1. It is likely that in due course the more important monuments brought to light by the survey will be scheduled.

~~REF~~ Cf Town and Country Planning Act 1968 (HMSO SBN 10 547268 9
12s 6d) s 54
~~REF~~ Ancient Monuments Act 1931 s 6

Cone Paper Mill, Woolaston

When there is already so much investigation and recording of industrial sites being undertaken, it is perhaps a little unkind to suggest further fields for exploration. Paper mills are, however, sufficiently few in Gloucestershire for one person to make a special study of their remains. The starting point is the article by A. H. Shorter, 'Paper Mills in Gloucestershire', Transactions of the Bristol and Gloucestershire Archaeological Society, vol. lxxi(1952). Mr. Shorter lists 30 mills in Bristol and Gloucestershire and provides much of the necessary historical background, without depriving the persistent researcher of the joy of discovering further information from directories, newspapers, maps, deeds and other records. But the industrial archaeologist will probably chiefly welcome the fact that although Mr. Shorter gives so much history he does not appear to have visited the sites. The fieldwork remains to be done.

Cone Mill, ⁽¹⁾ on the parish boundary of Woolaston and Alvington, between Lydney and Chepstow, will serve as an example. Mr. Shorter gives a brief history of its existence from 1774 to 1890. ⁽²⁾ This can be extended from other sources to explain that, like so many water mills later used for industrial purposes, it was a corn mill in the Middle Ages until the 17th century. ⁽³⁾ In 1960 it had become a fulling mill, ⁽⁴⁾ and by 1774 it was a paper mill. From c.1820-1860 it was owned by Messrs. Reece & Sandford, who had other mills in the Forest of Dean and Monmouthshire. ⁽⁵⁾ After its closure about 1890 it was converted into a steam laundry which in its turn closed after a fire about 1945. ⁽⁶⁾

In Mr. Shorter's article are given the names of the owners (and Kelly's Directories add more) and the chief machinery in the mill at various dates, but in checking the references I could not find the evidence quoted for the existence of six beating engines in 1851.(7) Some facts discovered from further historical research reveal, for instance, that in 1841 ten paper-makers and one engineer in Woolaston were employed in paper-making,(8) that in 1880 there was a gasometer at the mill, (9) that a reservoir and improved water supplies contrived in 1882-3 (10) were used soon afterwards to make electricity for the mill, and that the reason for closure was the difficulty and high cost of transport. (11) The mill specialised in printing, news and writing papers of good quality. Although in the 18th century and early 19th century the materials were sent from the small wharf at Cone Pill, (12) in the late 19th century the imported Esparto grass was hauled from the village railway station and the finished papers despatched in the same way. (13)

There are comparatively few visible remains. The factory chimneys at the mill were dismantled in the 1940s, and the paper sorting house demolished last year. The manager's house, enlarged about 1880, nearby reservoir, mill-race, mill-pond and sluices may be seen both at the mill itself, and some way upstream, and one or two buildings at the mill and workers' cottages are also standing. Although I explored the site briefly for the purpose of my own research I did not make a proper survey, ...

It is not, of course, necessary to remind industrial archaeologists about venturing on private property without permission. At Cone the meadows, stream and mill-race belong to Mr. F. A. Rogers, who lives at the former mill manager's house and it is well worth asking his permission. He has lived there for over 30 years and in my conversation with him he described many features of the paper mill buildings.

Brian S. Smith

1. SO S96005.
2. A. H. Shorter, 'Paper Mills in Gloucestershire,' Trans. B.G.A.S. lxxi, pp. 159-160.
3. British Museum, Arundel MS. 19, f. 32v.; Public Record Office, C.P. 25(2) 298, 16 Jas. I. Hilary.
4. National Library of Wales, Beaufort MS. 2494.
5. A. H. Shorter, op. cit.
6. Gloucestershire City Library, Women's Institute History of Woolaston.
7. House of Commons Papers, 1852, vol. li, no. 128.
8. Public Record Office, H.O. 107/369.
9. Ordnance Survey 6" map (1stEdn.), Glos XLVll SW (1886)
10. Gloucestershire Records Office, D 262/E1
11. Ex inf. Mr. F. A. Rogers of Woolaston.
12. W.I. history, op.cit.
13. Ex inf. Mr. Rogers.

Mills of the Dean Forest Borders.

The Forest borderland is not an area rich in mills, for the streams rising in the Forest are few, and of no great size, whilst it is only in the last two hundred years that much farmland has been reclaimed from woodland.

On the eastern edge of the Forest, the nearest stream to Gloucester is the Ley Brook, which rises at the Royal London Spring near Huntley, and is soon joined by a stream rising on the slopes of May Hill. The valley of this little brook contained the old road to Ross, superseded when the present road was made in the 19th Century. Above Knight's Cider Mill (not a water mill), there is some suggestion of a former mill site, for the stream is dammed up into a little pool surrounded by trees, the overflow running through a culvert under the embankment known as the Deep Filling, made when the road was built. Below the road from Huntlet to Mitchledean, the Ley Brook splits up into a maze of channels. On one of these channels, stood Upper Ley Mill, a brick building now completely ruinous, set amongst a jungle of coppice and marsh. In 1940 the iron framework of the wheel was still in position.

There are no more mills on this stream, and the various branches re-unite into one channel, joining the Severn near Minsterworth.

The Hope (or Westbury) Brook also rises on May Hill, and at Longhope is joined by another stream flowing down from Mitcheldean parallel to the road. Off this road, about two miles from Longhope, is the site of Over or Abenhall Mill, latterly used only as stabling and storage sheds. Traces of the overshot wheel, fed on the crown through an iron pipe, were still to be seen in 1951. A few hundred yards further downstream is an imposing Georgian house, Hart's Barn Farm, in front of which an old stone building with a dove-cote in its gable-end stands astride the stream. This was probably a mill at some time, but I have not been able to discover anything of its history. A short distance away is Parish Mill, once the principal mill of Longhope, a long stone building, partly stucco-ed, with a well-kept pool, and with the iron wheel still in position, C.1950.

Also at Longhope are the remains of Furnace Mill, an old stone building now converted into cottages. The name suggests that it was at one time a forge mill, but at varying periods in its history it has been a grist-mill, saw-mill, and maltings. At the rear of the mill is a silted-up pool together with dilapidated stone and weather board out-buildings.

The lane from Longhope to Boseley follows the valley of the Hope Brook, and at Blaisdon, where the road leads up to the Hall gates, stands Blaisdon Mill, a large stone building, once a corn mill, but according to local information last used as a saw mill.

Near Longcroft Farm, the Flaxley Brook joins the Hope Brook, and their combined waters are now known as the Westbury Brook. At the village of that name, opposite to the church, is a little mill, Westbury Mill, built of the local shaly stone. This is now dilapidated, and the pool was filled in c. 1933 to obliterate a dangerous corner on the main road. The tail race forms a road side ditch and joins the main stream opposite the gardens of Westbury Court. These famous gardens are fed by the brook which subsequently flows across the flat meadows to the Severn. Here at the out-fall, right on the bank of the river, are the desolate remains of the gloomy looking brick-built Severn Mill, with rotting wooden sluice-gates and footbridge.

The Flaxley Brook rises at a spring called Seoving Well, near Abenhall, and is soon augmented by waters from St. Anthony's Well. The flow of this stream has been much reduced since it has been tapped for Cinderford's water supply, and this reduction in volume was probably responsible for the closing of Gunn's Mill, a picturesque half-timbered building, formerly with a mill pond of considerable size. During its working life this mill was at different times used for the manufacture of paper, gunpowder, and iron. Between this mill and St. Anthony's Well there are tumble-down old buildings with traces of wheel-pits and archways over the water, which suggest that they too were once part of a mill.

Flaxley Mill, is a plain stone building, fast falling into decay. It is adjacent to a half-timbered farmhouse, and presumably was at one time the mill of Flaxley Abbey. A wooden board setting out grinding charges at this mill is preserved in the Gloucester Folk Museum. The Flaxley valley was at one time a hive of industry, iron ore was mined nearby, charcoal burning was carried out in the forest, and at one time there were four forge-mills in operation, all utilising the water-power of the Flaxley brook for their trip-hammers.

Before the Flaxley Brook joins the Hope Brook, there formerly stood another mill, Cutt's Mill or Boseley Mill, demolished many years ago, but the site is still traceable where the channel divides.

Between Littledean and the Greyhound Inn is a whitewashed cottage once Littledean Mill, by a fast stream which enters the Severn at Elton. The former mill-pond and leat are still visible.

The Soudley or Forge Brook rises near Bilson Green, and formerly served to drain away the water pumped from the old iron mines. At one time there was a large pool above Cinderford Bridge, but the site of this pool is now a grassy, sedgy hollow. About a hundred yards below the bridge was a grist-mill which ceased to work in the early years of this century. The mill has been converted into a house, and the pond filled in. The last remnants of the iron wheel on its massive axle were removed in 1953, and at the same time the wheel pit filled in. The last miller, a Mr. Bright, had to give up the mill when his water supply was cut off. This was caused by drainage of the large pool mentioned above by local colliery owners to prevent water seeping into their workings. The colliery company offered to install a steam engine at the mill, but the miller refused this offer, and when the colliery owners won a law suit over the dispute the volume of the brook was so reduced that the mill could no longer work. The mill-buildings appear to date from about 1800, and in the absence of a specific name, I assume this must have been known as Cinderford Mill.

