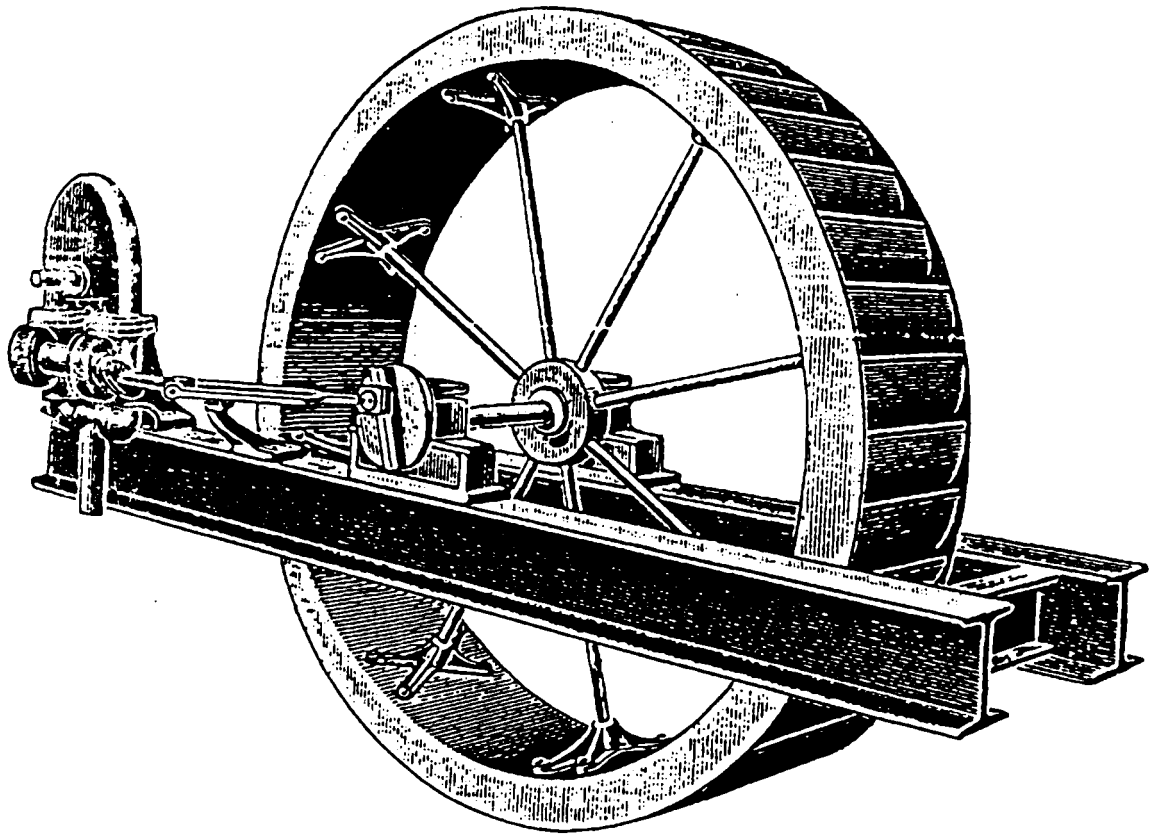


GSIA

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The cover illustration shows a water wheel and force pump as used to supply water to country houses or farms. It is taken from a catalogue issued in 1898 by Gilbert Gilkes and Co. Ltd. of Kendal who were better known for their water turbines. The equipment was available in a range of sizes capable of pumping between 1200 and 4000 gallons of water per day. The corresponding sizes of water wheel were 4 ft and 9 ft in diameter and the cost in 1898, ex-works, was 24 10s and 54, respectively.

EDITORIAL

This year's Journal celebrates thirty five years of GSIA's achievements in the paper written by Ray Wilson and as readers will see these have been many and varied. It is a superb record, and Ray is to be congratulated on his hard work not only as the writer but also because he has also been responsible for ensuring that the various activities were achieved. The year also sadly has to record the death of Harry Townley. Ray Wilson has written an obituary.

The other papers represent a wide variety ranging from Stephen Mills' work on Cloth Manufacture at Fromebridge Mill to the recording work at Cheltenham's Brewery after its closure in 1998. The eventual use of the brewery and maltings is not yet certain. Then there is David Bick's interesting paper on the twentieth century history of the Fosse Cross limeworks. John Morgan's paper on casein continues the twentieth century theme with its use as imitation horn and semi-precious stone. Finally there are the usual sections on book reviews and the summer visits.

