



# NEWSLETTER

Number 23

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Editor: Dot Meades, Brackenside, Normansland, Fairwarp, UCKFIELD, TN22 3BS  
Telephone: 01825 712367

## WINTER MEETING

Sadly, our Winter Meeting had to be postponed due to bad weather. There were several inches of snow at Nutley and amid dire warnings of worsening travelling conditions we felt it would have been irresponsible to encourage members to attend. Members of the committee telephoned around to spread word of the cancellation and we hope we reached everyone. Thanks are due to our secretary for rearranging the meeting at the end of March and to our speaker for agreeing to come then.

## HONORARY MEMBERSHIP ...

has been given to Denis Ashurst, who has set the text of the Group's annual Bulletin since 1984. Denis lives in Yorkshire and has worked with David Crossley on a number of excavations including, notably, the Rockley Smithies. The Committee were unanimous in honouring Denis, whose progressively failing health has meant that the task he carried out so ably in the past has become too arduous. Our grateful thanks and best wishes to Denis. We hope he will enjoy future WIRG Bulletins.

## CONGRATULATIONS ...

are in order for Bernard Worssam, a Vice-President of the Group, who has been awarded the degree of Doctor of Science, by the University of London, in recognition of the importance of his published work. A retired geologist, Dr Worssam has written a number of important papers on Wealden iron ore, especially in the western Weald, and his opening chapter to Cleere & Crossley's, *Iron industry of the Weald*, provides the essential background to both the bloomery and blast furnace phases of the industry.

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## REVIEWS

P.Riden, 'The final phase of charcoal iron-smelting in Britain, 1660-1800,' *Historical Metallurgy*, 28, 1 (1994), 14-26.

Philip Riden's *Gazetteer of Charcoal-fired Blast Furnaces* (2nd ed. 1993), in which he lists all the known sites in existence after 1660, will be known to many WIRG members. The above article provides an analysis

of the evidence of those sites, and describes the varying regional conditions that prevailed in a period which saw, at first, growth, and latterly, decline in the face of the rise of coke-fired smelting. The starting date of 1660 has been taken because, before then, the British water-powered, charcoal iron industry was largely confined to the Weald, and by 1660 the output of the industry in other parts of the country exceeded that of the Weald. Riden's figures are derived from lists of ironworks produced in 1717, and in 1788 and 1791, from which he has been able to calculate average annual amounts of pig-iron. Multiplying by the estimated number of furnaces at work in each region, he has been able to give an average regional figure for a succession of five-year periods. Estimates of pig iron output do not, of course assume that all such output was in that form. In the Weald, notably, a high percentage of the iron produced was in the form of castings such as ordnance.

The errors of over-simplification, which have ensnared many earlier authors, are made manifestly clear by a series of graphs which plot the estimated output of each region over the period, although the positioning on the page, of the graph of the overall picture for Great Britain, at a different scale from the others, is confusing. The graphs reveal, contrary to the perceived view of historians well into the 1960s, markedly different stories. In the Weald there was sharp, then steady, decline after 1660. In the Midlands of Shropshire, Derbyshire, Staffordshire and Yorkshire, there was stability before a general decline from the mid-18th century; only in North Staffordshire was there significant growth in the early-1700s. Output from the Forest of Dean, where tough pig iron was smelted, to be blended with the coldshort Midlands pig in the forges of the Stour valley, also declined sharply towards the mid-1700s but fell more slowly thereafter into the 19th century. An area where there was significant growth, in spite of the general acceptance elsewhere of coke smelting, was South Wales, where the specialised demands for high grade iron, of the tinplate and wire industries, kept charcoal furnaces going until the 1820s. Two other areas which showed a rise, rather than a fall, in output in the middle of the period were the Furness district of north Lancashire, and Scotland. The high grade of iron produced in both regions (Scottish furnaces imported their ore from Furness) allowed

production for specialised markets to continue through the 19th century.

Comment is made on the apparent westward spread of the iron industry, which was originally seen as evidence that charcoal supplies were being exhausted in traditional ironmaking areas. Hammersley's work on the charcoal supply to the industry showed that furnaces and forges could be supplied from within a relatively small radius, so that the extension of the industry into the west was evidence of expansion, with coastal shipping providing a cheap means of transporting ore, or pig iron to established areas for forging. These areas were also those where charcoal iron smelting continued to flourish after the general acceptance of coke elsewhere; a survival which owed much to the cheapness of the wood supplies in those parts.

