



NEWSLETTER

Number 20

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Letter from the Chairman

Dear Fellow Members,

It has occurred to me that we failed to celebrate two events of some significance to the Wealden iron industry last year - the 1950th anniversary of the beginning of Roman ironmaking in the Weald, and the 450th of the casting of the first iron cannon at Buxted. In the first case, we could be excused, perhaps, because it was marked in its wider context of the Claudian invasion. In the second, its significance must be seen in perspective. Gunfounding was, for the first century or more of its practice in the Weald, very much the concern of a select few, and can be said to have only become of economic importance to the region after the Civil War. So perhaps it is not an anniversary worth particular excitement.

In two year's time, however, is a centenary of some import. 1996 sees the 500th anniversary of the first positively documented blast furnace in England, at Newbridge, in Sussex; an event which can be taken as the beginning of the modern iron and steel industry in Britain, and of the second great period of ironmaking in the Weald. A cause for celebration? I think so; but how?

One idea is a commemorative volume, concentrating on aspects of the place of the industry in the Weald in the wider context of iron making in Britain and elsewhere. Another idea is to work for the establishment of a tangible reminder of the post-mediæval iron industry, such as the consolidated remains of a furnace (North Park?), accessible to, and interpreted for, the public; a tall order, perhaps. I would be very interested to hear the views of members as to an appropriate (and realisable) project to commemorate this anniversary.

This year's AGM seemed a very agreeable occasion, though for me there is never enough time to talk to all the people I would like to. It is always good to see members, and indeed the day is made by the coming together of like minds! Do keep me, or other members of the committee, posted with news of discoveries, whether documentary or archaeological, and I look forward to seeing you at the Winter Meeting. My best wishes for the coming year.

Jeremy Hodgkinson

AGM 1994

Brede Village Hall was host to some fifty members who were rewarded by lively talks on the iron-making activities in the area. Hugh Sawyer reports.

Despite the considerable knowledge acquired by the Group on many aspects of the Industry, some unexplained mysteries continued to tantalise. Beckley itself was enigmatically also known as 'Conster'. Furthermore, the Gott family who featured in Ruth Brown's discussion on the personalities surrounding Beckley, was well-known for its enterprise; however, doubts remained on the reason for Peter Gott's suicide in 1711. His erstwhile colleague - William Benge - died two years later, having both been suppliers of ordnance to the government from 1696 to 1711; Peter Gott senior had died suddenly in 1712.

Earlier, Jeremy Hodgkinson had given a colourful presentation which illustrated how the changing topography over two millennia had influenced the growth of the Industry:-

In the Roman Period, it was thought that the sea reached some way inland, making a number of sites accessible to marine transport. A large inlet is thought to have particularly benefited Sedlescombe,

near which roads had been built by the Romans (the Hastings - Rochester road crossed the Brede nearby).

The development of the industry during the last millennium occurred after the seas had withdrawn. Sites were often located near rivers, enabling the transport of output during the winter months when roads were unusable. The river Rother, whilst no longer tidal, was navigable up to Udiam Bridge, and goods were known to have been transhipped to Woolwich from Rye. As a result of the sea access, sites such as Beckley, Brede and Robertsbridge were able to survive into the 18th century.

Beckley itself had been a small settlement - a hamlet with a number of cottages clustered around the furnace. The precise location was not known, despite the existence of an intriguing sketch made in 1746. A number of structures were illustrated, but attention was drawn to a building with a curious sloping line on the roof. It was a matter of conjecture as to whether the artist was trying to convey the impression of a possible furnace within the building!

Beckley belonged to Harrison who owned five sites - Beckley, Brede, Waldron, Hamsell and Lamberhurst. Despite being the biggest supplier of ordnance, the Harrison empire, collapsed in 1765 following the bankruptcy of Tapsell.

Old Iron in Sweden

In this extract from his talk at last year's Winter Meeting, Bob Smith surveys the wide range of ironmaking remains in Sweden.

One of the most surprising facts about the Weald is the almost complete absence of any remains - for example furnaces, fineries, charcoal stores or other buildings - associated with the iron industry. This



position is the more extraordinary when one considers the extent of the industry. Recently I was able to visit Sweden as part of my work and whilst there decided to investigate whether there was anything left of what I knew to have been an industry as extensive as that in the Weald. It came as a surprise to find that, in complete contrast to the situation here, or for that matter in much of Europe, there is an enormous amount surviving. This situation is due to a variety of factors: that much of the industry survived into the 20th century; their importance has been recognised for far longer; there is a truly national pride in the industry.