My thanks are due to Ray Wilson and Hugh Conway-Jones for their assistance with production.

Amber Patrick

Obituary

Harry Townley (1926-1999)

Members were saddened to learn of the death of Harry Townley on June 4 1999 at the age of 72. Harry and his wife Mary were founder members of GSIA back in 1963. He was Chairman of GSIA from 1965-68 and latterly in 1997. Harry was a firm believer in the need for an industrial museum in Stroud. He was involved in meetings to try and establish a museum and took an active role in the refurbishment of part of the old Stroud Workhouse for the storage of industrial artefacts. When the Stroud Valleys Project was formed in 1987 Harry was nominated by GSIA as one of the directors.

For many years Harry introduced the speakers at the Friday night GSIA winter lectures held at Stroud. Very often the speaker enjoyed Harry and Mary's hospitality both before and after the meeting. He led a number of visits for GSIA, (particularly to the Birmingham Canal System) which were greatly enjoyed by the Members. Harry's knowledge of all aspects of industrial archaeology was immense but railways were probably his greatest interest. He wrote 5 books on the railway and industrial history on different areas in Lancashire.

When his busy schedule permitted Harry would join in the informal Sunday morning walks a small group of members used to enjoy in the Stroud area. Here again Harry was able to pass on some of his wide knowledge the industrial history of the area. Harry made a tremendous contribution to Industrial Archaeology both locally and nationally and will be remembered by all who knew him.

Ray Wilson

GSIA SUMMER VISITS 1999

The Society's thanks are due to Frank Colls who organised a full programme of local visits and two excursions further afield by coach. The following reports have been compiled by Frank Colls.

Tuesday 30th March 1999 Visit to the Bath Stone Company

Sixteen members attended on a rather damp day but, since most of the operation is underground, this was not a problem. The Stoke Hill stone mine at Limpley Stoke near Bath was reopened in 1980 after several years of disuse. Stone from the mine has been used in many prestigious buildings and the earliest records show it was used at Longleat House in 1582. The Bath Stone Company now uses modern equipment to extract high quality oolitic limestone of two main types, Base Bed and Top Bed. The former is darker and denser and is used for more arduous situations.

We were shown round by Elaine Dickerson, the marketing director. After being kitted out with hard hats and head torches by their foreman, we entered the mine down a stairway within a sloping ventilation shaft. The numerous tunnels and chambers were about 3 or 4 metres high to allow for fork lift trucks to move the massive blocks of stone around. In its early years the stone was cut manually by picks and handsaws, with the traditional wedge and feather method for splitting blocks. Nowadays, an elaborate German-made machine with a tungsten-tipped chain saw, which can be positioned vertically and horizontally, is used to cut into the stone to a depth of about 1.2 metres. Sections are cut using the "stall and pillar" method so that the roof support is properly maintained. During the second world war, the mine was used as an ammunition store and in several places brick pillars had been built in to strengthen the basic structure. The large blocks, weighing around 4 tons, are taken to an area in the mine for trimming to size using tungsten-tipped band saws. Electric hoists are used to position the blocks for cutting prior to taking to the surface by fork lift truck.

The trimmed blocks are taken by road to another of the company's premises at Yeovil for final cutting to the specified dimensions using diamond wire precision equipment. Particular shapes and profiles can be cut to suit customer requirements. Transportation in the nineteenth century was by canal and later by railway from Limpley Stoke station. We were pleased to hear that much of the current output is going to restoration projects, including the Avoncliff aqueduct on the Kennet and Avon Canal and Bristol Temple Meads Station. After being given small samples of stone as souvenirs, it was time to thank our hosts for a most interesting visit and head for home.

Sunday 25th April 1999 Coach trip to West Somerset

A nearly full coach left Barnwood on a fine morning but with rain threatened for later. After leaving the motorway, we took the opportunity to drive through Bridgwater for some brief

glimpses of the dock and canal areas, including an unusual "telescopic bridge" which carried the dock branch of the railway over the River Parrett, and some brick and tile making sites. Thanks to John Berry for his local knowledge of the town. We then headed for Watchett which was once the shipping port for ironstone from the Brendon Hills (which we were to see more closely later). The small museum there is crammed full of displays, photographs and artefacts covering much of the history of the town, of the shipping activities, and of the West Somerset Mineral Railway. The line of this was still evident but nothing remains of the section onto the quay and the loading jetty. We were grateful to the curator, Ben Norman, for opening the museum and for answering questions about many of the items on view.