The assertion by Professor M.W.Flinn, in the late 1950s, reinforced subsequently by G.F.Hammersley and C.K.Hyde, that the iron industry in Britain, far from declining after 1660, grew, is upheld, and the evidence from the Weald, upon which many of the conclusions of Professor T.S.Ashton and other earlier authorities were based, is shown to be untypical of the state of the industry. Philip Riden's paper provides the evidence that the charcoal iron industry was of importance in the early stages of the Industrial Revolution, and students of the Wealden iron industry should be aware of the region's place, albeit small, in the wider picture. JSH

#### Swedish Iron in the 17th and 18th centuries

An English translation with updates of Professor Karl-Gustaf Hildebrand's book, *Swedish Iron in the 17 and 18 centuries: Export Industry before the Industrialisation*, has been published by Jernkontoret, the Swedish Steel Producers' Association.

The 182 page hardback book is superbly illustrated with over 130 plates (some in colour), maps and facsimiles of documents depicting the development of the Swedish iron industry and its relationship with the rest of Europe from 1600 to the early 1800s.

The Swedish iron industry grew on exports, first to Holland and later to Britain which required vast quantities of iron for its Industrial Revolution. The success of Swedish iron in meeting these markets was due to a combination of high grade ore, a plentiful supply of charcoal from Swedish forests and low labour costs as a result of a predominantly agricultural society in which charcoal burning was a 'part time' activity. Chapters include technology and products, raw materials, markets and exports, political aspects, peasant miners and owners. There are also postscripts on weights, measures and coinage and comments on the

bibliography. The quality of translation is excellent making the text very readable.

There are only two regrets; there is no index and that we are still awaiting a translation of the subsequent book in this series which continues the theme of Swedish iron up until 1914.

Available in UK from Merton Priory Press, 7 Nant Fawr Road, Cardiff CF11 6JQ price £25 or direct from Jernkontoret, PO Box 1721, S111 87, Stockholm, Sweden. Tim Smith.

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## **STAMPS ON BAR IRON**

In *Sussex Notes & Queries* (Vol. 13, nos. 15 & 16, November 1953, pp. 321-2), the late G.H.Kenyon noted the finding of two iron bars at Shillinglee House. The bars were 5 ft. 6 ins. (168m) long. Both bore the impression of a stamp:



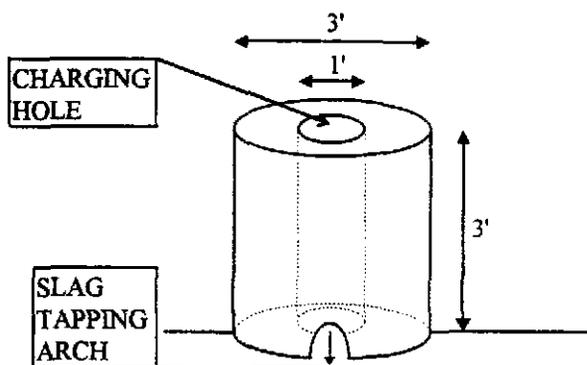
At the time, H.R.Schubert commented that such marks were not rare in the eighteenth century, particularly on bar iron imported from America. One bar is now in Anne of Cleves House museum, in Lewes, and the other is in Haslemere Museum. As far as I am aware the marks have not been identified. Can anyone identify the marks? JSH

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## **SMELTING REPORT**

In the previous Newsletter, Dot Meades wrote about the resurrection of the bloomery furnace experiments on Ashdown Forest. The original furnaces had received much frost damage over the years and so they were destroyed and just one rebuilt to the dimensions shown below. The most significant change has been to increase the wall thickness in the hope that less heat will be lost to the surrounding air.



The furnace was rebuilt by ramming a moist sand/clay mixture inside two cylindrical formers made of sheet metal which had overlapping seams screwed together. The furnace was then left to stand for three weeks so that any moisture could evaporate. Unfortunately, the formers acted as a seal to the drying process and with winter coming, no evaporation would take place: it was therefore decided that both formers should be removed. To this end, the writer and his wife volunteered for this simple task one wet Saturday.