Below Ruspidge the brook flows in a deep valley along Staple Edge to a saw-mill, where the valley makes a sudden twist around Bradley Hill. Here are the well-known Soudley Ponds, formed by damming up a tributary stream rising near Littledean, and originally constructed to supply power for the many forge-mills which used to work along the banks. Between Soudley and Blakeney are many tiny hamlets of sandstone cottages, which originally housed the workers at the forges. The brook in this stretch is known as the Forge Brook, and flows in a very deep wooded valley. At Blakeney it receives the waters of the Blackpool Brook, running from the very heart of the Forest. In Blakeney are the remains of two mills, and a third mill is to be found in nearby Nibley. The Lower Mill stands on the lane leading to Etloe Duchy, the stream tumbling by the side of the road. There is a stone building with an upper storey door surmounted by a pulley wheel, just beyond a substantial stone house with a half millstone forming its doorstep. The garden of the house appears to occupy the site of the former mill pond. Across the lane the mill itself is now converted into a row of cottages, but the remains of the overshot iron wheel were still to be seen in 1951. The Upper Mill at Blakeney has been converted into two semi-detached houses, named Sunnysdale, but there is no mistaking its original status, for the Blackpool Brook rushes under the building through a tunnel. The owner of the property told me that the mill had ceased to work soon after 1900. Inside the working part of the mill are iron pillars and archways made at the Soudley Forge. The wheel was an overshot one, for there is a good fall of water. A hundred yards upstream is Nibley Mill, a gabled house, partly half-timbered, and with a stone mill adjoining. The iron framework of the overshot wheel was still visible in 1951. The pool is now dry, and overgrown with grass and bushes.

Below Blakeney, the waters of the combined Soudley and Blackpool Brooks become known as the Bideford Brook, which meanders across the fields to the Severn, passing Awre Mill, even in the 1930's a roofless stone ruin. This is an ancient mill site, and the Saxon mill here was once owned by Edward the Confessor.

On the northern edge of the Forest rise two Herefordshire streams, the Rudhall and Coughton Brooks. The Rudhall Brook has its source in the scattered hamlet of East Dean or Lea Bailey, perched on the steep hillside over-looking Mitcheldean Road station. A cottage high above Cornage Farm is called Mill House. Obviously never a water mill but perhaps a crushing mill for sandstone. There are old gold workings on Wigpool Common. Between the station and Lea Village is the Old Mill, a little sandstone house with a few ruinous sheds around it. There is no trace of wheel or machinery, and no one seems to remember it working. This must also have been known as the Upper Mill, as there is a recognisable mill-site about a quarter of a mile down-stream, along the lane leading to Aston Ingham. A stone cottage with a few out-buildings marks the site, and the former pond shows as a grassy hollow. The mill itself last worked in the early years of this century, and the mill building was demolished long ago. Half a mile further on a steep path opposite Knightshill Farm leads to Aston Crews Upper Mill, in 1953 in a very dilapidated condition, though the house part was occupied by a farm labourer and his family. The Lower Mill at Aston Crews was still working in the 1950's, grinding animal provender with the only remaining pair of stones. The mill had ceased flour grinding in about 1900, but had been well maintained and in 1951 the overshot wheel of iron and wood had been recently renovated. The mill is a small stone building standing in an orchard, quite apart from the farm house. Burton Mill stands in a deep valley near Bromsash, but has not worked since 1945. There is an iron overshot wheel, and three pairs of stones and a flour-dresser. The stream has been dammed to make a large pool, which had been drained during the 1950's.

It is possible that there are other mills on the Rudhall Brook, for the Ordnance Survey maps show buildings at Linton, The Fording, and Hartleton, which may be on mill sites. It is known that there was a mill at Rudhall village, but by 1940 it was in a ruined state, and the pond dry and half full of rubbish.

At Mitcheldean, a small but powerful stream comes dashing down the hillside from Drybrook, and once supplied power for a mill. This site is marked by the white Georgian house called Tusculum House, which has a wing actually built over the stream, and which presumably contained the mill. There are remains of sluices and an embanked pond, but no one locally seems to have any information about its later history. In the reign of Henry VIII, a miller named William paid rent for the mill to the Lord of the Manor, Sir Alexander Baynham. That part of Mitcheldean is known as Millend.

The Coughton Brook rises in the cleft between Wigpool Common and Lea Bailey, and flows through the village of Pontshill, before turning west to run down to Bill Mills, where it is joined by the Bailey Brook from Hope Mansell. There was once a mill at Hope's Ash Farm, but this has been demolished.

Bill Mills is an attractive place with a walled pond surrounded by buildings of various types and periods. One of these, probably the miller's house is half-timbered. The premises have latterly been used as a mineral water factory, but its long life as a mill goes back at least to 1698, from which year date the earliest deeds. At various times the mill was used for paper-making, and for corn grinding. Flour-milling ceased in 1891, but grain for provender was ground until 1920.

Some two miles below Bill Mills is the stone-build Coughton Mill. In the late 1930's the great wooden wheel, like a drum, could be seen in its dark archway, but the pond was dry, and long before this date the mill had ceased working.

Walford Mill stands in the little village of that name, and is a sandstone building with a slate roof. It was once a grist mill, but in recent years has been used as a store shed and saw mill.

The Lodgegrove Brook marks the Gloucestershire-Herefordshire border, and Taylor's Map shows a forge mill attached to the Estate of the old Bishopswood House, but there is no trace of it today, and even the stream itself is partly culverted, and the old stream-bed filled in and planted with young trees.

Gwladys M. Davies.

Industrial Archaeology, Volume Six 1969

The first number of this volume has another long article by Christopher Cox on the milestones of the Stroud district. This one is part of a series on "Aids to Recording" and illustrates the difficulties in attempting to date stones in this district. There are two photographs. Notes on the contributors mentions that the author is currently engaged in research into the growth and decline of the turnpike system in the Stroud district. We look forward to reading the result of this research.

Editor.

Book Review.

The Thames & Severn Canal.

Humphrey Household 237 pp. David & Charles, 1969 50/-d.

Canal history invariably contains much of extraordinary interest and the story of the Thames and Severn is no exception to this generalisation. Here the author has skilfully linked a

tremendous number of facts, without any padding, to provide us with this history which must be of special interest to all our members. The book contains thirty-two photographs, some of which were taken by the author, and includes one of the token showing the tunnel portal which appears on the cover of our Newsletter. Also in the text are fifteen varied and interesting line illustrations, though four neat drawings of port and wharf plans are not helped by poor arrangement and by not having any scales or north points. The frontispiece (and cover jacket) is a very pleasant and informative coloured photograph of a print showing the Thames Head pumping station.

The first chapter, curiously titled "The Favourite Project", has the rather controversial statement on its initial page that : "Finally for some years the canal was managed by a County Council whose amateur administrators squandered the ratepayers money on technical problems they little understood." Yet in the last chapter the author admits that the consultant engineer to the County Council was very good and it was he who no doubt advised the committee. The reviewer wonders what the comments would have been if the County Council had quickly given up the struggle and not "had a go". The chapter gives a description of the numerous schemes for a canal and ends with a brief description of the Stroudwater canal, whose history is at present being written.

The following chapter describes the shortcomings of the Thames navigation and the difficulties encountered on the Severn. Mr. Household ably sums up at the end of the chapter with : "On the Severn, as on the Thames, the work of making good the navigation was completed far too late". Chapter 3, "Birth of a Company", indicates that the promoters were not primarily local people and also records the appointment of Robert Whitworth.

"Building the Canal" is for us one of the most interesting chapters and is particularly good on the gang piecework system. The construction of the Sapperton Tunnel, which when opened was the longest in the world, is described in minute detail, though it is not true that the construction shafts were filled in. Also of great interest is Chapter 5, "Wharves and Water", which gives a description of the buildings associated with the canal and the sources of water supply. Referring to Brimscombe, the author says : "The port, of which scarcely a trace remains today, fully deserved its name," and, as this is all that is noted, it is here that the reviewer must state the only weakness of this book is the lack of information regarding what is left for us to see now. Additionally, dates when alterations took place are not mentioned. If the author believes that the information dates rather quickly, it could have been given as an Appendix as in the volume on the Kennet and Avon Canal. Members know that Mr. Household is fully aware of what is happening as he has kindly come down from Folkestone on two occasions to lead us along its length.

The well known round houses are described as watchmen's cottages, rather than the more usual lengthmen's, but no attempt is made to give the origin of this design; Charles Hadfield states it was because a round house was less costly. The author mentions the difficulty of getting furniture through the doors, but the reviewer, when inspecting the Inglesham house, was told that the worst job was taking the bedroom furniture up very narrow staircase in the wall thickness; in fact the window had to be taken out and the furniture hoisted up !

Chapter 6 called "Conducting a Complicated Concern", commences with the building of canal boats and goes on to describe the carrying trade, the goods carried, the methods of charging and the complaints of the traders. This is followed by "Money and Men" dealing with the financing of the canal which, like many others, was not successful financially. Its success lay in the benefits it conferred upon the communities living along the line.

The next Chapter, "Links in the Chain", describes how the canal Company decided to withdraw from the carrying trade and the private Companies that took over. Distribution of Forest coal is mentioned, as this was the main trade, and the other canals in the area having an influence on the Thames and Severn, are also described. Chapter 9, "Zenith of Efficiency", states that the staff was small, the incidence of long service high and that loyalty and benevolence permeated proprietors and staff. The Chapter is mainly devoted to the problems of keeping the water at the summit level and to general maintenance.

"Last of the Railway Princes" refers to Richard Potter, an influential figure in the latter half of the nineteenth century. The Chapter discusses the proposal to lay a standard gauge line along the canal bed in competition with the G.W.R. broad gauge. The final chapter, "The Death Agonies" details the efforts of a consortium of canals to acquire the T. and S. and eventually these five navigations joined six public bodies to take it over. Although much maintenance was carried out, leakages from the summit level still occurred and the County Council was left to carry on alone. In the end however trade was not sufficient to warrant keeping it open.

Eighteen pages of notes follow, giving references to all sources of information. Every statement seems to be covered and even books and authors are repeated just to give the page number. Seven appendices follow, giving information on barge building, staff, lock sizes, gross receipts, dividends paid and the documents in the Record Office collection. Finally there is a good index.

With all its factual statements this is not a book that can be skipped, and it is well worth taking the little extra effort required to fully digest the contents. "The Thames and Severn" will undoubtedly take its rightful place as an ever useful reference volume on a fascinating subject.

G.N. Crawford.

Book Review.

The Gloucester and Cheltenham Railway. D.E. Bick 62 pp.
The Oakwood Press 1968. 15/-d.

