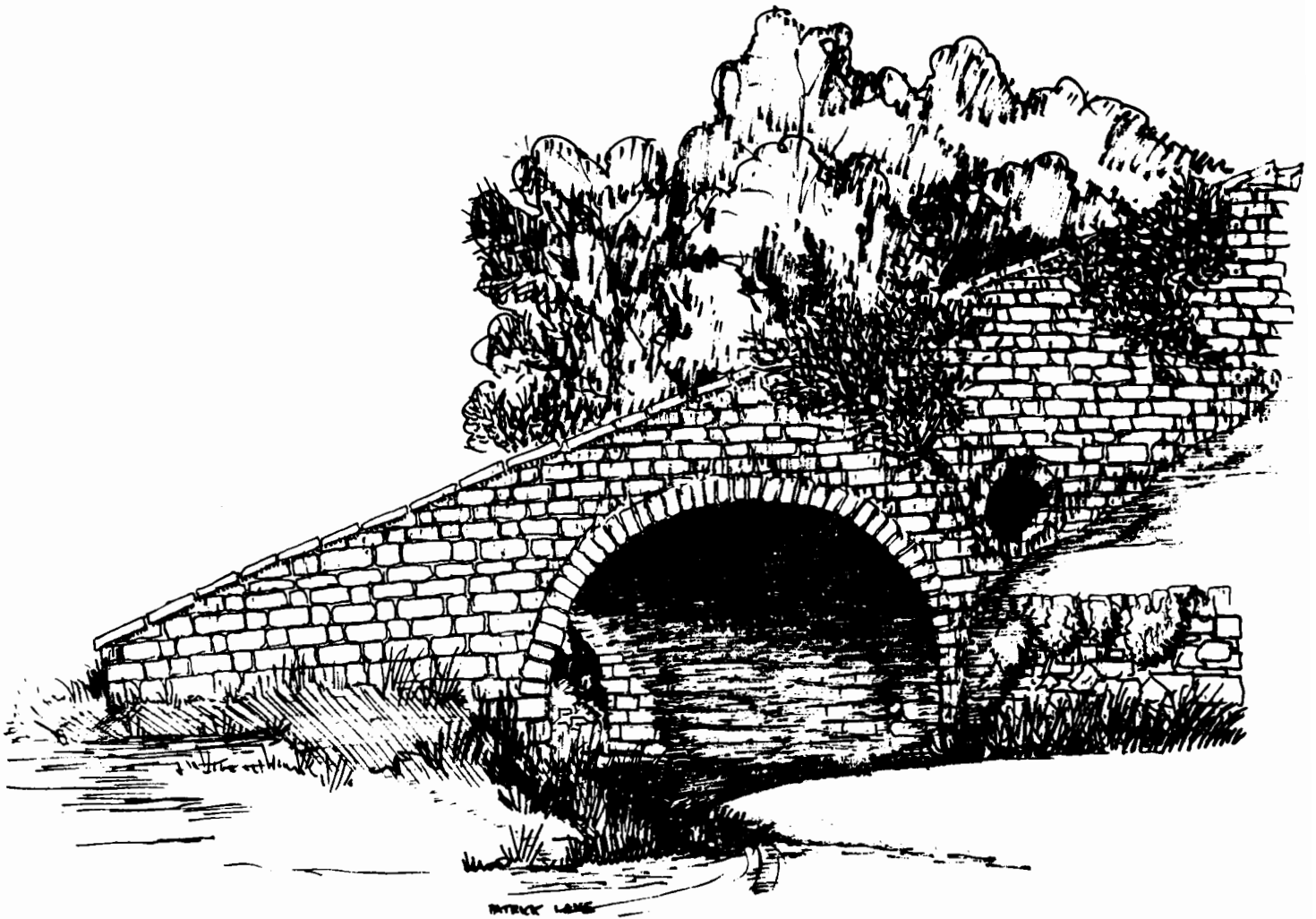


# GSIA



**JOURNAL 1977-8**

The aims of the Society shall be to stimulate interest in, record, study and where appropriate, preserve items of industrial archaeology particularly in the county of Gloucestershire.

PRESSES.

Fig. 1.

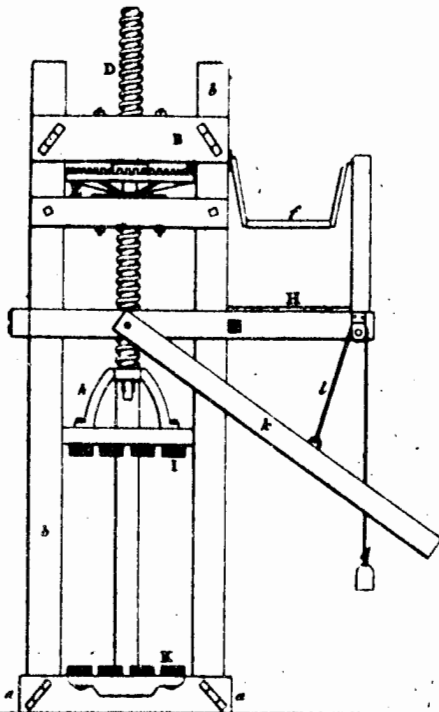


Fig. 2.