Although the outer former was easily "unwrapped" after unscrewing the joints, the logistics of unscrewing the bottom screw of the inner former (so that it would curl in on itself) had not been thought out. Nevertheless, after much jiggling of the 3 foot long former out of the 3 foot high furnace, (without the use of a ladder) it eventually came free. On standing back to view the result of the five minute task which took an hour, we realised that the structure was a little off the vertical; and getting worse all the time. Two minutes later, all that remained was a pile of soil, much like the one before the furnace was built.

Fortunately, everyone took it in good part and the next Saturday, Dennis Beaney and I rebuilt the furnace with certain design changes: a better foundation, a dryer mix of sand/clay, and no screw at the bottom of the inner former.

The next task will be a visit to Sharpthorne Brickworks to collect a ton of iron ore from the three seams at the quarry face. Each seam will be chemically analysed to determine any differences, although visually they look the same. Once again forward planning is vital: the quarry face can only be reached by walking through a quagmire of Wadhurst Clay on the floor of the quarry for a distance of perhaps 400yds: we could not tell the distance on our exploratory visit, the fog was too thick!

B K Herbert

When we took down the remains of the old experimental furnaces we were able to compare the bottom part of the

remains with those that we have excavated. Although not particularly surprising, it was still fascinating to see the colours of the walls and the smelting zone and to notice how well these corresponded with excavations of ancient bloomery furnaces. DMM

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## FORAY REPORTS

The 95/96 foray season did not start too well. It may be remembered from the last Newsletter, that Reg Houghton and I went to Crown Hill, Wye, in Kent, to look at a large number of pits on the North Downs; as is usual, no conclusions could be made as to when they were dug or what was dug out, the choices being, sand, stone or ironstone; if the latter there is no record of it being suitable for smelting. However, one piece of bloomery slag was found at TR07344662 at the edge of a field full of standing corn. So the first foray this season retraced our footsteps in the hope of finding an actual bloomery site on the field after the crop had been gathered.

This was not to be, it seems that there was only the one piece of slag in that field. Fortunately, all is not lost, WIRG does not give up that easily! Our geologist member, Bernard Worssam, brought to our notice a reference in the book "Geology of the Country around Canterbury and Folkestone" page 221, (of which he was co-author), where reference is made to slag, some 2 miles to the north TR097502 (just onto the next map, of course!). It is not proposed to make a general foray here, just a preliminary skirmish by two or three members.

The second foray took us to Groombridge Place, Groombridge, Kent. As noted in the last Newsletter, the owner's suggestion that some spring-fed ponds were either a forge or furnace site proved false due to their small size. Nothing applicable to Wealden Iron could be found, although there were the inevitable two pieces of blast furnace slag beside soil that had been brought in. The water course feeding the moated site of Groombridge Place (and a cornmill) was interesting because the head-leaf principle was utilised rather than a bay.

The third foray returned us to the new bloomery search area, this time east of Herrings Farm, to the north of the Heathfield transmitter. Here we think there is a new Roman bloomery furnace site at TQ58022316. The evidence of a long site, on a 10 foot high bank, and beside a stream, is typical of the rather larger sites to the east of the Battle area of Sussex. A full report will be given in the next newsletter. B K Herbert

### Hornecourt Bloomery, Outwood

The discovery of a bloomery on the Paludina limestone ridge of the Surrey Low Weald excited some interest as it is the first located on this geological formation, and has tempted speculation as to the possibility of further finds in this area. The finder, Robin Tanner, and the Outwood Local History Society, were keen to know whether the bloomery was an indication of a Roman presence in the area, or from the medieval period, so permission was sought from the National Trust, who owned the site, to dig some trial trenches to see if any datable material could be recovered.

Three trenches were dug, but in each the slag was not of any great depth. However, in one there were indications that a hearth might lie below. Time constraints do not usually allow anything more than cursory investigation, so the trench was back-filled; but not before a single sherd of grey, flint tempered pottery was recovered. The fabric was not familiar so expert advice was taken, in the form of Phil Jones, of the Surrey Archological Unit. Unfortunately the sherd did not possess sufficient features to establish positively its period of origin and it remains as either Romano-British or 13th century medieval.