The publication of David Bick's book was briefly noted in the last Newsletter and by now the reviewer hopes that most Members have had a chance to read this very well-written account of an interesting enterprise.

Interest is added by seventeen photographs, those of the Lockhampton Inclines taken by Humphrey Household being particularly good, as well as pages of line illustrations, maps and plans.

Starting with a description of the rise of Cheltenham as a Spa and the consequent rise in demand for coal and road stone, the author goes on to describe the various schemes for the tramroad, including one from the Coombe Canal, and gives a map showing the proposed routes.

The next chapter describes the opening in 1811 followed by its setbacks and good fortunes, such as the establishment of the Cheltenham Gasworks. Plans show the routes through Gloucester and Cheltenham as well as detail drawings of the tramroad depots.

"Under New Management" is the title of a chapter giving the rivalry between the Birmingham & Gloucester Railway and the broad gauge Cheltenham & Great Western Union Railway on the taking over of the tramroad. In the end, they combined and both took it over but later the B. & G. gained complete control and also opened their own line between the two towns.

The next Chapter provides interesting details on the construction of the permanent way and the rolling stock, followed by pages on tramroad rates, wharves and the cost of transporting Forest coal. Especially fascinating are the first steam locos tried out on the line and there is a page of illustrations of the "Royal William" brought over from the Neath Abbey Ironworks in 1831.

There are nine pages describing the Lockhampton Quarries and their seven inclines. Finally, the last chapter notes everything remaining today which indicates the route and there are also four appendices giving the list of subscribers, the employees, the operating costs of quarry tramroads and the sources consulted. There is no index, however.

After reading this excellent book the reviewer considers that the Chairmanship of the Committee preparing our own county Gazetteer of Industrial Sites is in good hands.

G.N. Crawford.

Book Review.

The Thames and Severn Canal, by J.G. Espley and W.E.D. Young.
Gazebo Books, 1969, 46 pp. 4 plates, 4/6d.

This booklet, written by Mr. Graham Espley of Marlborough with encouragement and raw material from Mr. Duncan Young, appeared three weeks before Mr. Household's book with the same title and it may seem unfortunate that suddenly we have two accounts on the same subject. Luckily, however, the two are to a major extent complementary, as the authors of this booklet devote only a few pages to an historical review and the longest part is an account of the remains to be seen today. Those chosen to write forewords are reflected in the text; Mr. L.T.C. Rolt, the engineer, for this booklet and Mr. Charles Hadfield, the historian, for the book.

Members will be pleased to hear that our first plaque, recording the site of Brimscombe Port and the Canal Company's offices, is mentioned in the text. This is followed by an interesting account of the launch building yards of Edwin Clark and Co. (I believe it should be Clarke), later Abdela and Mitchell. There is a photograph of one of their launches, the 'S. Raymundo', on the canal.

The text shows clearly how to get to the various points of interest from Stroud to Inglesham but occasionally the facts have not been properly checked; for instance the lengths of locks given are incorrect. It also seems strange that though one is told how to get to Latton to see the junction with the North Wilts, no mention is made of the most interesting agent's house with its back on the main road.

The booklet ends with numerous short appendices, including some of the Rules, Orders and Regulations to be observed. The reviewer only wishes that those who have thrown bedsteads, prams, cans etc. into the canal, could have been caught under the rule stating "That any person who shall throw rubbish into the canal, shall forfeit a sum not exceeding Ten Pounds". There is very little information on sources of information and no index, but the booklet, with its four well-chosen photographs, is good value for its price.

G.N. Crawford

Gloucestershire Society for
Industrial Archaeology
Newsletter No. 14 February 1970

BOOK REVIEW

Industrial Archaeology of the Bristol Region

by Angus Buchanan and Neil Cossons, DAVID & CHARLES

Newton Abbot, 1969

With some books the reader feels they are stop gaps and one will have to patiently wait until a definitive work is published.

However, with the "Industrial Archaeology of the Bristol Region" the reviewer believes finality has been achieved; there may be further infilling of the detail but the basic groundwork is excellently covered in all respects. Many will wonder what area the "Bristol Region" includes. Three of the boundaries are comparatively clearly defined: the Severn and the Bristol Channel, the Mendips and the Cotswold escarpment, but the fourth, the northern one, is rather imprecise and wanders round the Dursley and Wotton-Under-Edge area. Would not the Little Avon have been an appropriate boundary?

The text includes twenty line drawings and the reviewer congratulates Neil Cossons on their clarity and draughtsmanship, for they are a delight in themselves. The thirty-two photographs maintain a judicious balance between old and new and practically always the subject matter fills the whole format; the notable exception is a view of the well-known Dundas aqueduct where the scenery, delightful though it is, dominates. There are several thought provoking statements in the Introduction, for example "The comparatively slow rate of growth of Bristol in the nineteenth century may be partially explained by the wide variety of its manufacturing industries". This however is difficult to believe as surely London and Liverpool, her greatest rivals at this time, had also a large number of industries. The complacency and inertia of the Bristolians then is also mentioned; the reviewer has often wondered to what extent the rather soporific effect of the climate in the Severn Basin, compared with that in the South-East and the North, has contributed to this inactivity.

The next and most important chapter is aptly titled "The Changing Port", changing being the operative word at the moment as the days of the city docks appear to be numbered. The Bristol Planning Group, a civic society, would like to keep the docks as a recreational area with the surroundings landscaped as a park, but it does seem that a ring road will be coming through the line of the Floating Harbour. The authors state that Bristol is the only seaport to remain under municipal control and, in the same chapter, mention delays on various decisions affecting the port. It could be argued whether a city is the most suitable body to control this type of enterprise; in fact ten years after Bristol acquired the city docks Liverpool disposed of hers to an independent body

Of topical interest are the paragraphs describing the "Great Britain"; many readers will know of the appeal by the Brunel Society for £75,000 to bring her back from the Falkland Islands. Those who have seen the Great Western Dock will have realised that this is the ideal place for her to end her long adventurous career, but, according to the national newspapers, interest is lacking in the city and it seems more likely she will be on exhibition in London unless a determined effort is made by Bristolians.

The remaining seven chapters of Part 1 examine the history of industries, public utilities and transport facilities in the region. Here a large number of facts have been grouped under different industries and means of transport and presented in an easily readable form, helped by illustrations. In the conclusion to this part the authors anticipate the Maud Report by stating that Bristol is likely to be the "metropolis of the west", with the corollary that this will result in continuous pressure on industrial monuments.

Part II starts with an exhaustive list of sites, including their location and a short description, grouped together under the same headings as the chapters in Part 1. The authors state that geographical distinctions according to parishes or other areas have little significance in a compact region such as Bristol. Nevertheless, the reviewer would have preferred this list under parishes, as much of the region is outside the city, with perhaps a different treatment for Bristol and Bath. There could have been cross references to the chapters in Part 1 and location sketch maps where necessary; thus one could easily study a particular area without having to search through the book.

The book ends with a very comprehensive bibliography, which includes unpublished sources and references, both arranged separately under chapter headings. One omission is any reference to the H.M.S.O. publication "Bristol and Gloucester District" in the Bristol Regional Geology series. There are a few obvious mistakes in dates, spelling and punctuation, due perhaps to too rapid proof reading, but these are minor matters compared with the overall excellence of this book, which is a welcome addition to an ever increasing I.A. series. After several references to the rivalry between the two cities, it is ironical that Neil Cossons has this year been appointed Deputy Director of Liverpool City Museum! However, Bristol is lucky to still have Dr. Buchanan not many miles away at Bath.

Gloucestershire Society for
Industrial Archaeology
Newsletter No. 14 February 1970

G. N. Crawford

Book Review.

Industrial Archaeologists' Guide 1969 - 70. Edited By N. Cossons,
and K. Hudson. David & Charles. 128 pp. 25/-d.

This is the first edition of a reference work which is due to appear every alternate year. It is well bound in hard covers and includes photographs but the printing process used has not done these justice.

The contents are as follows :-

- (1) The National Record of Industrial Monuments. This article by Dr. A. Buchanan includes a table showing the number of C.B.A. cards filled in by every county.
- (2) Scientific and Technological Museums.
- (3) Museums in Great Britain with Science & Technology Collections. There is a comprehensive list of Company museums in the first number of the Industrial Archaeology Journal and of public museums in Newsletter No. 4. The latter includes nine Museums not mentioned in the book.
- (4) On-site Preservation.
- (5) Some sites worth seeing. Includes items like the Watford Gap between Weedon and Kilsby.
- (6) Photography and Industrial Archaeology. By Mr. Harvey Milligan, this chapter is much more technical than his article in the I.A. Journal No. 2. Volume 1.
- (7) Local Societies actively concerned with I.A.
- (8) Local Journals and Newsletters. This article discusses the differences between newsletters and journals published regularly during the year and those Societies who have brief newsletters every so often with a more substantial journal published once a year. This matter has been debated recently by your Committee when it was decided to continue as now.

The article complains that very few journals or newsletters include an index but said that the G.S.I.A. Newsletter was a notable exception, including a complete index page from one of our newsletters as an illustration.

G.N. Crawford.

Bristol and Gloucestershire Archaeological Society

This volume issued in March 1969 contains the presidential address of Mr. Irvine Gray on "Gloucestershire Records: A Retrospect". This is principally an account of the county's historians and the books they published (most listed in "Gloucestershire, a Local History Handbook") together with a history of the County Records Office. In this connection the Notes in this volume record that the deeds 1662-1872, correspondence 1904-30, and press cuttings 1895-1945 of Stroud Brewery have been deposited in the Records Office.

An article of I.A. interest is titled: "Bristol's Roads and Communications on the Eve of the Industrial Revolution, 1740-1780". Besides interesting accounts of turnpike riots on the Gloucester side of Bristol, there are several references to the terrible state of the Gloucester road. A book written in 1789 recorded that a temperate farmer had fallen into and suffocated in one of the wagon tracks on this road! An Appendix gives the number of carriers operating from Bristol in 1750 and the number of trips they made each week to a long list of destinations.