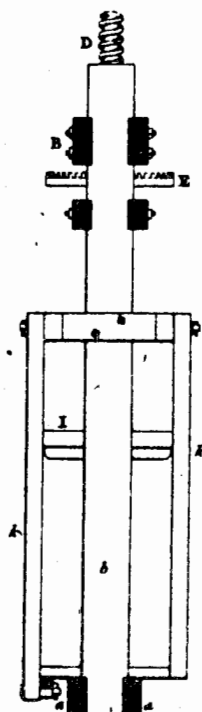
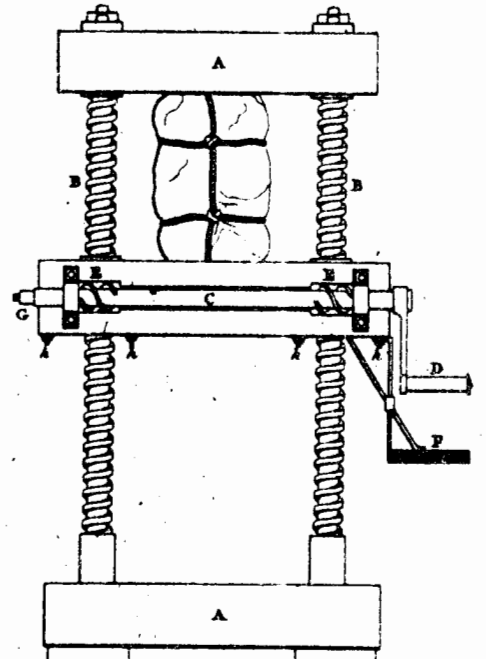


Fig. 3.



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### Cover Illustration

We are indebted to J.P.G. Lane T.D. for kindly allowing us to reproduce his original drawing of the Redbrook Incline Bridge (SO 537103) made specially for this number of the Journal.

The illustrations in this number of the Journal are from "The British Encyclopaedia" 1808, excepting those on page 59 which are from the Supplement to the fourth and fifth editions of "The Encyclopaedia Britannica"; the supplement is dated 1824.

**GSIA****GLOUCESTERSHIRE SOCIETY FOR INDUSTRIAL ARCHAEOLOGY****TEL. 25086****HON. SEC. AMINA CHATWIN  
6&7 MONTPELLIER STREET  
CHELTENHAM GL50 1SX**

1976/7

1977/8

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The views expressed in the editorial are not necessarily those of the Committee. The Editor is always pleased to receive articles, reports, and correspondence for the Journal; also suggestions for its improvement in any way .



This is the seventh Annual Journal that has been produced in this present form. Apart from the printing of the cover and photographs, when they have been included, the journal has been produced entirely on a voluntary basis which has kept costs down to a minimum. We have known for some time that much of the help that has been available to us will cease with the coming year, so that 1979 will undoubtedly present more financial problems than the Society has hitherto had to encounter.

Over the last seven years, perhaps inevitably when we rely on the voluntary labour of busy working people already fully committed with their own work, the Journal has become rather behind with its publication date; so that in recent years the Journal has come out in the year following the date on its cover. This leads to quite a lot of complications and difficulties in keeping subscriptions and journals in line, and produced confusion in the minds of new members. The current number particularly has been considerably delayed by circumstances outside our control. It has therefore been decided that it would be expedient to call this number 1977-8 so that we shall then be in a position to start up to date with the new production method next year. It will also mean that a rise in the subscription can be avoided for at least another twelve months. We hope members will feel content with this arrangement which in the circumstances seems the best course to take. We are already receiving articles for the next number so you should have the pleasure of receiving 1979 in 1979.

It had been the Editors intention to publish in this number the report on the Darkhill excavation which took place in the Forest of Dean in the summer of 1977. Unfortunately much of the delay to this journal has resulted from the difficulty in obtaining the necessary drawings and photographs to complete the report. It now seems likely that a new season of excavation will commence on the site, probably before the end of 1978, so perhaps it is for the best that the report will ultimately be able to cover both seasons and produce a more intelligible whole.