### Ebernoe Furnace

The visit paid by the Group after its AGM at Kirdford last year, together with local interest, and the fact that Ebernoe is one of only three water-powered sites to be publicly accessible, prompted the decision to carry out a measured survey. Such surveys have been undertaken for a number of sites and in each case both the surveying process and the subsequent plan have posed useful questions about the layout of such sites. The day started with a general wander around the site by everyone, making notes. The fact that the survey is a joint project with the West Sussex Sites and Monuments Record meant that up-to-date maps were available for annotation with whatever anyone found. By midday enough information had been gathered to enable the surveying to begin, and by the time that a deluge of hailstones curtailed that activity, more than half of the working area had been plotted.

While that was going on a party went off to take a look at Wassall Forge. One can expect a minimum of two hearths and a hammer, served by two water courses, together with a storm water overflow, on a forge site, and one of the water courses was missing. An attempt to locate it had been made last summer, and this second try also resulted in failure. A possible course started on the east side of the house, which now occupies the site, but could not be traced to where it joined the other water ways. JSH

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## **NEW RESEARCH**

Bloomery slag found on the site east of Herrings Farm mentioned above and also on another site in the same area shows some evidence of wood marks, further evidence of the possible use of wood being used in furnace construction as suggested in the last newsletter.

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## **500TH ANNIVERSARY**

A reminder that the earliest documentary reference to the establishment of an ironworks using the indirect process (blast furnace and conversion forge) concerns the Newbridge, Hartfield. The site was established just inside the northern boundary of Ashdown Forest, on land owned by the king. There is an interesting summary of this early evidence in Schubert, H R, History of the British Iron and Steel Industry p162-164. He notes that in 1496 Henry VII prepared to secure the northern border of England against a Scottish invasion. He commissioned Henry Fyner to engage as many artificers, termed "founders" and labourers as were wanted for the erection of buildings necessary for the manufacture of iron which was intended for use by the Royal artillery in the war with Scotland. Payments were made for both "rough iron" which was cast into various sizes of gun shot and "wrought iron" which was forged into parts for gun-carriages by the "great water hamor".

Cast iron cannon-balls or bullets were much superior to stone cannon-balls or wrought-iron balls. "A cast-iron cannon-ball had a much smaller diameter than a stone ball of the same weight. This rendered it possible to make the chase of the gun stronger and longer without increasing the weight. Accordingly, a greater charge of powder could be employed, whereby the propelling force of the gun was increased." Moreover, the production of cast iron balls was much less expensive.

Schubert says that in 1509 the first guns of cast iron were successfully manufactured at Newbridge by Pauncelett Symart, who delivered three iron guns to the Clerk of the Royal Navy at Portsmouth for the armament of the battleship "Le Souvereign".

The application of the indirect process to weapons manufacture seems to have been pioneered by the French, whose artillery was very successfully used in the war of 1449-50 to blast the English out of their French possessions. Between 1489 and 1497 Henry VII increased the number of his gunners at the Tower from 30 to 49. Many were foreign, the majority French. These gunners were experts in shot and gun founding. Brian Awty's research has shown that many of the French families whose names appear in our 16th century

local parish registers, came from the Pays de Bray. They were skilled in operating the indirect process and were therefore sponsored by local landowners to set up ironworks on their estates.

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## LETTERS FROM MEMBERS

An interesting letter has been received from Mr M J Leppard of East Grinstead, regarding the Domesday Book *Ferraria*. He writes:

"Both the nature and the location of the *ferraria* mentioned in Domesday Book in an un-named holding in the hundred of East Grinstead have long tantalised historians. Straker thought it "highly probable" that it was at Whalesbeech and that he had discovered evidence of it there (1) but the fatal objection to this theory is that Whalesbeech is listed in Domesday Book as a separate holding.

In a detailed study of the Domesday geography of East Grinstead in the East Grinstead Society's Bulletin 58 (Spring 1996) Mr P D Wood persuasively identifies the un-named holding with the mediaeval Lavertye, now Ashdown House, to the east of Forest Row.

The probability that the *ferraria* was at Lavertye is strengthened by the fact that the "iron mine" in dispute in 1263 had been on the lands of Ralf de la Haye (2), for Lavertye (with nearby Brambletye) was a possession of the de la Hayes at the time.

So far as I am aware, no evidence of iron working has ever been recorded within the bounds of Lavertye. There seems to be a good case, therefore, for some fieldwork in that area, if it can be arranged."

Copies of the Bulletin referred to, which draws on both physical and documentary evidence and is supported by maps of each holding, may be obtained from me for £1.25 post free.

M J Leppard, 20 St George's Court, East Grinstead, RH19 1QP.