G. N. Crawford

A Fielding and Platt Press

Those members who have read Davis & Charles' book, "London's Industrial Heritage", will have noticed the fine photograph of a linoleum press at Staines, very clearly marked "Fielding & Platt Gloucester". The text by Aubrey Wilson mentions that the 1,300 ton press was one of 28 manufactured between 1888 and 1906, of which 17 are still in use. One at least of the others has been adapted and is producing aircraft components. Mr. Wilson also states that a few of the original presses were supplied with a steel liner pressed into position and used as a main ram guide-sleeve, easily replaceable if necessary. The steel used in the columns was of an extremely ductile nature, characteristic of the steels of the day, and this combined with the absence of shock loading probably accounts for the long life of these presses. Also greater margins of safety than necessary were incorporated.

This book, price 63/-, has an excellent series of photographs, each accompanied by a page of text. At the other end of the price scale, London Transport have published a twenty page booklet, titled "London's Industrial Archaeology", for sixpence. Naturally at this price there are no photographs.

G. N. Crawford

Archaeology of the Gas Industry - Preservation Plan.

One of our members, Mr. R.B.J. Smith of Upton St. Leonards has sent the Editor the following article taken from the "Gas World" of the 12th April, 1969 :-

The gas industry is now in the midst of creating a new industry based on natural gas, whilst at the same time maintaining a service on town gas, which is manufactured mainly in new plant built over the last five years. Conventional carbonizing plant is being rapidly phased out, and demolished.

There is an urgent need to begin a Central Technical Reference collection of all types of record, relating to the gas industry, going back in time as far as possible. Much material worthy of preservation exists today, but is likely to be destroyed tomorrow, if no action is taken now.

It is proposed that Enfield College of Technology would be a suitable place to establish a national centre for co-ordinating all aspects of the archaeology and the history of technology of the gas industry, i.e. production, distribution, together with the social influences and other effects associated with a gaseous fuel and its by-products.

Enfield College is situated on the edge of the Lea Valley, and has a special relationship with the gas industry through the hundreds of students who have qualified in recent years as chartered gas engineers. Members of the college are already co-operating with the Enfield Archaeological Society in the Upper Lea Valley Industrial Archaeological Survey. (The Lower Lea Valley Survey, based on the Central Reference Library, Stratford E.15. was described in Industrial Archaeology August '67 pp. 281-282).

The local society's work has to be confined to pre-1900 industry because of the size of the task. The work to be carried out at the college by staff and students in industrial archaeology and the history of technology will also consider important local industries both before and after 1900, as well as national aspects of the gas industry.

The change over from town gas to North Sea gas is having a dramatic effect on all aspects of the gas industry. Even recently constructed plant, which may have an expected life of 20 to 40 years is already coming within the orbit of the industrial archaeologist.

The Isle of Wight provides a good example. Before nationalization, the Island had eight small gas-production works. These were replaced by a single new works at Kingston, which in turn has been made redundant by the laying of a connecting main, linking the Island to the Southern Gas Board's main distribution grid system.

Within the next ten years, the gas industry may well be handling four times the present output of energy without the use of most of its existing production plant. As these cease operation, they will be demolished, and the sites cleared. Many major caches of information, some going back 50 or 100 years, will certainly be unearthed during this period of upheaval and re-organization in the industry. These items are likely to be lost or destroyed if their true value is not realised in time.

In addition to the more obvious types of record like centenary articles about a company, there are the year books, local guides, and manufacturers' catalogues which give insight into the rise or fall of an early gas company and the kinds of tools and equipment used.

The preservation of buildings and plant is unlikely, but small items and some records may be deposited in local or regional museums. There is a cast iron retort used for gas making in the Science Museum at South Kensington. Recently new plants have often been constructed with the aid of a scale model, which after a number of years is no longer required. It should not be too difficult to find suitable storage space for these until a permanent display site can be provided.

The storage and subsequent sorting of records of all types will provide a more difficult problem but its successful solution should yield a better appreciation of the technology of this industry than has been possible for any other.

Another valuable source of information that needs immediate attention lies in the personal records of past employees, particularly the engineers who built and operated the plants.

Many items of interest will be found during the survey of gas equipment now being carried out by all area gas boards in preparation for the national conversion from town gas to natural gas. In some cases the replacement of old equipment will have social consequences, since it could involve the ending of a long established or traditional methods of working, which may be of both archaeological and sociological interest. Without special action, the whole plant and process could become just another fading memory of the past.

The collecting of written and verbal records has to be mainly outside normal working hours. The enthusiasm of young engineers can be combined with the experience of retired engineers, managers, foremen and other personnel, to produce vivid and detailed papers on how the industry was run and how particular difficult situations were dealt with.

A pilot scheme on these lines was run last year, in which a group of students were able to make a survey of gas utilization in factories in a Derbyshire Valley. The practical experience gained in interviewing all grades of personnel both working and retired has given an unique opportunity for personal development. The value of this project has been shown by the appreciative comments on the written report, which is intended to be published.

Anybody interested in any aspect of the archaeology of the gas industry, including private manufacture in country houses and factories, is invited to write to Mr. A.J. Spaakman, C.Eng., M.I. Gas E., A.M. Inst. F. F.R.S.A. Lecturer in Fuel Technology, Enfield College of Technology, Queensway, Enfield. Middlesex.

Evening Visit to Bridges in Tewkesbury, 4th June, 1969.

The main purpose of this visit, led by the senior bridge engineer of the County Council, Mr. S.C. Brown and two of his team, was to examine the widening of King John's Bridge over the Mill Avon.

This bridge is said to have been built in 1197 but unfortunately has from time to time suffered severe damage from flooding and also later became a traffic bottleneck on the A.38. The widening of the Mill Avon bridge was described by the engineer, helped by a series of detail drawings.

The party then moved on through the Mythe Water Works to view Telford's cast-iron Mythe Bridge from the banks of the Avon. The original drawings and calculations of this bridge, started in 1823 and completed 1825, can be seen in the County Records Office.

G.N. Crawford.

Gloucestershire Society for
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Cruise on part of the Birmingham Canal Navigation

May 31st, 1969

For the second year in succession, the Staffordshire and Worcestershire Canal Society under their Chairman, Ken Dunham, went out of their way to successfully organise another cruise for us on the Birmingham Canal Navigation, this time exploring canals further north than last year.

Before embarking on two narrow boats we had a quick visit to the entrance of the Dudley Canal Tunnel, looking down on the Castle Mills Basin where there is a second tunnel called the Wren's Nest, but this has subsided. We were soon aboard and proceeding along Brindley's Old Main Line, passing the only remaining octagonal toll booth before reaching Tipton Green and Factory Junction where we turned north.

One interesting building we passed shortly afterwards was Lloyds Proving House where anchors and chains were tested; luckily this place is being preserved. The next main item of interest was Coseley Tunnel (360 yards long) which was built in 1837 when Telford straightened out the line of Brindley's contour canal originally rounding the hill. You had to be careful when looking upwards as it was somewhat wet in places.

At Deepfields Junction our two boats the "David" and "Acquarius", turned into Brindley's Old Line for half a mile, winding round into Bilston for our lunch stop at the "Boat Inn", though most of us seemed to gravitate to the more spacious "Ship and Rainbow".

Back at Deepfields Junction we headed north once more, soon passing the huge steelworks of Stewarts and Lloyds, and an iron and brass foundry which has a fine range of chimney stacks. The numerous scrap yards on the sites of old factories along this stretch of widened Brindley's canal have given the B.C.N. a bad name for appearance according to our guide.

Coming up to Horseley Fields Junction there are numerous coal wharfs and basins and we passed hoists at a power station used to unload Cannock coal directly from the boats. At the junction we had a short run up the Wyrley and Essington Canal, which it is claimed carried more coal than any other, to have a walk down the locks of the Bentley Canal which used to connect up with the Walsall Canal.

Returning to Horseley Fields Junction, this time we turned up to Wolverhampton where the canal goes through the middle of the town in a long flight of twenty-one locks, the first flight of which we got through in record time due to the help of our members. It was here too that we had regretfully to leave the boats for the more prosaic coach, with many thanks to the members of the Staffs. and Worcs. Society who gave up their Saturday to give our society a day out of the ordinary.

G. N. Crawford

Visit to Sites in the Forest of Dean

Saturday 29th March, 1969

For the second year in succession a very large number of members and friends, in fact two coachloads, turned up for a further exploration of the Forest led by Gordon Higgs.

Our first stop was where the Parkend to Milkwall tramway crossed the road and the party walked up the tramway to the remains of Robert Mushet's steelworks. In 1848 the Forest steelworks had been set up to make Titanic steel and the equipment included a crucible furnace of ten melting holes with four pots in each hole. Each pot contained 44 lb. of iron and 3 lb. manganese ore and sixteen pots of steel made one ingot. These ingots of special steel were rolled by the Ebbw Vale Iron Co. for rails and other firms rolled the ingots into sheets. The steel was also made into mining and quarrying tools. Other equipment included a pair of tilt hammers and the labour force was seven in all; foreman, potmaker, two forgers, two melters and an odd job man.

In 1862 The Titanic Steel & Iron Co. Ltd., was formed by David Mushet with capital of £200,000 divided into 2,000 shares of £100 each. Self-hardening tool steel was produced in 1868; this steel would attain its requisite high degree of hardness if allowed to cool by air, as opposed to existing tool steel which had to be quenched in oil or water. However, bulk production stopped shortly afterwards in 1871, but it was agreed with Samuel Osborn of Sheffield that they would make and market the steel. It is not too much to say that Osborn's introduced Robert Mushet's special steel during the next few years into nearly every engineering workshop in the world. Many agreed that the new steel tools outlasted five or six of the old.

Walking back we examined a grinding stone, probably for grinding ore, driven by a horse and several of us went down to the stream to examine the remains of a blast furnace.

Our next stop was at Point Quarry, of the United Stone Quarries, where we saw a tramway tunnel and the quarry. This quarry is now disused.