The result is that many sites have been preserved and restored.

Iron making in Sweden dates back at least to the medieval period when it was probably practised on a comparatively small scale. During the 17th century the injection of capital, especially from Dutch entrepreneurs, in particular, Louis de Geer, transformed the industry into one of the leading producers in Europe. The reasons for this are complex. Though partly due to the rise of the Dutch as a World power and in their enmity with England, the leading producer of cast-iron cannon, it was the taking of Liege by the Spaniards that meant that protestant ironworkers had to look elsewhere to make a living. And in Sweden they found the ideal situation. Iron ore, fuel and water, the motive power, were abundant, the necessary skills could be easily imported and the Government was sympathetic. Thus Sweden was set to become a leading producer both of raw iron, high quality wrought iron especially, and of cast-iron cannon. This industry was maintained and developed right down to the late 19th and early 20th centuries.

Sites from have survived from the early medieval. Lapphyttan for example is an early iron working site dating from the period 1100-1400 AD. Though today it is just an open field, excavation from 1978 to 1983 revealed the existence of furnaces and at least eight forges. Iron production was carried out probably by farmers in the winter months, when

there was less work to do on the farm, as an additional source of income. An exciting project linked to the site is 'New Lapphyttan', a modern reconstruction of the site to show the visitor how iron was made in this period which will, when completed, also demonstrate the making of iron.

In contrast among the best preserved sites is Osterbybruk, a national monument run by the Swedish Technical Museum in Stockholm. Iron working started here in the 15th century but it was Louis de Geer in the 17th century who developed the site, bringing in new capital and skills. His workmen built the Walloon forge which, reconstructed and rebuilt in 1794, can still be seen today. Pig iron, produced in the blast furnace, was re-heated in the smelting hearth and by means of an air draft was decarburized to produce wrought iron. Further refining was carried out in the racking hearth and under the hammer and the final product, bar iron, was made in a range of qualities depending on its treatment and refining.

A second well preserved site is Engelsbergbruk, another late 17th century development of an earlier site. This virtually complete iron works includes an earth and timber furnace, built originally in 1779 and rebuilt in 1878, forge and weigh house, a common feature of many of the Swedish ironworks. At the end of the 19th century production was about 3500 tonnes annually, about 10 tonnes a day and the furnace was last blown in 1919. The forge was of the Lancashire type, that is the pig iron was refined by dry-puddling, stirring the molten iron in an oxidising environment to remove carbon.

Sweden was also a major manufacturer of cast-iron cannon. At Akers a remarkable survival is a double blast furnace, built in 1795. In 1796 it is recorded that both furnaces were operated for 91 days after which a single furnace was operated for

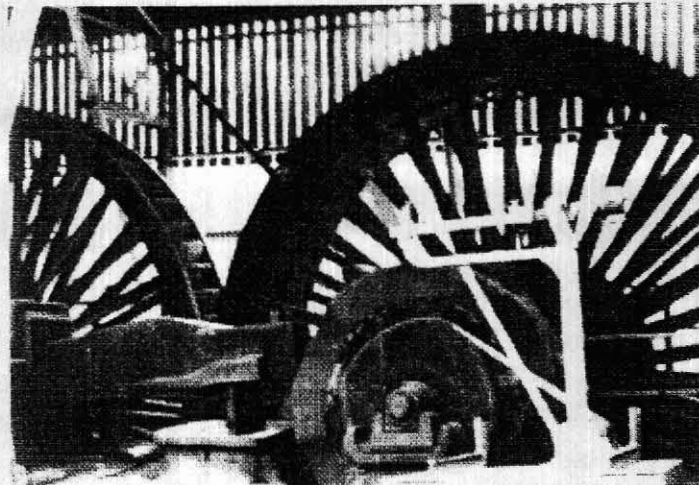
a further 100 days. During this campaign total production was about 700 tonnes, a daily rate of 2.5 to 2.8 tonnes per furnace. Akers was a major cannon making site, producing, in the second half of the 19th century, some of the very largest cannon then in use, weighing up to 50 tonnes.