(1) E Straker, *Wealden Iron* (1931) p240

(2) H Cleere & D Crossley, *The Iron Industry of the Weald* (2nd edition ed J Hodgkinson, 1995) p92.

Comment : WIRG committee members have read Mr Wood's article with great interest. We agree that the connection between the Domesday ironworks (1086) and the 13th century "mine" is circumstantially possible although not proven; it does rather suppose continuity of working over a period of nearly 200 years. (This is not impossible of course. Datable material from the Roman sites of Oldlands and Great Cansiron suggests

an even longer working period in Roman times.) If work went on at Lavertye for 200 years a substantial amount of slag would have accumulated. Even spasmodic working would have left some remains. It would certainly be exciting to identify the Domesday site. We need to look closely at the area and any slag with associated remains that we find there. This will make a good project for the Field Group next year.

Many thanks to Mr Leppard for drawing our attention to this important piece of research.

Did Wealden Furnaces belch flame? Tim Smith writes:

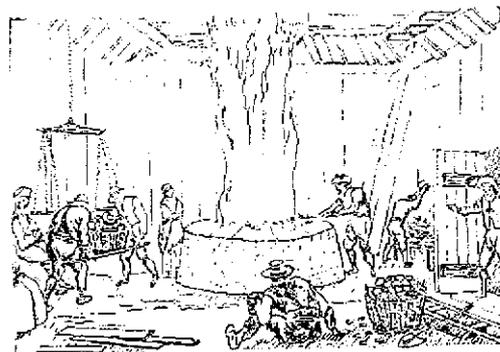
I happened upon an illustration of a blast furnace in Norway of about 1800. [an engraving by J J G Haas, based on a painting by C A Lorentzon].

The flame is evidently not artistic licence since it is commented upon in the caption. ["In the centre the furnace top, giving off gas from the stack - the characteristic blast furnace flame which, coming up through the opening in the roof, could be seen for miles around."] Perhaps de Louthembourg's painting "Coalbrookdale by Night" is not so wrong after all. The main difference would be that in Norway and Sweden, charcoal was still the usual fuel/reductant at this time.

Burning off the carbon monoxide is what would be expected from a furnace venting to the atmosphere where the gas would be most safely disposed of by flaring. Despite the evident discomfort of charging into a flame, this would be far safer than the perils of the invisible, highly toxic carbon monoxide gas. Interestingly, I have seen pictures of some of the early German enclosed blast furnaces where a balcony is attached at the charging floor level so that the workmen could go outside for some fresh air.

I'm intrigued by the woman towards the back with her arms folded, as well as the man back right who appears to be breaking ore with another lump - and yet this would be a difficult job and also the bench hardly looks strong enough....there seems to be some artistic licence in the picture.

Dot Meades replies: David Crossley very kindly passed on to me a slide made from the original painting. Unfortunately the Newsletter is not produced in colour but here is a line drawing of the scene:



The flames shown in the painting are certainly not all blue, although there is a bluish flare on the right side near to the top of the furnace; they are mostly red with some yellowing. Could this mean that other gases were being burnt off with the carbon monoxide? [WIRG scientists please comment]

Whenever I show this slide I am always struck by how clean the workers look! The two men on the left are obviously finding their load heavy so it is probably ore, perhaps for weighing on the balance nearby. In the painting the basket on the right appears to contain charcoal. I wonder what all the loose planks on the floor and stacked in the corner were used for and what was contained in the boxes on the right. The spade, too, is an odd shape; one would have expected a shovel.

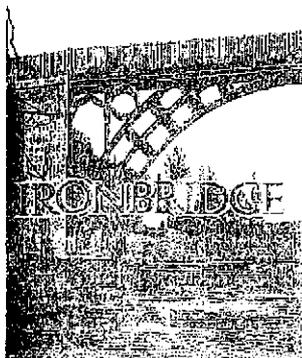
However, artistic licence or not, the man with the quart mug sitting in the foreground must be authentic. Remember the drinking pots on the Lennard fireback. Ironsmelting was very thirsty work!

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## NEWS FROM ELSEWHERE

### Ironbridge Revisited - The Museum of Iron



I am sure all of us know of The Ironbridge Gorge Museum, near Telford in Shropshire, and many of us will have visited some of its many sites over the years.

But, those of you who have not visited the Museum of Iron since it reopened following a major refurbishment in 1995, are in for a surprise - I hope a pleasant one.