Finally we got out by the Oakwood Inn to see the entrance to the Oakwood Mill Deep Level iron mine, of Mushet's, which was driven 5,050 feet and had an output of 150,000 tons before being abandoned in 1884. Close by were the substantial remains of the Bromley Hill Furnace which were put in blast in 1856 by the Ebbw Vale Co. Our afternoon ended with a walk up the Oakwood Tramway, past the engine house of Flour Mill Mine, and this tramway ran 2½ miles to Parkend to transport the iron ore.

Thank you again, Gordon, for showing us a few more of the extensive coal, iron and stone remains in the Forest of Dean.

Society Visit to Stapleton Road, Bristol and Seabank, Avonmouth

Gas Works on 8th November, 1969

With regard to an article elsewhere in this issue on the archaeology of the gas industry, it was interesting to have a visit to the Bristol Gas Works which is shortly to be closed down. This last visit of the year on a sunny but windy Saturday attracted approximately fifty members and was arranged by our President, Mr. Noel Newman contacting the S.W.G.B.

At the Stapleton Road works we saw the governor house, ammonia plant, tar distilleries, cooling towers, exhaustor house, Drigas plant and electricity generation plant, before examining discarded plant in the old exhaustor house. It was especially interesting to see a steam engine and booster with the name "G. Waller, Engineer, Stroud". Also standing is the old horizontal retort house, over an hundred years old, but now without any plant and used as a garage. This visit ended with a look at the vertical retort house, where we saw the retorts being heated by producer gas.

Our Chairman, Ian Parsons, had the excellent idea of having lunch at the New Passage Hotel near Severn Beach. Here you can still see the remains of the railway quay shown on an excellent print inside the hotel; the hotel and its history was described in Newsletter No. 5.

The afternoon visit was to the Seabank Works of the Gas Board at Avonmouth, a complete contrast to the Stapleton Road works, where gas is produced from naphtha by a hydrocarbon reforming plant. After seeing a control room with its huge viewing window, we wandered over cat-walks amongst a fantastic assembly of pipes, boilers, flues and plant of all kinds. Also of interest was the connecting up of natural gas to the plant that weekend.

Our day ended in a pleasant room overlooking the Severn with a tea kindly provided by the S.W.G.B. and our thanks to the officials who guided round the two works.

Brecon and Abergavenny Canal visit on 15th June, 1969

A large number of members and friends turned out on this Sunday morning for a day's excursion following the length of the Brecon and Abergavenny canal and seeing some of its associated tramroads, all in glorious scenery on a hot day. Our expert leader on this occasion was Gordon Rattenbury who brought along another old friend of ours, Ray Bowen.

Starting near Pontypool, we walked a length of the canal, passing over the Pontymoel aqueduct to reach its junction with the Monmouthshire canal, where an arm of the canal was formed to provide a quay for the tramroads serving it. After walking back we continued on the towpath and could appreciate how the canal was contoured, in fact it only has a 2" drop in 18 miles.

The coaches then followed bye-roads near the line of the canal until we reached Llanfoist, south-west of Abergavenny, where, up a steep path, members saw the basin and warehouse in an idyllic situation. This for a long time was the canal terminus from Brecon. We examined lengths of rail and an iron pig from Blaenavon, all salvaged from the canal, and also explored the start of the tramroad up Blorenge.

After travelling alongside the canal we turned off the Usk Valley at Gilwern to visit the site of the Clydach Ironworks where the remains of one charging house were seen. Nearby also was a fine cast-iron bridge dated 1824.

Back in Gilwern we stopped at the Corn Exchange public house to look at an aqueduct over a tramway and there was also a tramway gate to be seen. A walk along the canal past an arm with wharves brought us back to the Corn Exchange.

Reaching Crickhowell, we turned south to Llangattock. At a bridge over the canal we saw a line of lime-kilns and then had a walk along a former tramway with blocks to be seen. In the distance the steep inclines from the Daren Cilau Quarries were visible on the hillside.

Following the canal along the Usk Valley we saw both portals of the only tunnel before reaching Talybont-on-Usk. At Talybont there were more lime-kilns and also a tramway office to be seen but the greatest excitement was caused by the discovery of a tram wheel on the canal bank. While members were carrying it back to the coach, its ownership was disputed with the result that it had to be left behind.

Our last stop was approximately two miles from Brecon where there is a lock on the canal, incidentally the only one we saw, by a bridge over the Usk. From this pleasant spot there was a good view of the Brynich Aqueduct carrying the canal over the river.

Time had gone all too quickly so the visit to Brecon to see the terminal, had to be omitted. However, we had had a very full and well organised day, thanks to Gordon Rattenbury, and we look forward to another day in South Wales.

G. N. Crawford.

Presentation to Mr. W. G. H. Robins

Older members of our society will remember Bill Robins as our first Chairman, an all important and difficult task with a new society which was made to appear easy under his leadership. He forged the link between I.C.I. Fibres and the society which has been so helpful in so many ways since. After his chairmanship he was a committee member who could always be relied on to give reasoned judgements at meetings, but now, like so many of our secretaries, he has moved on to fresh pastures. Perhaps this is not too far-fetched a simile for an excellently landscaped factory.

In recognition of his valuable services to the society, our Chairman presented Bill with two volumes on the history of Courtaulds, subscribed to by committee members, at a meeting on the 22nd July, 1969.

Editor

Gazetteer of Industrial Sites

In the last Newsletter, it was mentioned that a sub-committee, under the Chairmanship of David Bick, had been formed to publish a Gazetteer of Industrial Sites in West Gloucestershire, followed by one of Sites East of the Severn. Since then a number of meetings have been held, including one at I.C.I. Fibres open to all members, and a large number of sites in the Forest of Dean have been catalogued.

Recently, however, it has been decided that the Gazetteer shall cover the whole county in one booklet and will be of selected sites only. It is hoped that the Gazetteer will be on the lines of the well produced booklet titled "Industrial Archaeology in Devon".

Society Visit to the Stone Mines in Wiltshire, 14th September 1969

Two coaches set out on a rather misty Sunday morning but after meeting our leader for the day, Mr. Roger Tucker, and within a few yards of our first place of interest, one of the coaches developed gear trouble. Very luckily, everyone managed to cram into the one remaining coach and we were soon at the site of the former red ochre works at Wick near Bristol (ST 707 736). Here very little remains except the mine entrance, an ochre spoil heap, tramway tracks and a few tubs in the bushes.

Over Lansdown Hill we reached Bath and, after approximately five miles along the A5, disembarked at the remains of Box Station (815 687). From here we stretched our legs by having a half mile walk past the short Middlehill Tunnel (820 687) and round by a large mill to the lofty portal of the well-known Box Tunnel (830 689) constructed between 1838 and 1841. From here one can still trace the route of the tramway which brought stone down to the main line.

Our next stop was at the Quarryman's Arms on the hill above Box for lunch, after which we spent the afternoon visiting stone mine sites in the area between Box and Corsham; it is said that there are sixty miles of underground passages here and the Services still use part of them for storage. In Box Fields we looked down the 100 feet vertical shaft known as "The Cathedral" worked from 1830 to 1850, and also visited Hazelbury Quarry where new open-cast working made access to passages difficult.

For a number of our members the climb down the 45° slope, with the aid of a rope, into Brewers Quarry was the most exciting event of the afternoon. Debris had made the actual opening into the quarry very small but no one got stuck and members showed themselves to be fit for anything.

The next quarry was more easily entered by an adit and we walked quite a distance through the high passages, seeing with the aid of torches how the Bath stone was quarried with saws, leaving large pillars of rock to support the roof.

Finally we saw the surface cranes and stone storage at a working mine and thus ended an unusual and interesting day for which Roger Tucker had recruited several specialists to describe various items.

Society Visit to Sites in North Worcestershire on

13th July, 1969

The leader of this visit, Mr. Norman Mutton, is by now well-known to many members of our society and it was certainly a very mixed and most interesting series of sites to which he led us on this pleasant Sunday in July. We met Mr. Mutton at Stoke Works, just off the A38 between Droitwich and Bromsgrove, where there is a salt works alongside the Worcester and Birmingham Canal. In 1860 John Corbett from Brierley Hill developed this works and also built the village and school, of which the former is unfortunately to be demolished shortly. After walking along the village street we looked at the works but there is nothing of the old factory left except two head-stocks, where there was also once a beam engine. Brine, consisting of 26% salt, is pumped out of wells four feet in diameter but all the boiling pans have now disappeared.

After passing the bottom of the Lickey Incline at Bromsgrove we soon arrived at Tardebigge on the canal where we saw the southern portal of the 580 yards long tunnel. A short walk past a basin and dry dock, which is now a repair and maintenance depot, took us to the top lock of a staircase of thirty.

In the coach again we passed the Clent Hills and Hagley Park before reaching Sturbridge and finding an inn on the Kidderminster road for lunch. From here it was only a short distance to Churchill where the forge, situated in a pleasant spot by a mill pond, is still driven by water power for manufacturing ladles, shovel heads etc. We were fortunate in having the owner present and so were able to see the water-wheel working the belt drives; one felt transported into another century.

Through Kinver and Enville we next travelled north-west to Bridgnorth where a mile south alongside the Severn we reached Daniel's Mill, in a steep valley below a viaduct on the disused line to Bewdley. Here we saw an immense water-wheel, 38'10" in diameter, with indirect gearing which was still working at the end of 1957 and whose owner is endeavouring to get it working again. We also examined the mill machinery and some members walked up the valley to the site of a clover mill.

The day's visits ended back in Bridgnorth where, at the station, we had a look at a scene of intense activity. Many volunteers of the Severn Valley Railway Society were busy reconditioning locos, rolling stock and the station, and our members were able to enjoy tea in a buffet car, a good ending to an excellent day.

A G.S.I.A. member visits Devon and Cornwall

From the 26th to the 28th of September I attended the 5th Annual Conference of the Historical Metallurgy Group in Penzance. Since the journey from Cheltenham was a long one, I took the opportunity to visit two factories in Devon and Cornwall in connection with my work, which enabled me to take several days for the trip. As much that I saw was of Industrial Archaeological interest I thought G.S.I.A. members might like to hear about it.