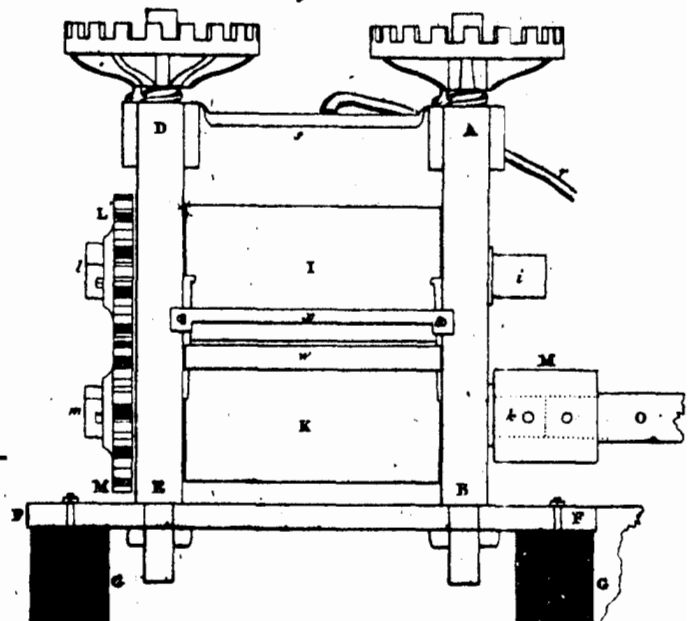
The number of 17th, 18th, and early 19th century Blast Furnace remains in this country are extremely limited, especially in the south of England. The Forest of Dean has in Gunn's Mill and Whitecliff two of the finest and best preserved in the whole country. The former, built into farm buildings, is not in immediate danger, but Whitecliff furnace, near Coleford, dated 1806, is in a far more parlous condition and is being daily shaken by expositions from a nearby quarry. During the past twelve months the Society has been much involved in efforts to save this furnace. The Whitecliff Furnace Trust has been set up, with Sir Campbell Adamson and Dr. Cyril Hart as two of the Trustees, under the Chairmanship of Mr Ian Standing, and under the auspices of the Historical Metallurgy Society. The whole project will require a vast amount of money, much of which it is hoped will be contributed by various trusts, bodies, and companies. As a beginning the GSIA has made a start by contributing £211.95 raised during 1978, and will continue to direct every effort towards a satisfactory outcome to this important project.

Our thanks go to all our contributors who have made it possible to include so much original research in this number. It is particularly pleasing, in view of our efforts to retain and repair Redbrook Incline Bridge, that we are able to include Mr H.W. Paars new material on this subject.

On a purely social level perhaps I might be allowed to report that some of our members have been moving in high places! Mr Brian Smith, County Archivist of Gloucestershire and his wife met Mr R.H. Pullan, County Engineer and Surveyor of Gwent, and Mrs Pullan, on the lawns of Buckingham Palace this August, when they all had the pleasure of attending one of the Royal Garden Parties.

### ROLLING MILL.

Fig. 2.

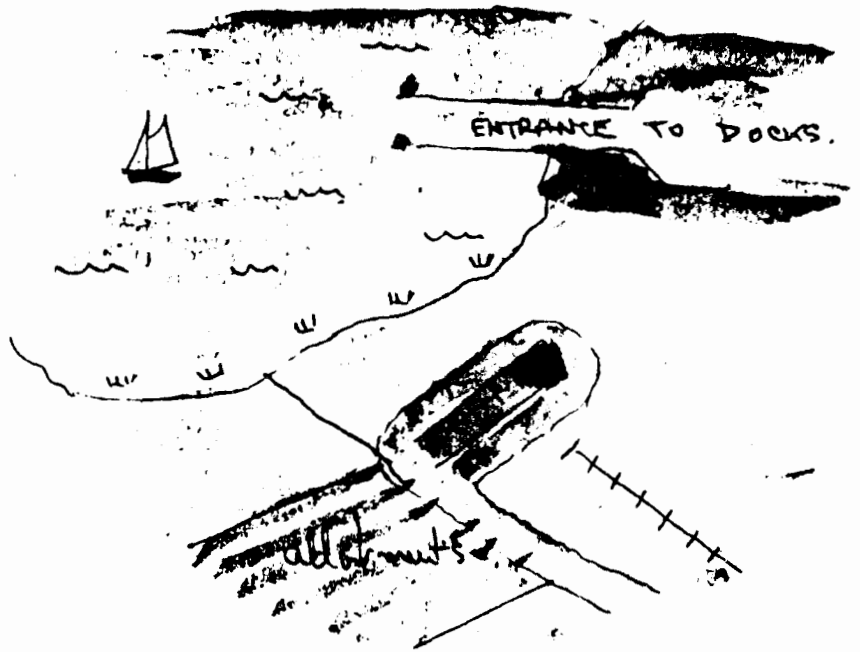


# LETTERS

This letter from Patrick Lane was illustrated with a water colour drawing, which I regret we are unable to reproduce in colour.

Dear Amina,

On my way back from Stone yesterday I visited Sharpness Docks to have a look at the cottages mentioned in the Journal. I met a Mr Sollars who proved to be a mine of information. He lives in one of the cottages facing the Estuary.



He talked about his early life in Stroud and how he used to help the men move the narrow boats through Sapperton Tunnel on the Stroudwater Canal and a mill where his mother had shown him a large water tank where a dye was made by soaking a red wood from Africa apparently carried up the Stroudwater by boat. He talked of a silk spinning works nearby and a donkey-gin used for the motive power.