The museum is located within a stone's throw of Abraham Darby's (the 1st) furnace where, in 1709, coke was first used to smelt iron as an alternative to charcoal - a change which took 50 years to be adopted (and even longer in the Weald and elsewhere - charcoal is still being used today in Brazil). This was the move which propelled Britain into the forefront of the Industrial Revolution. The furnace, built in 1658, is still standing, now protected by a modern building.

But, to the Museum of Iron; I first visited this with Keith Gale, the author of numerous books on the history of iron in the Blackcountry and its surrounds - and a

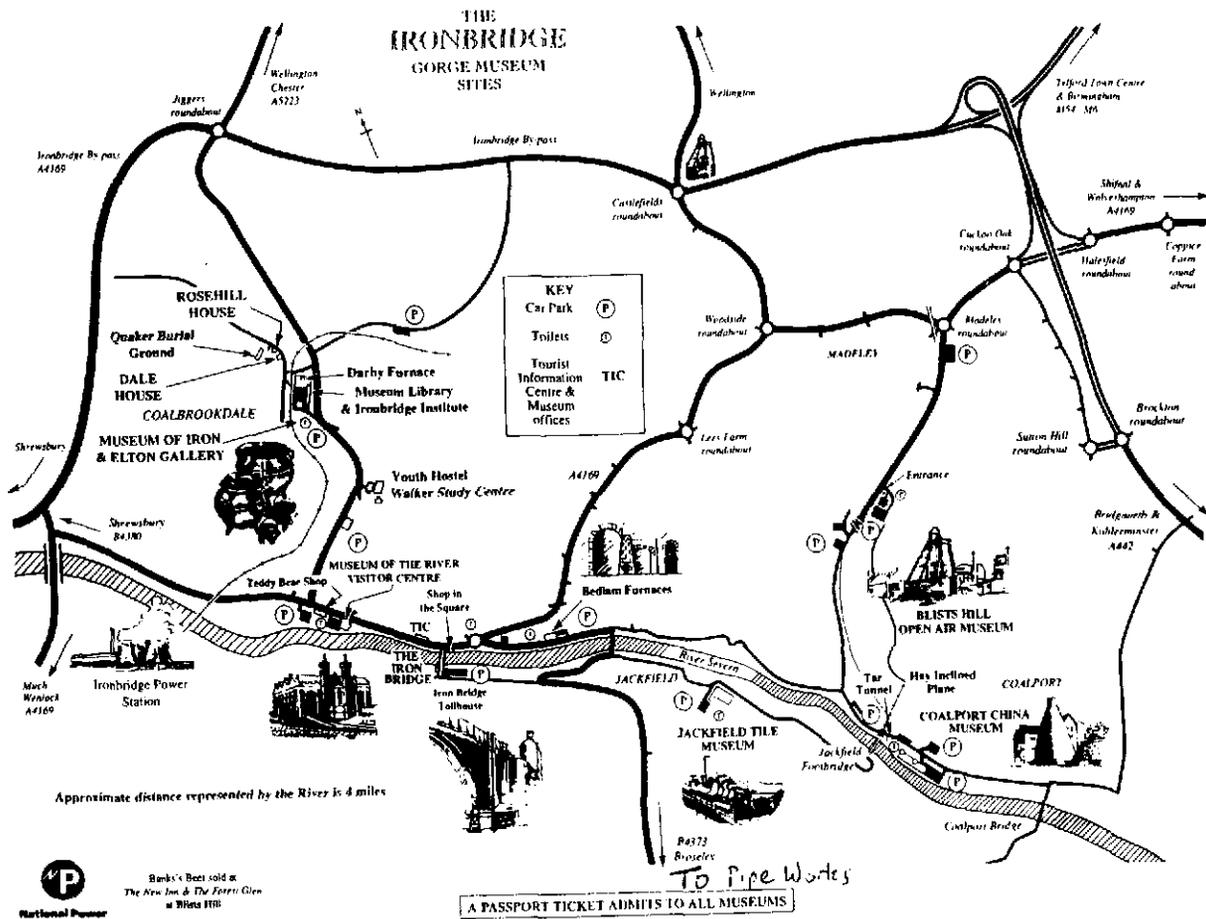
man instrumental in acquiring a number of artifacts for both Ironbridge and the Blackcountry Museum, some 20 miles from Ironbridge at Dudley. Then, the galleries were packed with artifacts of all description, displayed in a rather higgledy-piggledy way. Under Keith's expert guidance, I was able to make some sense of the display, and learn some more of the history of ironmaking at Coalbrookdale. To-day, after refurbishment, the visitor no longer needs this helping hand. True, there are far fewer exhibits, but a coherent story is now told to the visitor using a combination of real artifacts, reconstructions, models and audio and video presentations.