We went on to the railway station at Washford on the West Somerset Railway and were shown round by Roy Pitman, the Station Master. The station houses a museum run by the Somerset and Dorset Railway Trust and the whole complex is a working site with workshops, stores, rolling stock, some fascinating exhibits, models and machinery, and of course, trains passing through on the route between Minehead and Bishops Lydeard. We were able to take our lunch break here with some members making use of the nearby Washford Inn.

It was then time to head up into the hills and a problem with the coach made this rather a struggle but we eventually made it. The open air part of the day, a walk around the mining areas on the Brendon Hills, was led by Mike Jones of the Exmoor Mines Research Group. The rain had arrived by then but most members managed to wrap themselves up and follow the route across some quite rough ground. Mike described the general layout and operation of the mines and we saw some impressive access and ventilation shafts as well as some remains of the base of a winding engine. The ore was transported on the West Somerset Mineral Railway, and the route of this and some building remains were seen, including some station buildings for passenger use. The special feature of this standard gauge line was the famous incline. We were able to see the top section of this, much overgrown, and marvel at its 1 in 4 gradient as Mike explained the self acting arrangement whereby a descending loaded truck would pull up an empty one. An engine was later installed to turn the large winding drum. We made our way back to the coach, thanking Mike for an especially interesting walk and a splendid commentary.

The final part of the day was a visit to "Wireless in the West" at the Washford Transmitting Station. This is still an operational transmitter but changes in technology have meant that equipment can now be housed in a small, and now unstaffed, part of the old station. The rest of the building has been given over to Tropiquaria as a reptile and wildlife centre and this makes use of heat from the transmitter cooling equipment. In recognition of its previous activities a small but comprehensive radio museum has been set up. Neil Wilson told us about the history of the site and his collection of transmitter equipment, radios, and related items. Many members spotted old designs of gramophones and radios which they had themselves owned in the past and the visit was brought to life with several old radio recordings being played.

This report would be incomplete without mentioning Geoff Fitton of the Somerset IA society who was most helpful with ideas and contacts which helped to make the day successful.

Sunday 23 May 2000
The North Bristol Coalfield

This afternoon "motor-assisted" walk was led by one of our members, Will Harris, who has done some research of the area for the Bristol IA Society. The tactic was to use a few cars to move between different areas and then explore on foot before moving on again by car, thus enabling us to see quite a varied selection of places. About 15 members enjoyed pleasant weather and the chance to see what remains of the colliery sites and related buildings of the area, sometimes referred to as the South Gloucestershire coalfield. Spoil heaps in the area are known by the Somerset term "Batches" and we saw several of these in the first area we visited, near Cromhall, as well as the sites of horse gins. At the New Engine Colliery are the remains of an engine house adjacent to a 10' diameter shaft, and we now recognised the adjoining heap as a batch.

We then went by car to Rangeworthy and down a lane to a cluster of cottages, barns and outbuildings with various garden and vegetable plots amidst the trees. This was the site of Old Wood Colliery, with its batch and a building which was the mine office. One structure was a lean-to shed against a more substantial brick building and the shed contained a workshop where longbows were being made; this process provided a brief but interesting diversion before Will revealed the true object of our visit. A door at the back opened onto a sizeable brick-lined shaft which was the source of ventilation for the mine. We could see into this with the aid of a portable lamp. We moved outside and were led past some pig pens before scrambling though to the back of the site to see the entrance to the drift mine itself. After looking at the indistinct line of a railway branch which served the pit we traveled down to the next site, the Yate number 2 colliery. The surviving engine house had been converted for residential use and we also saw the remains of some tramroad. We then moved on to the Yate number 1 colliery, although little remained to be seen here.

Our final destination was the Frog Lane Colliery at Coalpit Heath, where again we saw the remains of an engine house. We thanked Will for a very interesting walk before traveling back to the start to transfer to the cars that had been parked there.