He mentioned a Mr. Jo. Hatherley of Gatcombe, Nr Minchinhampton, who has knowledge on the water supply for the Stroudwater Canal and the supply for various water mills in that area - No doubt someone living in the Stroud area may care to follow this up for the Society Survey? It is often through chats like this that new sources of information come to light.

With very good wishes, Pat,

The following letter was written to Mr G. Beddow in his capacity as Field Officer of the G.S.I.A, a position from which he has now resigned. As Secretary I brought the letter to the notice of several members and now reprint it here as it raises several points which may be of general interest.

11 Midland Road  
Gloucester.

Dear Mr Beddow,

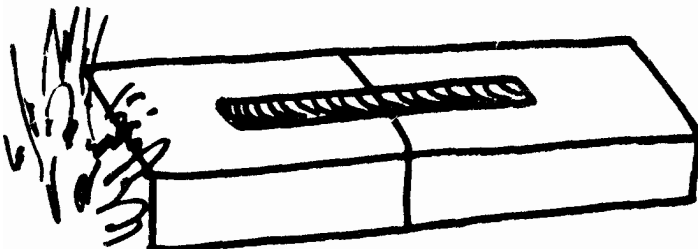
I see in the current number of Glevensis that you are the Field Officer for the G.S.I.A, and I have written to you as my query concerns Industrial Archaeology. Both of the railway stations in Gloucester stand on artificial mounds, and the G.W.R line to South Wales had to run on an embankment all the way from the station to Over. The Midland railway to Tuffley appears to have made use of the gradual natural rise of the land, but even this track is higher than the Stroud Road. Have you any knowledge of where all the material for making the raised track and the station mounds came from? The River Twyver was culverted under the Midland Station. Before this was built, Morin's Mill stood there, and the difference in level between the mill-pond and Station Road (Mill Lane) accounts for some of the obvious rise. Nowadays the City refuse is, I believe, used for filling up old clay-pits along the river banks, but I don't know whether there was any official refuse collection in the 1840's. I am very interested in the long stone wall which runs alongside the railway from Barton Gates to Parkend Road, opposite the tennis courts. (Also the wall from the bridge over the canal to Llanthony.) The stone must have come from somewhere west of the river for it is not oolite. Possibly from the Chepstow area, for it is not sandstone, although it is slightly pink.

When the Midland Station site is disturbed, when the road-building commences, there should be some interesting material brought to light, even perhaps remains of Morin's Mill. I don't know whether your Society or Gadarg will be on the spot, but the site wants watching. I have an interesting stone step, the top one of a flight of four leading from my sunken back yard to the garden. It has obviously been in use somewhere else, before the house was built in 1874. This is a rough sketch of it. Could it be

something from the Glos. to Cheltenham tramway? \*

Yours truly,  
Gwladys M. Davies

\* I consulted Mr D. Bick on this stone, but he did not recognise it as belonging to the Tramway.  
Editor.





LETTER FROM ZAMBIA

Our News Sheet No 22 reached Mr Victor Mayes by a somewhat circuitous route, Cheltenham-Santiago-London-Zambia, after that he let us have his change of address! We certainly had our money's worth out of the Post Office on that occasion.

Knowing that we are always glad to have news from our further flung members, Mr Mayes sends the following note on Zambia.

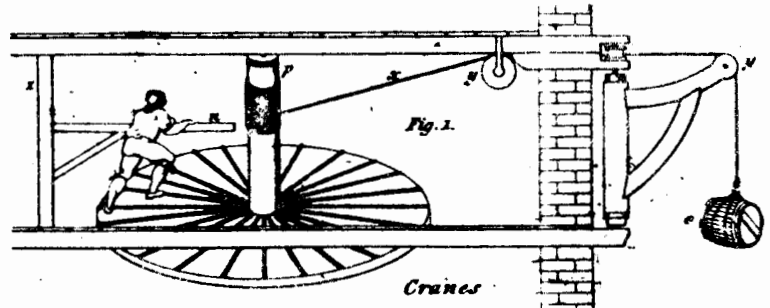
"There is very little industrial archaeology in Zambia as copper production only began on a modern scale at the beginning of this century, although the Zambian copper industry is now so run down due to deteriorating economic conditions that some of the instrumentation ( my field) will soon begin to qualify!

Interestingly, although the copper deposits in Zambia were 'discovered' by Europeans like Collier, Africans were mining copper, tin, iron, and gold a thousand years earlier from the same ore-bodies later exploited more intensively by Europeans. These were surface ores from open workings in the case of copper and iron, but gold was mined in Rhodesia from great depths. Arab writers of the time say that iron from Rhodesia and Zambia was highly esteemed and was imported to India in the 13th century. Bronzes were made by mixing the tin and copper ores before smelting. Blacksmithing and bronzeworking reached a high technical standard, including the drawing of wire, beads, and foil, and gold plating and silver filigree work executed. Substantial quantities of gold were looted by Europeans from burial sites and hoards. Disappointingly, almost none of these sites are thought worth listing as historical sites, monumnets, or tourist attractions, even in Rhodesia, where site listing has been much more thorough than in Zambia."