On entry, the visitor wanders into a full sized representation of the tapping floor of Darby's furnace. In a five minute audio visual display, the ironmasters of Coalbrookdale in the early 18th century are described in the words of the furnace foreman, and you are there to see the tapping of the furnace. Yes, all simulation, but the pigs are real, the 40 gallon pots (for boiling whale blubber) are real, and the commentary is based on documents of the day.

Moving on to the sound of the water wheel pumping the bellows, we are introduced to a brief review of early ironmaking. There is a bloomery furnace, said to have been excavated in the east of England. It is a shaft furnace standing some 3' high, with remarkably thin walls, not much more than 1" thick at the top. Next, we are presented with a fire back. Yes, its the famous Brede Furnace fireback as illustrated on the cover of the new edition of Cleere & Crossley. Of course, it is a cast replica, (Unless Anne of Cleves has made some deal we don't know about); but shamefully, Ironbridge do not say this - let alone admit that it comes from the south of England! They use it, however, to draw attention to the contemporary illustration of a blast furnace, cast on it, dated 1636.

Moving on, we are told of the abundance of 'clod' coal in the valley, easily accessible from shallow deposits, and - vitally important for the iron industry - low in sulphur.

This is followed by a video depicting the three generations of the Darbys as well as Richard and William Reynolds who married into this Quaker family. Each added something important to the iron industry. Abraham Darby I (1678-1717) introduced smelting with coke and perfected the casting of hollowware in iron, Abraham Darby II (1711-1763) increased output by blowing with steam engines rather than water power, and Abraham Darby III (1750-1789) cast the first ironbridge in the world - probably using a reverberatory furnace to remelt pig iron to provide the large quantities of metal required. Richard Reynolds cast the first iron rails and so set up the infrastructure for Stevenson's locomotive (James Watt had said a steam engine could never run on rails!). William Reynolds, his son, built an



incline plane to lower barges to the Severn from a canal serving the coal and iron works of the upper valley. Other famous names are introduced.

'Iron mad' John Wilkinson (1728-1808), a later arrival to Coalbrookdale, described as a scoundrel by his fellow ironmasters for capitalising on others' ideas and for his doubtful morals (he sired his third illegitimate child at the age of 77). But he was a folk hero to his workforce, setting up the first pension scheme and, in time of famine, bought grain at 12/- a bushel to sell to his workers at 9/-. Wilkinson was instrumental in enabling James Watt to develop his steam engine by casting and boring the cylinders to '... an accuracy of the thickness of an old shilling'. Wilkinson succeeded in doing this from his knowledge of boring cannon in which the barrel was rotated rather than the reamer - an idea he had stolen on seeing such a machine at Woolwich Arsenal boring brass cannon. He successfully patented the idea for iron cannon, a patent eventually revoked in 1779 to break his monopoly in the supply of cannon. Wilkinson also cast his cannon in sand (an idea taken from Darby I) and cast them with solid barrels using remelted iron to which wrought iron was added to lower the carbon content. His technique was so successful that 'their Lords of the Board of Ordnance would accept no other method'. after 1775.

Models, many working, are an important part of the explanations. A 40' model of the water system supplying

the furnace wheels dominates the centre of the next gallery, while other working models allow you to control the water to the wheel, and demonstrate the use of the blast regulator in ensuring a steady supply of air to the furnace.

The working of Newcomen's steam engine - built by a Devonshire ironmonger to drain the Cornish tin mines and the first engine to be a practical success - is demonstrated, as are Watt's improvements to reduce fuel consumption, but improvements which required closer engineering tolerances, and hence Wilkinson's help. The relationship prospered, until Watt discovered that Wilkinson was copying his engines, not only to use in his works, but also to sell to others.