The Historical Metallurgy Group assembled in the very fine council chamber of the municipal buildings in Penzance on Friday evening, when Mr. J. H. Trounson lectured on the Cornish mining sites to be visited next day. Mr. Trounson is a consultant mining engineer who has spent his life in Cornish mines, and both that evening and throughout the following day, his knowledge was poured out to us unstintingly with a tremendous verve and enthusiasm, which it was a privilege to hear. His lecture was illustrated with old lantern slides of early mining scenes.

Saturday was a most memorable day, we left Penzance at 9.00 a.m. in two coaches, and by the time we returned in the evening, we were almost bewildered by the vast amount that we had seen and heard about Cornish Mining. It would have been impossible to pack so much into the day had it not been for the superb organisation by the Officers of the Group and the knowledge of the leader. A highly efficient loud speaker system enabled everyone in the coach to hear Mr. Trounson's commentary on the passing scene, and always before leaving the bus everyone knew exactly how long they were to spend on the site, what they were about to see, and what time to rejoin the bus. It really was a model of organization.

We first drove to the Botallack mine site. Surely no mine buildings can be more dramatically placed than those on Crown head, one looks down to the ruins of the pumping and winding engine houses still standing on wave lashed rocks. It was here that the future King Edward VII and Queen Alexandra descended the inclined shaft and made the pastime so popular that a fee had to be charged to thin the throng of people wishing to descend the mine. Anyone visiting this area today, should take great care, as there is an open shaft on the main cliffs, close to a small footpath, which descends to the rail track leading to Crown point.

From here we continued to the Levant mine which runs out under the sea, where miners used to hear the waves thundering the shingle backwards and forwards across the sea bed, above their heads. Finally the sea broke into part of the workings, and in recent years, since developments are taking place in the Geeveer mine, next to Levant, thousands of tons of concrete have been pumped into the mine, under pressure, to form a great barrier seal in the old workings. This work was successfully completed this year. It has been one of the greatest feats in the history of Cornish mining and the unwatering of the workings is now proceeding rapidly.

Of the mine buildings the winding house still contains its engine, and part of the Arsenic plant building still remains. It was also possible to see the platforms on which the stamps stood, and the remains of buddles.

After following the coast road to St. Ives, we continued through Hayle and Praze-an-Beeble to visit an engine house at Troon. Noteworthy were some particularly fine engine house ruins, of massive construction, in the area of the Greville, South Frances and Bassett mines. An excellent lunch was provided in the old Bassett Count House at Carnkie, now a restaurant.

We were fortunate enough to see the beginning of two different shafts now being sunk by Consolidated Gold Mines at their Janes Mines, three miles S.W. of Truro. This is the first time that two shafts have been sunk simultaneously in Cornwall since the twenties. We were also able to watch workmen sinking foundations for the permanent headgear over the concrete number 2 shaft. A concentrating plant with an initial capacity of 150,000 tons of ore per year, is expected to start operations in 1971.

One of the most interesting aspects to come out of the days visits was the realisation that Cornish mining is still very much alive, and that far from being a dying industry, it may well be on the brink of a great new resurgence.

At Bissoe we visited a concentrating plant refining old spoil heap material. This was largely achieved by the use of Holman-James shaking tables, but the new Hoseley concentrator has been found particularly effective and was producing excellent results. This machine works on a system of the slimes being fed over layers of plastic sheets stacked one above the other, shaking and at a slight incline. The roughened surface catches the fine grains of tin while the waste is washed off downwards. Every so often the whole multiple layered plastic "sandwich" would tip right up and the grains of tin be automatically washed off into a separate compartment.

Passing by the Killifreth and Chacewater mine, we returned through Redruth to East Pool. Here we visited the last Cornish engine house to be built in the county, in 1923. It housed a re-used engine of 1892, which had a cylinder of 90 inches, and pumped the 1700 ft. Taylors shaft. Both engine and house are now preserved and the nearby smaller winding engine house, on the main road, is open to visitors.

In the pumping engine house Mr. Trounson held his audience spellbound, as, standing beside the great beam he described how he had once witnessed the raising into position of a similar Cornish engine beam. The job was begun at 8.00 a.m. in the morning and completed by 1.00 p.m. Raising first, as was the practice, the front end of the beam which projects over the shaft, then the end towards the back of the engine house, then finally lowering the whole downwards into position.

Passing near South Crofty and Dolcoath Mr. Trounson described how the mine of Cooks Kitchen got its name. At one time when it was worked as a sett by a man named Cook, people would visit him in his cottage in the evening and say "How wide is the vein?" and he would reply "About as wide as my Kitchen!".

At the end of the day we returned to Penzance only two minutes behind schedule, and after a reviving dinner, heard Mr. F. B. Michell of the Cambourne School of Mines, deliver a paper on the history of Cornish Mineral Dressing.

On Sunday most of the conference members started on their homeward journeys, but Joan Day, from Keynsham, stayed on to make a more leisurely trip home with me. After the exertions of Saturday, during which we are said to have walked six miles and driven seventy-four, we opted for a restful day. After gathering pebbles of Serpentine on the beach, we went up to the Iron-age settlement of Chysauster on the hills above Penzance. This most interesting Archaeological site is a group of stone and turf huts, each with several rooms and an enclosed courtyard. Evidence of simple tin smelting has been found in at least one of these yards. The buildings were far less primitive than I had expected, and there was no difficulty in peopling it, in the imagination, with Celtic chieftains in flowing cloaks with gold torques round their necks - bartered for tin!

On Monday we thought again of work, Joan going research bent to Truro, while I spent most of the day making a photographic record of a coat factory near Redruth. It was here on the road between Redruth and Portreath that I discovered, by accident, what was to me, one of the most exciting places on the trip. A large yellow notice at the side of the road stated that Tolgus Tin was open to the public until September 30th. As it was September 29th, I counted my blessings and shot in as fast as possible. Tolgus Tin is a small concentrating plant refining old tip material, and since the growing interest in Industrial Archaeology, the owners have taken to opening to visitors during the Summer months. Much of the plant has been devised over the centuries by the Tin stream workers themselves. It is almost entirely composed of old wooden machinery worked by water wheels, and might have come straight out of Agricola. Even today, however, such methods of extraction can compete with the most modern in commercial use. The material first passes through a ball mill and is then raised to a sieve by an elevator wheel. Coarse waste is brushed off by a broom of twigs, worked off the wheel, and the material passes into two pointed separators and thence to long settling troughs with adjustable wooden bars at the outlet. The crop tin is then separated from the sands on James tables, and settled in tanks, before being treated on revolving round frames.

As if all this does not offer enough delights, there, in a shed, worked by a water wheel, are some genuine Cornish Stamps. These are probably the only twelve headed original working Cornish Stamps in the world. Built well over 100 years ago, each of the twelve stamp heads weigh 6 cwt. By this time I was almost jumping up and down with excitement. I had hoped my visit to Cornwall might produce remains of Cornish Stamps, but I had never imagined that I should find any actually working.

Mr. Solomon who had worked for very many years on the site, showed me round and finding that I was genuinely interested in ore dressing, he could not have been more helpful. I was shown the tin stone in its original form and some of the final dressed product, a weighty glass jam jar of grey powder, as fine as face powder and smooth as silk between the fingers.

After a night spent at St. Austell, we visited the site of the famous old tin mine of Carclaze on Tuesday morning. This enormous opencast working has now been partially filled in and is used as a china clay quarry.

We drove on to Dartington in Devonshire, where I was due to photograph processes in the weaving sheds. We were also able to visit the great hall, the medieval tilting ground and gardens of Dartington Hall.

The last day of the trip was mainly spent on the homeward road, but around mid-day we stopped at the Finch Brothers' Foundry, Sticklepath, on the A30 about three miles east of Oakehampton. Until recent years agricultural tools, such as scythes, billhooks and shovels were made here. The machinery is powered by water from the river Taw and a massive pair of old tilt hammers can still be seen. Taken over by the Finch Foundry Trust, much work has been done by local volunteers to put the buildings in sound order and to get the water wheels turning again. Much yet remains to be done before the group of buildings can be termed a Museum of Rural Industry, but visitors are allowed to enter, and it is a satisfying experience to see the old workshop in apparently much the same state as it was on its last working day. It is well worth a visit and the hostelry opposite provides an excellent ploughmans lunch.

Six days and more than six hundred miles after leaving Cheltenham I was very well pleased with the wealth of Industrial Archaeological interest to be found in the south west.

Amina Chatwin

Dock Site Museum Planned

In its issue of the 9th September, 1969 the "Daily Telegraph" had the following article, written by one of their reporters:-

Plans are being made to mark the 150th anniversary of the birth of Prince Albert, consort of Queen Victoria, by setting up a museum of industrial archaeology.

The Victorian Society and other interested organisations are combining efforts to establish a "Prince Albert Trust" to finance the project and have sought Prince Philip's support for the scheme.

As a preliminary step, Mrs. Edward Fawcett, secretary of the society, told me, a survey has been carried out by the History of Science Department of Imperial College, University of London, on the present state of industrial archaeology.

The researches, she said, have tried to discover which industries are conserving equipment of historic interest, and which museums are making similar efforts.

"We have in mind St. Katharine's Dock as a site for the museum, and possibly adjacent buildings which, we understand, may become available", she said.

John Strange

In addition to losing the services of Bill Robins, as reported elsewhere, the Society was doubly unfortunate with John Strange leaving for Lancaster University a few weeks afterwards. Besides being a committee member, John's enthusiasm for industrial archaeology was boundless, whether he was leading fieldwork and excursions, giving lectures or interesting the younger generation in our work. This latter was especially important in my mind and I am sure that the seeds he has sown will be of great benefit to our society.

Although specialising in railways, canals, breweries and agricultural machinery, John has encyclopaedic knowledge of all aspects of I.A. and we shall miss this great knowledge. We wish him all the best at Lancaster; perhaps when he has settled down John would agree to lead a society weekend visit to Lancashire! Anyway, we hope to hear from him whenever he has a spare moment to write.