ST JAMES' STATION - a whiff of nostalgia preserved

A pleasant informal ceremony took place at St James' House - on the site of the former station in Cheltenham - on 22nd May 1978. The late Roger Wilson had left his railway relics to Bristol Museum, and at the suggestion of Mr John Bayley they have allowed a GWR timetable board, with 1945 departure poster, to be exhibited in the foyer of St James' House, the home of the Mercantile & General Insurance Co. Mr Gordon Cuthill of that company showed Mr Bayley and David Lyall the board, with some mounted photographs of the station in earlier days, and a commemorative brass plate. We should like to record our appreciation of the trouble taken by Mr Cuthill and his company in this very appropriate piece of preservation, and no less to Bristol Museum for making it possible, and to John Bayley for a brilliant idea. (Reproduced, by kind permission from GRS News.)

# VISITS



Again during the summers of 1977 and 1978 our visits programme was organised by Mr Norman Ferry. There was, in each year, a full programme of day outings and shorter afternoon or evening visits to places of Industrial Archaeological interest. The following reports cover some of the longer trips.

## MORWELLHAM May 1977

The first full day excursion of 1977 took fifty members and friends to Morwellham on the River Tamar.

Some twenty miles up river from Plymouth, Morwellham was a port in the 12th century, particularly for Tavistock Abbey and its lands. After the dissolution the lands passed to Lord John Russell, ancestor of the Dukes of Bedford who still own all the land on the Devon bank of that part of the Tamar.

In 1796 copper from Wheal Friendship mine at Marytavy was carried to Morwellham by packhorse until the Tavistock Canal was opened in 1817. It ran  $4\frac{1}{2}$  miles from Tavistock to a point 200 feet above Morwellham, including a  $1\frac{1}{2}$  mile tunnel. The party saw the tunnel entrance and the site of the inclined plane down which trucks were lowered to a quay from the canal terminus.

A big increase in copper mining through the development of the Great Devon Consols mines led to the completion in 1856 of a standard gauge railway from the mine to Morwellham again including a half mile inclined plane to the quay; three years later a new dock with paved storage area for 4,000 tons of ore was opened. However with the gradual run-down of the Devon Great Consols traffic at the port had virtually ceased by 1896.

The party were conducted round the extensive remains, which are now cared for by the Dartington Trust, by Mr Fisher, the assistant warden. This included a slide show of the history of Morwellham and a visit to the CEGB Hydro Electric Station which was opened in 1933 and uses water from the canal.

Arrangements for the visit were made by society members Mr & Mrs Smyth who now live in nearby Callington and they were thanked by Mr N.C.Ferry. A highly enjoyable day finished by a memorable return journey across Dartmoor in brilliant sunshine.

## BRECKNOCK AND ABERGAVENNY CANAL June 1977

Members and friends explored the line of the Brecknock and Abergavenny Canal under the leadership of honorary life member Mr Gordon Rattenbury.

The Bill for the canal was deposited in Parliament in 1793, it

it was for a canal from Pontymoill, at the north end of the Monmouthshire canal, to Brecon and for the construction of "Rail or Waggon Ways on Stone Roads" from the west of Brynmawr to Gilwern, and from any industry lying within 8 miles of the canal. The section from Brecon to Gilwern was opened in 1800 but shortage of funds delayed the opening of the canal for through traffic to the Monmouthshire until February 1812.

The joint canals were taken over by the GWR in 1875 and the Monmouthshire gradually cut back prior to 1939. Its use as a watercourse has saved the Brecon and Abergavenny from a similar fate; and for some years past it has been open for pleasure boating. However, a big burst in the bank near Llanfoist in 1975 has meant that the section south of Gilwern is at present dry though restoration work is being undertaken by British Waterways.

The tour started at Brecon itself, where the sites of the original wharves, and the terminus of the Hay Railway (1816), together with a considerable bank of limekilns were seen. The next stop was at Bryich Lock and the nearby stone aquaduct over the River Usk, which cost £2,500 to build in 1800. Visits were then paid to Talybont to see the alignment of the Brinore Tramroad and more large limekilns and to Gilwern where the offices of the canal were sited and where there was a considerable trade in coal, brought in by railroad from Brynmawr.

The last site was Clydach Ironworks which was in operation from 1797 to 1867 and at its peak had four blast furnaces, a rolling mill and a forge. The most impressive remains are those of the mixing house where iron ore, coke and limestone were mixed preparatory to being wheeled over a wooden ledge to the top of the furnace. The tall windowed gable end of the mixing house at first sight looks more like the ruins of a church. Nearby a graceful cast iron bridge over the river Clydach bears the date 1824.