Sunday 13 June 1999
Visit to David Price's establishment at Oakle Street

Numbers were limited for this visit and about 25 lucky members and friends were able to enjoy visiting or for some, revisiting, this splendid collection. David and his son Donald had their stationary 1880 Marshall engine (25 NHP) in steam to power a whole range of other pumps, compressors, generators and workshop equipment for us to see and to admire. The 1896 Marshall traction engine (6 NHP) stood alongside and, as with most of the installed equipment, it had been cleaned, greased and polished to an enviable condition. The wide variety of workshop and agricultural equipment, parts, machinery, engines and vehicles that David has found room to store means that some are not quite so pristinely presented, but they have been given a good home. You know that, given time, David will apply his skills and enthusiasm to restore and refurbish the rustiest of items to a high standard. The full array of equipment would take too long to describe but some highlights included two Sissons engines (from 1910 and 1934); a 1905 Ingersoll Rand two stage compressor, which had been used at

the Bixslade quarry for powering drilling equipment; and a 1912 Frank Pearn engine with the "banjo" connecting rod, this driving the line shafting to operate some old workshop tools (at slow speed!).

In the large and well equipped workshop, David and Donald keep up their business as agricultural engineers and various items were in for repair. As usual, members were able to browse around the equipment and the workshops as their interests led them and David and Donald were always available to tell the stories about most of the items and how they had been acquired and restored.

We had the advantage of a sunny afternoon and were grateful for the tea and refreshments which Mrs Price, and others in the family, had kindly provided. We had enjoyed a fine afternoon in friendly and interesting company. We congratulated David and Donald on all the work they had put in to maintain and expand the excellent collection, and thanked the family for their hospitality, before heading for home.

Sunday 4 July 1999 Visit to Frogmarsh Mill and a walk at Chalford Hill

The afternoon was split into two distinctive parts and about 30 members met first for a guided tour of Frogmarsh Mill, Woodchester led by one of our members, Stephen Mills. The range of buildings and structures were evidence of a long and varied period of industrial activity on this site. We first looked at the exteriors and noted the changing styles and the obvious reconstruction work which had taken place as the buildings were adapted, expanded and renovated over perhaps 400 years of activity. From its origins as a fulling mill, it was a substantial cloth producing mill and we saw the wide window construction suitable for weaving. From about 1860 it was a pin factory and later, in 1934, became the home of the Carr Tanning Company. Moving inside we soon realized that this was no simple building to find your way around! We heard about the efforts to try to unravel the story of its changing use and the different styles and details of the complex layout and construction. Part of the building had been used domestically and there were some interesting decorative wood features to see. The roof timbers in one part of the building also showed the amount of skill and ingenuity which the carpenters of the time had needed at most stages of the modification of the overall structure. The current occupiers of the main part of the site are a soft drinks company and we were delighted to be offered a box of samples from which members could select a very refreshing drink. We thanked the manager for the opportunity to look over the site, and Stephen for his conducted tour, before travelling by car to the second half of the programme.

Regrouping at Chalford Hill, we were introduced to Dr Nigel Paterson who was to be our guide around this area on the hillside above the Frome valley. Now a pleasant village community on the edge of the Cotswolds, it was once a squatter settlement for hand loom weavers and its history is one of toil and hardship as people came to terms with increased mechanisation in the woollen industry. As we made our way through the lanes and footpaths of the village Nigel explained the architectural features to look out for in those cottages and

other buildings which were once used for weaving. The style changed from the seventeenth century to the eighteenth, and the orientation of a property also gave a clue to its origins. On the sloping terrain, the early cottages were built into the hillside rather than parallel to it and we saw several examples as we worked our way downhill. At the valley bottom we went along the narrow lane alongside the river before climbing up again by some zigzagging footpaths. Nigel pointed out various other buildings of interest and told us of some of the stories of the area which his researches had uncovered. We were soon back at our starting point (not too breathless!) and thanked our guide for a very pleasant and interesting walk.

Thursday 22 July 1999
Social Evening: a walk at Frampton on Severn

A fine evening had brought about 40 members and friends to Frampton on Severn for a short walk led by one of our members, Craig Crompton, who lives in the village. With its Green, its ponds and its varied array of houses it is now an attractive village and its modest industrial history is not immediately obvious. Agriculture and a rural lifestyle have been the pattern with the usual ancillary trades developing, such as carpentry, millinery, tailoring, and shoemaking. Cloth manufacture was also important. The river and later the Gloucester and Sharpness Canal provided transport links, and gravel workings and brick works were also prominent.

We began our walk down the side of the long village green with Craig pointing out the more distinctive properties, which ranged from the medieval cruck cottages to elegant Georgian houses. Part of Manor Farm, a wing known as Rosamund's Bower, was thought to date from the 12th century and is associated with the story of Rosamund, mistress of Henry II. Buckholt House was built from local bricks by a ship owner in the 18th century who would have moored his ships at the nearby Frampton Pill. The lofts of some adjacent cottages were used for sail storage, indicated by the large circular windows in the gable ends. Passing by St Mary's Church we went past the site of a lime kiln before a quick look at the canal at Splat Bridge. We tried to find the line of the old railway which was constructed to bring gravel to a loading wharf on the canal, but little evidence remains. As we headed back through the oldest part of the village, we saw the large but rather derelict-looking wattle barn dating from 1550, which was part of Oegrove Farm.