Editor

GLOUCESTERSHIRE SOCIETY FOR INDUSTRIAL
ARCHAEOLOGY

Minutes of the Fifth Annual General Meeting held at Stroud
College of Art on Friday, 26th September, 1969

The following 1968/69 Officers and Committee Members were present together with 13 Society members :-

Chairman : Mr. Noel P.^{On} Newman, C.B.E., J.P. President.

Messrs : I.M. Parsons - Chairman
T.E. Edwards - Secretary
R.H. Pullan - Treasurer
G.N. Crawford - Editor
G. Higgs
M.J. Savory
C.H.A. Townley
L.F.J. Walrond.

Apologies for Absence: D.E. Bick
Miss A. Chatwin
N.C. Ferry.

Messrs. W.G.H. Robins and J.M. Strange had resigned as Committee members who had left Gloucestershire.

Minute No.

1. Minutes of the Fourth A.G.M.

These were read out, accepted and signed.

2. Chairman's Report

Mr. Parsons gave a Five Year Review of the Society, reminding how the Society came into being, what achievements there have been to date, and in particular to be reminded where we have been on past visits, in order to assist the Meeting in suggesting visits for next year. With regard to visits, the question of the maximum travelling time that a coach party will tolerate in one day was discussed; a maximum of two hours each way might be a comfortable limit. Beyond this limit, the weekend trip would appear to be the answer.

But let us now go back to the beginning, to 21.9.63, when there was a Conference of Industrial Archaeology at Stroud Technical College, attended by, amongst others, the following members of the Society according to the list as at 21.7.67 : Crawford, Marsh, Parsons, Pullan, Robins, Townley, Walron, Evans, Greenaway, Hammond, Randall, Rattenbury, Reinhold, Rix, Roberts, Rolt and Tucker.

Following on this on 17.1.64 the First Committee Meeting was held at Andrew's house, Woodchester, the Acting Officers and Committee being : Chairman Robins, Secretary Marsh, Strange, Taylor, Townley and Walrond. Noel Newman was willing to act as President. At a Second Committee Meeting at Walrond's house, Pullan became the Acting Treasurer.

Minute No.

2

Chairman's Report (Continued).

The actual birthday of the Society was the Inaugural Open Meeting on 6.3.64 at Stroud Technical College at which this Acting Committee was formally elected, and the draft Rules of the Society were agreed. At the First Committee Meeting after this, the Editor Crawford was co-opted onto the Committee.

The First Annual General Meeting of the Society was held on 24.9.65, the Officers and Committee being as follows : President Noel P. Newman, C.B.E., J.P; Chairman Robins; Secretary Marsh; Treasurer Pullan; Editor Crawford; Strange, Taylor, Townley and Walrond.

At this Annual General Meeting, Chairman Robins said in his Review of the First 18 months that the Society owed a debt to the Extra-mural Department of Bristol University and the Resident Tutor Taylor, on the Committee of the Society, for without his help backed by the University, the winter lecture series would not have been possible. Furthermore, without the secretarial, typing and duplicating service of ICI Fibres Limited, Gloucester, the administration of the Society, and the publication of the Newsletter would not have been possible either.

Secretary Marsh said in the Second Year of the Society there would be a greater priority for research and field work, than for winter lectures and summer visits.

Fieldwork during the First Year :

- 11.63 Survey of Monk's Mill, Alderley. Leader Walrond. Drawings completed by Parsons and left with Curator of Stroud Museum, Walrond.
- 28. 8.64 Survey of Small's Mill, Pitchcombe. Leader Walrond. Drawings completed by Crawford and Walrond and left with Walrond.
- 10.64 Survey of Gun's Mill, Abenhall. Drawings incomplete.
- 12.64 Survey of Thames and Severn Canal, Chalford. Leader Strange. Results inconclusive.
- 1.65 Egypt Mill, Nailsworth. Leader Walrond.

Visits during the First Year :

- 11. 4.64 Stanley and Ebley Mills, Stonehouse. Leaders Walrond and Directors of Marling and Evans.

Minute No.

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9. 5.64 Sudbrook Pumping Station and Newport Transporter Bridge.
6. 6.64 Bradford-on-Avon and South Wraxall Court. Leader Ponting.
4. 7.64 Forest of Dean coal and iron mines. Leader Baty.
5. 9.64 Thames and Severn Canal. Leader Household.
- 12.12.64 Fairfield Engineering Co. Chepstow, Lydney Harbour and Littledean Gaol. Leaders Company Staff and Bell.
24. 4.65 Newnham-on-Severn. Leader Rev. Mansfield.
8. 5.65 Nettlebridge Valley, Mendips, Leader Atthill.
11. 6.65 Owlpen Manor, Uley. Leader Walrond
19. 6.65 Ironbridge and Coalbrookdale. Leader Rix.
24. 7.65 Kennet and Avon Canal. Leader Willoughby.
- 25 and
26. 9.65 South Wales, Western Valleys. Leaders Bowen and Rattenbury.

Treasurer Pullan said that there were 122 members and the funds stood at £55.

The Second Annual General Meeting was held on 30.9.66 at Stroud College of Art, the Officers and Committee being : President Newman, Chairman Townley, Secretary Dr. Annis, Treasurer Pullan, Editor Crawford, Bick, Robins, Strange, Townley and Walrond.

Chairman Townley said during the Second Year lectures had been running in Cheltenham, Gloucester and Stroud. Fieldwork had been led by Strange. Over 300 Council for British Archaeology Record Cards had been submitted mainly by Cox, on milestones.

Secretary Eastwood (Dr. Annis had left for the United States) said members had been recruited following lectures and visits.

Visits during the Second Year :

17. 4.66 Stroud Valleys. Toll houses, milestones, etc. Leader Cox.
20. 5.66 Coombe Hill Canal, Cheltenham. Leader Bick.
11. 6.66 Gloucester-Sharpness Canal. Leader Pullan.
- 25 to
26. 6.66 South Wales, Eastern Valleys. Leaders Bowen and Rattenbury.

Chairman's Report (Continued).

10. 9.66 South Saffordshire. Leader Sherlock.

9.66 Gloucester Docks. Leader Roberts.

Treasurer Pullan said that there were 150 members and the funds stood at £125.

The Third Annual General Meeting was held on 22.9.67 at Stroud College of Art, the Officers and Committee being : President Newman, Chairman Townley, Secretary Eastwood, Treasurer Pullan, Editor Crawford, Bick, Chatwin, Ferry, Parsons, Robins, Rose, Taylor and Walrond.

Chairman Townley said that a steam pumping engine at Gloucester Docks had been given to the Society by British Waterways, and after numerous weekends, a small team including fitters from ICI Fibres Ltd., had dismantled it, and moved it to store at Newman Hender's yard, Nailsworth, and at two other temporary stores.

A plaque commemorating Brimscombe Port had been unveiled on 29.10.67 by the County Planning Officer (Collins) at Benson's Works. A second plaque for the Gloucester and Cheltenham Railway had been unveiled on 15.7.67 by the President Noel Newman, at the Hop Pole Inn, Cheltenham.

The records of the Severn Navigation Commissioners had been inspected and indexed at the British Waterways Offices, Gloucester Docks.

The Society had decided to produce a Gazetteer of Industrial Monuments in Gloucestershire.

On 18 and 19.3.67 the South East Wales Industrial Archaeology Society had toured the Stroud Valleys. Leaders Marshall, Strange, Walrond, Young.

Secretary Dr. Edwards (Eastwood had left for Harrogate) said the visits had been successful, but he appealed for fieldwork leaders. It was agreed that 6 Committee members was inadequate and the meeting approved an increase to 10, by change of Society Rules.

Visits during the Third Year :

15.10.66 Dudbridge, Stroud, Leader Rose.

2. 4.67 Gloucestershire and Avon Tramroad. Leader Townley.

15. 4.67 St. Mary's Mill, Chalford, Leader Walrond.

6. 5.67 Buckingham (organ) and Stoke Bruerne Waterways Museum. Leaders Stuart and Museum Curator.

Chairman's Report (Continued).

- 19. 5.67 Leckhampton Inclines, Cheltenham. Leader Bick.
- 3. 6.67 River Severn up to Stourport. Leader Rowbotham.
- 9. 6.67 Lister's Exhibition, Dursley. Leaders Company Directors.
- 1 and
- 2. 7.67 South Wales, Swansea Valley. Leaders Bowen and Rattenbury.
- 22. 7.67 Bristol, Cumberland Basin. Leader Cossons.
- 10. 9.67 Stroudwater, and Thames and Severn Canals. Leader Household.

Treasurer Pullan said that there were 170 members and the funds stood at £173.

The Fourth Annual General Meeting was held on 18.10.68 at Stroud College of Art, the Officers and Committee being : President Newman, Chairman Townley, Secretary Dr. Edwards, Treasurer Pullan, Editor Crawford, Bick, Chatwin, Ferry, Higgs, Parsons, Robins, Rose, Strange and Walrond.

Chairman Townley said that the Society owed a debit to the Resident Tutor Taylor for organising the winter lecture sessions, and to Editor Crawford for the work in obtaining copy and producing a Newsletter of such a high standard two or three times a year. Also to Chatwin, Crawford, and Rose with photographic assistance from Apperley for the Society Exhibition as part of the Stroud Festival.

The Museum Sub-Committee had produced a Report on a County Museum Service recommending that an Industrial Museum be set up in the Stroud Area. The Society was now represented on the Working Party of Museum Curators, who had been instructed by Councillors from the County, Cheltenham, Gloucester, Stroud and Tewkesbury, to produce a Report on a County Museum Service.

Secretary Dr. Edwards described another successful year of visits, and that the Cheltenham lectures frequently had an audience of 50.

Visits during the Fourth Year :

- 8.12.67 Egypt Mill, Nailsworth. Leader Walrond.
- 16.12.67 Savory's Pin Works, Painswick. Leader Hardiman.
- 9. 3.38 Cheltenham. Tour of Regency Ironwork. Leader Chatwin.
- 31. 3.68 Forest of Dean. Bicslade. Leaders Gordon and Patric Higgs.