The day finished very enjoyably with the party being entertained to tea by Mrs R.H.Pullan, wife of the Society's former Treasurer for twelve years, on the lawn of their new home near Abergavenny.

#### LAND AIR AND WATER TRANSPORT July 1977

Transport by land, air and water was the theme of the July excursion. In glorious sunshine on the first really fine day for weeks, the outward journey was via Chipping Norton to the British Waterways Canal Museum at Stoke Bruerne.

Housed in a three-story former grain warehouse and mill on the bank of the Grand Union Canal it contains photographs, models, costumes and other relics of the canal age.

Past the former LNWR carriage works at Wolverton and Woburn Abbey, the party came to the Shuttleworth Collection at Old Warden aerodrome, Bedford. Here was a large display of early aircraft

from a Bleriot monoplane onwards, veteran cars, motor-cycles and bicycles, penny farthings and hobby-horses and horse drawn carts.

The final call was via the vast airship hangers at Cardington to the restored 18th century Post mill at Stevington. This mill was probably the last in the country to keep the ordinary cloth-covered sails which had to be reefed by hand to suit the force of the wind.

Luckily it was possible to obtain the keys from the landlord of the Royal George Hotel\*and explore the interior which was fully equipped.

The return journey was made via Buckingham and Witney, concluding a very enjoyable day.

(\* The Editor is here reminded of a notice in English on a foreign monument which reads "The keys of this monument find themselves all around the corner".)

NORMAN FERRY

#### MELLS AND RADSTOCK October 1977

Led by Robin Stiles this trip took in the Radstock coalmining area and the remains of the Somersetshire Coal Canal, built under an Act of 1794 to connect collieries in the Somerset Coal Field with the main line of the Kennet and Avon Canal. After lunch at the "Jolly Collier" at Camerton the party visited Mells, once the home of Fussells Edge Tools, which has been excavated and consolidated by the Bristol Industrial Archaeological Society over a long period. It is an impressive site with offices still standing and a vast complex of buildings in a ruinous condition. Although the weather was against us the day was very much enjoyed by all the participants, .

#### BRECON BEACONS April 1978

The visit for over fifty members was conducted by Mr John van Laun, warden of the Longton Youth Adventure Centre, a member of the Brecon Beacons National Park Committee and author of "The Pattern of Past History in the National Park", and of the excellent little book reviewed in our 1976 Journal "The Pattern of Past Industry" in the same area.

A very full day covered early communications in the area and the Clydach ironworks. The party were very fortunate in obtaining permission to enter the Blaenavon ironworks which are now undergoing restoration. Earlier visits have been made here and it was therefore particularly interesting to see how much of the accumulated earth and debris had been removed from the base of the furnaces. Whereas previously the lower part of these structures had simply been lost in a grass covered bank, some of the hearths and dam stones have now been completely uncovered, so far revealing the furnaces that it is possible to look right up into the stack and see the shape of the boshes.

There was only time for a brief call at the Coalport China works at the foot of the inclined plane before a hurried return to Bridgnorth to catch the last train of the day on the Severn Valley Railway for the 12½ mile run to Bewdley.

This brought a very successful day to a most enjoyable conclusion, though the Great Western enthusiasts in the party would have preferred one of their favourites to the ex LMS locomotive that hauled the train.

#### BURTON-ON-TRENT July 1978

Brewing, flying and boating all formed part of the July excursion. The day started with a visit to the Bass Museum at Burton-on-Trent which featured the story of the famous brewery and its importance to the trade of the town and the development of the Midland Railway system.

En route for Derby a stop was made at the Dove Aquaduct, the biggest on the Trent and Mersey Canal. At Derby the party visited the Industrial Museum in the Old Silk Mill, where one large gallery is devoted to Derbyshire industry in general and another to the history of flight, linked to a comprehensive exhibition of Rolls Royce Aero Engines, ranging from World War I piston engines through early jets to the latest Vertical Take Off and Landing jets. A short walk brought the party to the Museum and Art Gallery where they were particularly interested in a collection of early domestic machines, wireless sets and musical boxes, together with a strikingly realistic gauge 'O' model railway based on the Midland system.

On the return journey detours were made to Chetwynd Bridge built in 1824 over the River Trent near Alrewas, and to Fradley Canal Junction where the Coventry Canal joins the Trent and Mersey. This was a scene of great activity with dozens of pleasure craft moored or passing through the locks.

#### NORMAN FERRY

During the summer of 1978 there were also walks in Cirencester and Chalford, and a delightful morning visit to Kilcott Mill which Mr Medlam had working. He carefully explained all the processes and we were able to experience the great satisfaction of being surrounded by all the moving parts of the mill, an exciting experience in a wonderfully peaceful setting.