Our tour was over and we thanked Craig for a most interesting walk before most members, if not all, found their way to The Bell Inn. Here we enjoyed some good refreshment and some good company, thus rounding off a very pleasant evening.

Tuesday 17 August
Visit to the Hayden Sewage Treatment Works (Severn Trent)

About 20 people had booked for this evening visit to Hayden, and things got off to a frustrating start since the organiser had asked everyone to assemble at the wrong gate! Ray Wilson rescued us and we were soon split into two groups under our guides from Severn Trent, Ann Bartlett and Sheila Leavesley.

The works handle about 35 million litres of effluent from the Cheltenham area each day, and there has been much modernisation of the plant in recent years. We started at the inlet sewer

and followed the initial processes of coarse screening and grit removal, the latter arising mainly from road drainage. We moved on to the primary settlement tanks and then the biological treatment tanks with their familiar rotating spray pipes. Final settlement and sand filtration then takes place before the clean water is discharged to the River Chelt. The process is well instrumented and subject to various remote monitoring and sampling methods such that operating staff numbers have been minimised. The sludge which settles from the treatment tanks is itself treated in a digester process and the resultant methane gas is used for process heat and some electricity generation. We also saw the very large tanks used for taking any excess rainwater arising from storm conditions, this being stored for later treatment.

As our guides conducted us around the site, they not only provided an informative commentary, but managed to fit in some amusing anecdotes about the plant and some of the incidents from the story of its operation. We returned to the visitor centre, known officially as the Hayden Science and Technology Centre, as the dusk descended. As instructed, we all washed our hands before seeing an interesting video about Severn Trent and its activities. We were then treated to tea and refreshments before thanking our guides for a really informative and enjoyable evening.

Sunday 5 September 1999 **Coach Trip to the Black Country Living Museum and the Dudley area**

Our autumn coach trip attracted 34 members and friends and we had the advantage of a fine day. By one of those unforeseen coincidences we also came on a day when a special local promotion had brought in large crowds. However, it was also one of their "living history" events when many of the houses are lived in for the weekend by people in costume and attempting to recreate the life and work of the village in the latter part of the nineteenth century. A number of the trades and industries were also being demonstrated so, although it got a little hectic, it was certainly a full and lively visit.

We had a brief introductory talk before members were free to roam the site and to follow their own interests. A group went on the boat trip which delved into the network of tunnels and caverns at the northern end of the Dudley Canal Tunnel. This has been developed into quite a spectacular show with some dramatic lighting and sound effects, displays portraying the geology and history of the canal, and a lively commentary. Some members went underground into the coal mine and the replica of the Newcomen Engine was also popular. Many took advantage of the horse-drawn bus and the electric trams which traversed part of the site. Alongside the canal was the village with its small local industries, including forges and chain shops and other metalworking premises full of machinery and equipment to explore. The village itself was a re-creation of a busy Black Country community with houses, shops, yards and workshops in which many of the typical trades of the period were on view. You could chat to the '>ironmonger' about the best type of galvanised bucket to buy or ask at the sweet shop about their latest home-made toffees. The Bottle and Glass was particularly busy and the beer very welcome, but 1999 prices were in operation! In one of the small cottages Sunday lunch was being prepared using dishes and implements from the period for cooking on a coal range. There was much more to see than can be fully recorded here and our allotted time was soon over.

We set off for the little hamlet of Mushroom Green, now a residential area in Dudley, once a busy centre for hand chain making, indeed Cradley Heath was world famous. A small operational chain shop has been restored under the direction of Ron Moss, Chairman of the IA group of The Black Country Society. Ron gave us a talk about hand chain making before we saw the demonstration of this old trade by one of the local craftsmen who once worked in the industry. Everyone was impressed by the skill and effort that had to be applied, working the red hot metal to form one link after another after another. Ron also gave us a tour of the area, pointing out the interesting features of the "unplanned squatters industrial hamlet" with some housing dating from about 1690. We thanked Ron and his colleagues before moving on to Parkhead and the southern end of the Dudley Canal Tunnel.