To more modern times, there is excellent archive film recording the operation of the last puddling furnace in Britain which was still working at the Atlas Works until 1970. The furnace was then moved to Ironbridge and is still worked occasionally. The Museum of Iron still contains most of its collection of contemporary paintings as well as an extensive collection of ornamental castings, including the fountain of the 'Boy and the Swan', which was displayed at the Great Exhibition, and is now restored and placed outside, once again to spout water, in its full glory.

Ironbridge Gorge itself offers alternatives to the 'iron mad'. You can send your retrogrades to the Tar Tunnel,

while you visit the nearby Bedlam Furnaces (1775) the subject of Philip de Louthembourg's famous painting 'Coalbrookdale by Night'. They can visit the China Museum while you climb Reynold's Inclined Plane and continue on to the ruins of the mid 19th century furnaces at Blists Hill, leaving your companions back by the river to explore the Jackfield Tile Museum. Together you can step back to the Victorian era as you explore the numerous shops, workshops and houses of Blists Hill village and see modern day craftsmen restoring the artifacts of the past. You will see the foundry working most days, and on bank holidays - if you are very lucky - the only remaining puddling furnace in Europe may be in operation along with its steam hammer and rolling mill.

I know many do not wish to see museums turned into places of 'entertainment', but properly researched for detail and honestly done, I believe this approach offers a far greater insight to the past than any amount of visits pouring over ill lit display cabinets or trying to decipher faded manuscripts. I think we in the Weald could learn from Ironbridge, just as Ironbridge copied the Weald in its first charcoal blast furnaces.

Most sites in the Gorge are open throughout the year (except the Tar Tunnel and the Darbys' home, Dale House) from 10am to 5pm (6pm July & August). For information telephone 01952 433522 (weekdays) 432166 (weekends). Allow yourself a month to do full justice! - I'm still finding something new after five years of regular visits. Tim Smith

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## ***SITE WATCH***

The footbridge at Little Forge, Buxted, is to be reinstated by the County Council; farm vehicles will cross at a new bridge into the next field upstream and well away from the iron site.

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## ***DATES FOR YOUR DIARY***

**20th July 1996:** WIRG Annual General Meeting at Nutley Village Hall, with speaker Dr Colin Brent. After lunch we shall visit Newbridge Blast Furnace and Forge site, established 500 years ago. It may also be possible to visit the experimental smelting site in Pippingford Park.

**September 1996** - date and place to be included in the AGM notice. An indoor meeting of the WIRG foray group to discuss the winter programme of fieldwork. It has been suggested that we search the Lavertye area for the missing Domesday ferraria and there is the possibility of further investigation of two (for this area) very large bloomery sites in our Heathfield-Mayfield

study area which were recently discovered by the foray group. However, there will still be time for other activities.

Any member is welcome to join the Foray Group, so please come along to the meeting if you are interested. All suggestions will be carefully considered. If you are unable to attend the meeting but have ideas for future forays, please send them in to our Hon. Secretary Sheila Broomfield, or Chairman Jeremy Hodgkinson.

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## ***NON-WIRG NOTICES***

20th April 1996 (apologies if the newsletter does not reach you in time) Council for Kent Archaeology Spring Conference at the Royal Dockyard, Chatham with guided tour (11.00am - 1.00pm either to Fort Amherst or the Dockyard Museum) and illustrated lectures. Tickets from CKA 5, Harvest Bank Road, West Wickham, Kent, BR4 9DL (All day: £5.00, morning only £1.75, afternoon only £3.50) State which tour is required when applying, make amount payable to CKA and please enclose sae.

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## ***REQUESTS***

Anne Dalton is still seeking a copy of H R Schubert's History of the British Iron and Steel Industry from 450BC to AD 1775 first published by RKP in 1957.

Dot Meades would like to find a copy of Percy's volume on iron.

If you can help please contact the editor with details.

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## ***NB***

Again we have a full newsletter and thanks are due to all our contributors. Do write if you have iron-related news or views to share. Perhaps you have visited an iron site, or noticed iron artefacts whilst out and about or on holiday. Early English guns were exported all over the world so let us know if you find one when visiting abroad. Don't forget to look for the maker's marks, possibly on the trunnions, and for any other insignia. A sketch or a clear photograph would be a welcome addition to any other information.

The newsletter can be a useful place in which to record odd snippets of information that perhaps are not suitable for the more academic Bulletin. Contributions in ASCII text if possible with each item on a separate file on the disc. Typed or legibly written items also welcome.

Dot Meades.