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Chairman's Report (Continued)

20.4.68 Shropshire engine houses and Shrewsbury. Leaders Bick, Parsons and Strange.

4 and

11. 5.68 Postlip Paper Mills, Winchcombe. Leaders Company staff.

19. 5.68 Birmingham Canal Navigation. Gas Street Basin to Netherton Tunnel. Leaders Dunham and Staffs and Worcs. Canal Society members.

15. 6.68 Pendon Museum, near Abingdon, Wantage and Swindon. Leaders Museum Curator, Parsons, Strange and Townley.

13. 7.68 Somerset Coal Canal and Mendip Lead Workings. Leader Cossons.

15. 9.68 Gloucester and Hereford Canal. Leader Smith (GCC Archivist)

Treasurer Pullan said that there were 192 members and that the funds stood at £204. The Committee had agreed to purchase a projector.

The meeting debated the positions of amateurs and professionals in Industrial Archaeology, suggesting a central registry for record cards, and that if an author used information from these cards, then acknowledgement should be made to the card originator.

The Chairman, having reviewed the history and achievements of the Society up to this, the Fifth Annual General Meeting, then recommended the following names for an imaginary 1969 Honours' List, in alphabetical order :

Mr. Bick, author, for his book "The Gloucester and Cheltenham Railway" published earlier in the year, based on many years of research, and written in an unusually lively style for a railway history.

Mr. Crawford, Editor, for obtaining copy for, and writing large portions of, 13 Newsletters of approximately 40 pages each, of a consistently high standard. This rates as the main printed record of this Society since the first issue in May 1964. I now understand that the Editor's duties at work have invaded his nominally spare time to such an extent that he now feels he must hand over this post. On learning of this intention, none of the Committee members at the last meeting volunteered, and if the Meeting cannot produce an Editor, then the Newsletter will cease publication.

Dr. Edwards, Secretary, for the hard work in organising visits, which are so enjoyable and incidentally so successful financially, and for handling such a large correspondence, and in jointly organising lectures with Mr. W.R. Taylor of the University of Bristol.

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Chairman's Report (Continued)

Mr. Pullan, Treasurer, who after putting up with the unexciting chore of looking after the Society's finances, in spite of heavy duties for the City of Gloucester, has said he is content to remain as Treasurer. He has incidentally, impressed the Working Party of Museum Curators by his sober technical advice.

Mr. Robins, first Chairman, who forged the original link with ICI Fibres Ltd. who continue to keep the Society going with secretarial, typing and duplicating work. He has now had to move to another centre. The Committee presented him with the "History of Courtauls" on his departure.

Mr. Strange, for infectious enthusiasm over the whole five year period and for leading fieldwork on the Thames and Severn Canal and elsewhere. He also has had to leave the district to further his studies.

Mr. Walrond, Curator of Stroud Museum, for locating and organising the removal of the transport to store of a water wheel and associated machinery from Quenington Mill. The importance of this vital relic, representing one of the main characteristics of the Stroud Valleys, that is, water power, cannot be over stressed. The Committee of the Society inspected this wheel in position and reported that it was too big a job for amateurs to remove, but did offer a grant of £20, towards its transport. He should also get an award for sustained support of Committee meetings, lectures, and leading fieldwork and visits, over the whole of this 5 year period.

Mr. Wilson, Bookseller and Printer, for finding material for, and printing a very fine 1969 Christmas Card.

The Chairman then came to his main personal conclusions on the future of the Society :

1. A Society of this sort has a membership of intelligent people who do not take kindly to being bossed about on fieldwork, particularly if the end results are not recorded, or the whereabouts of the records are not known. Field work therefore should not be organised, but members should know what others are doing, and this information ought to be available in the Newsletter. The Committee have decided to produce a Gazetteer of important industrial monuments in the County, and fieldwork has been conducted by the Sub-Committee on several occasions during the last year, entirely in the Forest of Dean. It is intended to publish the results on the lines of "Industrial Archaeology of Devon". David Bick is Chairman of this Sub-Committee, and Gordon Higgs and myself are members. I have decided to work regularly on this Gazetteer from now on, and shall not therefore attend lectures at Cheltenham or Stroud. This meeting will therefore have to appoint a Class Secretary for the Stroud lectures.

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2. The Society would of course like to have a home of its own, a room with a bookcase, where members can meet, and possibly lectures be held. This is one of the reasons for the Committee pursuing the setting-up of an Industrial Museum in the Stroud Area. At the present time when public expenditure is being cut back, this will not of course be handed to us on a plate. Actual progress to date is that the Society has been welcomed as a member of the Working Party of Museum Curators, who have been given as one of their tasks, the reporting on the acquisition of storage so that industrial relics will not be lost forever. Also on the setting up of an Industrial Museum in conjunction with Stroud Museum. If an appeal for funds is launched, this will be in the name of the Cowle Trust who administer Stroud Museum.
3. The lecture sessions continue to mystify the Resident Tutor of the Extra-Mural Department of Bristol University, by their continued support at Cheltenham and Stroud, and by the apparent inexhaustible supply of subjects and lecturers. This Society must in fact continue to be one of the University's best customers. The visits also continue in their variety. However, lectures and visits contribute little to original research or to completion of record cards or to publication of articles in the Newsletter or elsewhere.
4. The present Committee by occupations consists of : Central Government Officer 1, Local Government Officers 3, Industrial chemists and engineers 3, Owners of small non industrial businesses 2, Teacher 1, and Curator 1. Assuming that this meeting decided to re-elect this Committee en-bloc, there would be 1 vacancy, excluding co-option. The missing occupation for a Society for Industrial Archaeology is Owner of a small industrial business. Someone who can give down to earth advice on the location of, purchase, transport to store and renovation of machinery.
5. And finally, our neighbours to the South within the County and therefore within the area covered by the Gazeteer, are the Bristol Industrial Archaeological Society. We must get closer to them on a Society basis, join up on visits, and possibly exchange members at Committee meetings. But beyond this geographically, unless there are real advantages to be gained, it does not seem worthwhile to join Regional or National organisations.

Secretary's Report

The Secretary Dr. Edwards reported that there were 144 Paid up members of the Society comprising 2 Hon. Members, 1 Company member, 1 Junior Member, 88 Ordinary Members and 52 Family Members. Since the publication of the last Newsletter there had been 10 new members and 4 resignations.

With regard to the visits, summarised below, he asked the members to understand that if there were any shortcomings, there were difficulties in organising at a distance, and in meeting the requirements of a very fair cross section of individual interests. The very considerable time given by Leaders of Visits to the organisation of a visit should be appreciated. Lectures had again been well supported. Unfortunately the week-end trip to Somerset has been cancelled for lack of interest and the last trip of the Season, that to Donnington Brewery was off.

Finally the Society owed a debt to ICI Fibres Ltd. Secretary Mrs. Till who had left, and now to her successor Miss Patterson. The meeting agreed to give her successor a gratuity, also.

Visits during the Fifth Year :

- 26.10.68 Birmingham Science Museum. Curzon Street Station. Leader Parsons.
- 14. 3.69 Bistro 49, Cheltenham. First Society Dinner.
- 29. 3.69 Forest of Dean. Titanic Steelworks and Point Quarry. Leader Higgs.
- 31. 5.69 Birmingham Canal Navigation. Dudley to Wolverhampton. Leaders Dunham and Staffs and Worcs. Canal Society Members.
- 4. 6.69 Tewkesbury King John's and Iythe Bridges. Leaders Brown and GCC Surveyor's staff.
- 15. 6.69 Abergavenny and Brecon Canal. Leader Rattenbury.
- 13. 7.69 North Worcestershire. Ironworks sites. Leader Mutton.
- 14. 9.69 Box stone mines and Wick ochre Works. Leader Tucker.

Treasurers Report

The Treasurer, Mr. Pullan said that at 8.9.1969 the current balance was £165.0.9d. Commenting on the financial statement he thought that £14.0.0d for the Stroud Exhibition had given very good value for money. The President queried the rate of interest at the bank and the Treasurer agreed to investigate the possibility of a better rate of interest. The statement was approved.

4

Election of Officers for 1969/70

The President asked the Chairman if he was prepared to continue in office and was assured that not only he, but all other Committee members were also prepared to continue. No other nominations were in fact accepted and the Officers and Committee were re-elected by the meeting. Owing to Messrs Robins and Strange leaving the district, the Committee was down to 9. Dr. Annis, a former Secretary, was proposed and elected. Mr. Carter had declined a nomination. Mr. B. Roberts who had also been nominated, was co-opted onto the Committee. Therefore the Officers and Committee for 1969/70 were : President Noel Newman J.P., Chairman I.M. Parsons, Secretary Dr. T.E. Edwards, Treasurer Mr. R.H. Pullan, Dr. Annis, Mr. D.E. Bick, Miss A. Chatwin, Messrs. N.C. Ferry, G. Higgs, R.L. Rose, M.J. Savory, B.J. Roberts, C.H.A. Townley, L.F.J. Walrond and G.N. Crawford.

Regarding the vacant post of Editor, Mr. Crawford said that Mr. Savory had kindly agreed to take over in the New Year, and that before this, Mr. Crawford thought he had enough copy to Produce No. 14.

5

Suggestions for 1970 Activities

The President asks for suggestions concerning the nature of visits bearing in mind the Chairman's comments on maximum distances and the viability of week-end trips. He went on to say that in view of the rapid disappearance of coal-gas plants, he was prepared to organise a visit in October 1969 to Bristol gas works. The meeting gladly accepted this offer. The Secretary noted the further suggestions from the floor. West Midland Canals, Black Country, Leader Mutton; Avon Vraas Foundaries, Leader Mrs. Day; Taunton and Bridgwater Canals; Braunston to Stoke Bruerne canal boat trip; Cardiff, Penarth and Barry Docks; Corby Iron Workings; Witney Blanket Mills; Forest of Dean; Bullo Pill, Lydney and Cinderford.

The meeting considered that the possibility of exchanging visits with the North West Industrial Archaeology Society should be pursued, and a week-end visit to Merseyside was possible.

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Any Other Business

Mr. Townley agreed to act as Class Secretary for the Stroud Lectures.