The Dudley Canal Trust has set up a visitor centre in the old Blowers Green Pump House and we were grateful for the teas provided here by Steve Bingham and his assistants before having a look around the displays. Most members also explored the canal-side features, including the towpath up to the tunnel entrance. We were fortunate to have John Foley with us to relate the history of the Dudley Canal and the construction of the tunnel, now no longer navigable for normal traffic but accessible by electrically powered craft by special arrangement.

For the final part of the trip we drove along to the top of the Delph Locks, staying with the Dudley Canal, for a walk down the flight. We tried to follow part of the line of the now abandoned parallel flight and saw some of the remaining structures before reaching the bottom and rejoining the coach for our journey back to Gloucester.

Sunday 26 September 1999 Mills of the Painswick Stream (part 3)

This was the third in the series of walks which Ray Wilson has led covering the whole of the Painswick Stream and the various mills which it powered. This year the walk was centred on Painswick itself and about 30 people assembled at the new "walkers" car park just to the north of the town, despite the threat of rain. We looked briefly at the house owned by Gyde the dyer and great benefactor of Painswick (now the Gyde Orphanage) and the nearby Gyde almshouses. Moving through the centre of the town we were caught in a torrential rain storm and forced to shelter at the Friend's Meeting House. Happily the weather cleared up and we descended to the valley and visited Loveday's Mill.

This was the first of seven mills or mill sites on the route. All were formerly cloth mills with the exception of Skinner's Mill. The large mill building dates back to c 1825 and the head race and location of the water wheels were clearly visible. We then moved on to Brookhouse Mill which was a working pin factory until it closed in 1982. It has now been converted to dwellings.

We could see Capp Mill house across the stream but the cloth mark HW 1643 (Henry Webb) was not visible. Very little of the mill has survived. Painswick (Mason's) Mill became a very large pin factory in the latter part of the 19th century employing 80 people. It closed in 1920 and the mill was demolished by 1972. The mill pond survives and unfortunately only two days previously had overflowed and flooded the house. When we arrived the firemen were

still in attendance pumping out the bottom floor, however the owners very kindly still allowed us into the garden to look at the site of the mill and location of the waterwheels. Here we could actually see a cloth mark which again depicts HW 1634 as at Capp Mill.

Nothing remains of Springs Mill and we did not have access to the small corm mill at Skinner's Mill Farm.

Finally we visited King's Mill which is fed by both the waters of the Painswick and Washbrook streams. This mill was also a pin mill in the late 19th and early 20th centuries. In the 1970s it was used as show rooms for an antique furniture business. Here the owners Mr and Mrs Richards kindly provided us with a most welcome cup of coffee and biscuits.

It was now time to head up beside the Washbrook and across the fields to return to our starting point where we thanked Ray Wilson for a very interesting and enjoyable afternoon.

Sunday 10 October 1999 **The Wye Valley B the Redbrook and Highbury Wood area**

Although the initial idea was for this walk to be in the Forest of Dean, it finished up somewhat further west! Ian Standing had kindly agreed to lead the walk and he settled on the wooded area above the Wye near Redbrook as offering some interesting features as well as being a pleasant circular walk. About 25 members gathered in Lower Redbrook on a dry but dull afternoon at the entrance to the new Valley Housing Development. This had been built fairly recently on the large site of the copper works which was so prominent in the industrial life of the area. We began by following the Offa's Dyke Path up a long ascent into Highbury Woods. This gained a good vantage point where we could not only rest ourselves but could see the shape of the land and appreciate the commentary about some of the developments. The Wye, with its once busy river traffic, was clear below us to the North and we could also make out the route of the Monmouth to Coleford railway line in the woods above the valley as it emerged from the side valley of the Red Brook. Ian explained about the previous tramroad routes which had enabled earlier developments in the Redbrook area but little could be seen from this distance.

We continued along the ridge and heard about the two main activities which the woods had supported, producing charcoal and lime. A number of sites had been found over the years and we had to divert down the slopes to explore amongst rough terrain in search of them. The charcoal burning sites were obviously on the more level ground and a number of examples were seen. Limestone burning was rather primitive and done in kilns crudely constructed from stone that was available. We saw several stone heaps, much collapsed and incomplete, from which the general structure of a kiln could be detected.

Regaining the main ridge we continued south before turning downhill to join the Valley Brook which runs north down to Lower Redbrook and was the power source for the various works located there. Before we dispersed we thanked Ian for all his efforts in providing a fascinating walk.