Two visits were made to Priday Metford's Flour Mill, Gloucester, both led by Dennis Swan, the mill manager who gave a comprehensive run down of the history of milling, sources of wheat supply, characteristics of different types of wheat, the milling process, blending, testing for protein etc. Unfortunately no milling was actually in progress on either occasion as the annual shut down was in progress. Much of the plant is being replaced later this year, including the scrapping of miles of wooden trunking and its replacement by stainless steel piping.

A.C and N.F.

The party almost never arrived at Blaenavon as our super-luxury extra-long coach, after climbing a very steep narrow hill road, became stuck across an old level crossing; being quite unable to negotiate a turn to a further upwards climb it looked for some time as if our only possible way of progress was forwards along the overgrown and derelict railroad track. Fortunately one of our party was Howard Pullan, now County Engineer of Gwent, so it was with full official permission that most of the male members of the outing left the coach to manhandle a number of very large muddy boulders from the side of the road, so allowing, after some intricate turning manoeuvres, continued progress to be made.

Howard and Beryl Pullan are gluttons for punishment and again entertained the whole party to a very welcome tea. A box of chocolates was presented to Mrs Pullan as a very small token of our appreciation.

Amina Chatwin

COALBROOKDALE June 1978

The visit commenced at the recently restored Severn Warehouse, built by the Coalbrookdale Company in the 1840's. After an introductory slide show setting out the history of the arch which can claim to be the cradle of the industrial revolution the party walked to the famous ironbridge itself. This was the first in the world, and when it was cast at Coalbrookdale in 1779 it was designed as though it was made of wood, dovetailed and jointed together, crossing the Severn by a single semi-circular arch of 100 ft span.

Next the party visited the Coalbrookdale Museum, associated with the blast furnace where Abraham Darby perfected the technique of smelting iron, using coke as fuel. Without this break through, the former method using charcoal as a fuel was so extravagant in timber, one blast furnace consuming as much as the charcoal from an acre of woodland in a single day that the industrial revolution would have been impossible. The original furnace, three times enlarged, the last to cast the ribs of the iron bridge is still standing here.

Following a picnic lunch the party then toured the 42 acre Blists Hill Open Air Museum, under the guidance of Mr Ray Cheadle. Here they were delighted by the arrival of a Foden steam tractor. In addition to remains of original industry on the site, including a 19th century blast furnace, the fire clay mine with a working steam winding engine and brick works other buildings and machinery have been removed there for preservation. Among them are two huge blast furnace blowing engines "David and Sampson", iron and wooden pit head gear, a working printers, saw mills and a toll house built by Telford on his new Holyhead road a few miles away and which recently featured in a Blue Peter film on the life of a toll-keeper. Along the top of the site a section of the Shropshire canal has been cleaned out and re-watered and the 1000 feet long Hay inclined plane on which tub boats were lowered down to river level restored.

THE WHITECLIFF FURNACE TRUST  
& THE ANNUAL DINNER 1978

The Annual Dinner of the G.S.I.A. was held at the Fleece Hotel Gloucester on March 17th, in aid of the Whitecliff Furnace Fund. The President of the Society, Mr David Verey, and Mrs Verey presided, and more than sixty members and their friends were present. The Guest Speaker Dr Cyril Hart, Verderer of the Royal Forest of Dean, and author of many books on the Forest, including "The Industrial History of Dean", was introduced by the Rev. W Awdry. Dr Hart spoke with great feeling about his work and the history of the area, so that one had the impression that he was gradually drawing the whole assembly into the Forest, with his reminiscences. He spoke of the Grad Oak which was known from documentary sources to be more than 400 years old; of the "old castle of Den" the site of a Norman Castle which gave the Forest its name; of St. Bravels where arrows were stored in medieval times. Coming to the present day he mentioned the Darkhill excavations, on the site of the Mushet Iron and Steel works, which had taken place last summer, and had been instigated by the Rotary Club. He also spoke of the great need for a Museum of the Forest. The project to restore the early coke blast furnace at Whitecliff was now underway with the formation of a Trust to raise a considerable sum of money for the purpose. He was happy to say that Sir Campbell Adamson was one of the Trustees. Mr N. Crawford presented Mr Ian Standing Chairman of the Trust, with the GSIA's first cheque towards the Fund, for £15, being the proceeds of a coffee morning held by Mr and Mrs John Green, which also gave members an opportunity to study their fine collection of Victorian tiles.

---

Another fund raising event for Whitecliff was held on September 3rd 1978, when Mr & Mrs Malcolm Collins opened their beautiful house, known as "The Old House" at Lydbrook to members.

The oldest part of the building dates from the 15th century and has what Iris and Malcolm term a "modern jerry built extension" added in the early 17th century. There is a massive solid timber staircase and the main room is completely oak panelled with a deeply patterned plaster ceiling, which includes the representation of the figure of a Stuart lady. It is documented that the building was the home of Sarah Siddons, the famous 18th century actress, when she was a child.

Ian Standing showed members round Newland Church "the Cathedral of the Forest" and then entertained them to tea at Rock House, Coleford, prepared by Mrs Diana Court; a visit to the Whitecliff Furnace completed the day. Everyone attending very much enjoyed this most interesting afternoon, which raised £18.75 for the Fund.

Published by J. Conrable & Co. Stationers

Drawn & Engr'd by KILBECK

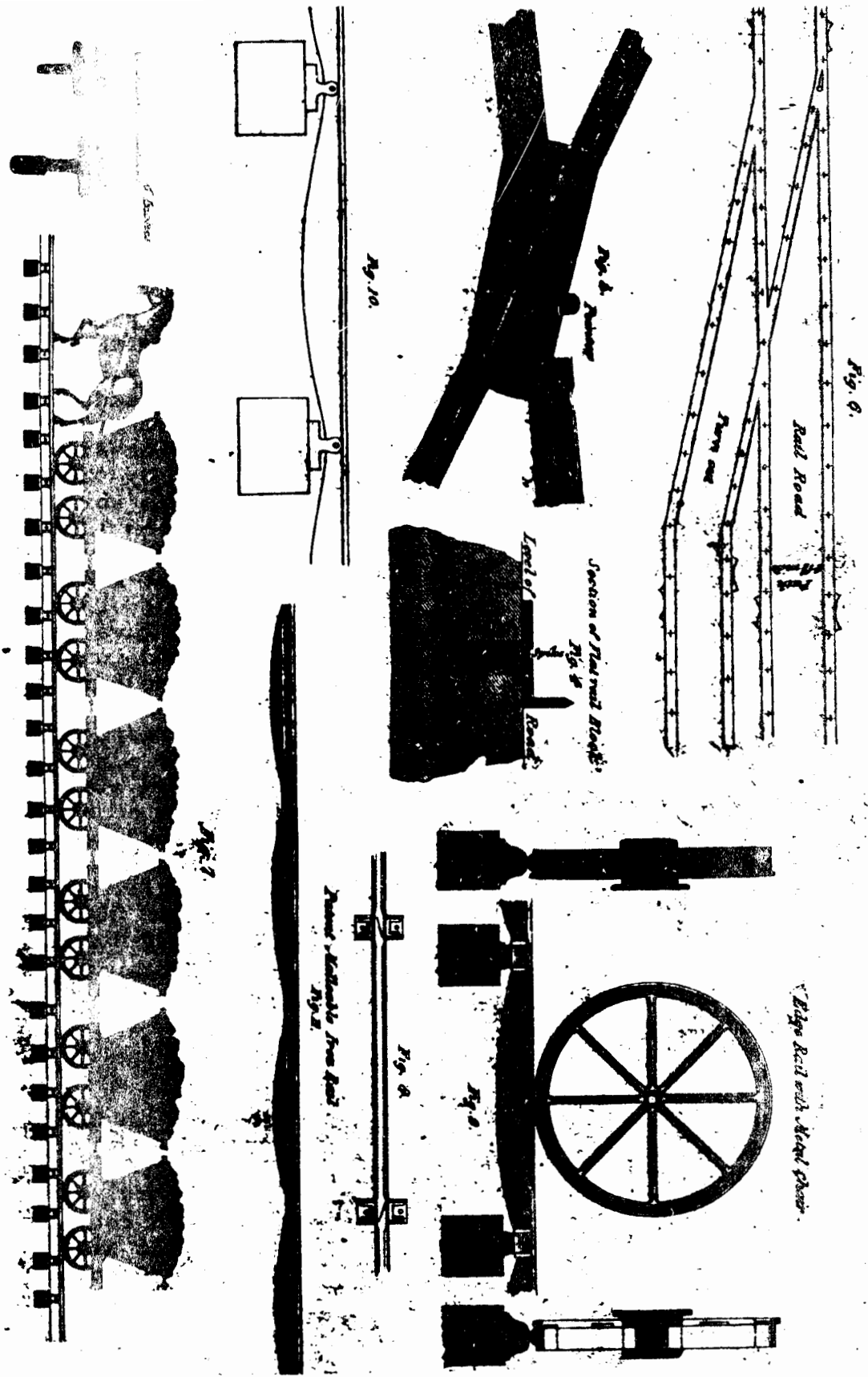


Plate CXV from the Supplement (1824) to the 4th and 5th editions of the Encyclopaedia Britannica. Under "Railway" there is a description of horse drawn tramways using both wood and iron rails. Figs. 1, 2, & 3, too dark to reproduce, show three different shapes of cast iron flat rails, each weighing from 40 to 50 lbs each. Fig. 4 represents a section of rail with its sleeper & fastening. The turnout & pointer mechanism are shown in fig 5 & 6. Fig 7 shows a section of an edge rail with its sleepers & wagons, & Figs 8, 9 & 10 is an enlarged section of a rail & sleepers with a plan. The text goes on to describe the benefits of malleable iron rails over those of cast iron.