Possibly the most famous cannon casting foundry was Finspong, a name which has been given to a type of cannon, the finbanker. Wellam de Wijk developed the site in the 1580s and it was taken over by his son in 1595. After his disgrace the site was confiscated by the Crown and eventually bought by Wellam de Besche in 1618, Louis de Geer acting as surety. The size of this foundry can be gauged from the fact that in 1628, 627 cannon, 8000 iron bars, 8577 cuirasses and more than 10000 iron shot were shipped out of Norrkoping. This foundry was a major producer of both iron and guns right down

to the beginning of the 20th century, the last gun was made in 1911. Most of the original buildings are now incorporated into the modern factories which are the successor of the original ironworks.

There are far too many sites to mention in a short note like this but among the best are: Korså Bruk, where an astonishing series of 6 huge water powered wheels and associated forges still stands; Forsmark; Soderfors; Edsken, a site which was converted to the Bessemer process in 1857; Leufsterbruk, which includes the house built by a grandson of Louis de Geer; Stromsberg; and Karlholmsbruk. In addition there are a number of mines open to the public including Dannemora and Falun, which although a copper mine, is spectacular.

Although many sites are well preserved others



Hammer wheels at Korså Bruk

have not fared so well. At Julita for example, a cannon foundry in the 17th century depicted in a famous painting, nothing survives. At Svarta and Stafsjo, both major cannon sites, only traces of water courses and some buildings remain.

There is very little information about the iron works available outside Sweden, or even in Sweden itself. The best centres for visiting sites are the area to the north of Stockholm (Osterbybruk, Leufsterbruk, Soderfors, Stromsberg, Forsmark, etc.) and the Ekomuseum Bergslagen of central Sweden. This last is a huge open air museum incorporating foundries, mines and other industrial sites. Sites are normally only open in the summer months, from midsummer day to the end of August. Hotels at this time are considerably cheaper in Sweden at this period and it is essential to have a car!

Right on to the End of the Road.....

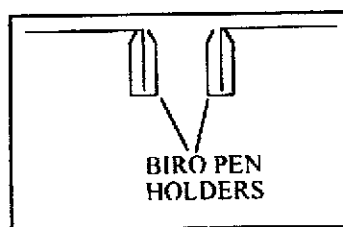
Brian Herbert brings down the curtain on a four year foray.

The fourth foray following the long London-Lewes rural Roman Road took place in February; once again in glorious sunshine, and in spite of the previous months of incessant rain which had, left a legacy of two unfordable rivers. Starting at Bassett's Manor, some 1.5 miles south of the Kent/Sussex border, where we had left-off last year, there was no sign of The Road, even at the river, where Margary mentions "bog with rusty slime" (chalybeate spring). The first signs of slag were just beyond the river, where a short length of slagged surface was found, some 2 feet down in a ditch, and which happened to be the course of the head leat for Bassett's Blast Furnace. Further on, where The Road crossed the drive into Bassett's Manor, it was found by the probe to be well slagged for some 150 feet, and is probably very well preserved in a nearby copse. Beyond Butcherfield lane, a "modern" pit has been dug across its course, although the causeway in front of, and a hollow way beyond the pit, seem to be related to the pit rather than The Road.

Whilst stopping for lunch on The Road, the

previous mile of its course was studied where it made its way across two valleys from the Holtye road. After lunch, with the 150 foot climb from the valley floor completed, and with no further sign of The Road, the ladies decided that walking down 150 feet to the Medway, and of course the 150 feet back up and then down again to the car, was "too much of a good thing" and turned back. The summit was reminiscent of a Roman "centuriation", with several small, wire-fenced fields.

The walk down towards the Medway was successful with the well slagged Road discovered some 2 to 3 feet down in a ditch for a length of 50 feet. With this much down-wash, it is very likely that other parts of The Road will have been missed. In the last field down to the Medway, one of the forayers remembered that he had dug a trench for a water pipe between two cattle troughs; fortunately just to the west of The Road. At this point, with the course of The Road defined (in our minds at least), some time was spent "dowsing" with two pieces of iron wire (coat hangers) bent into a right angle and with the "arms" about 18" long, and allowed to swivel in two empty Biro penholders:-



In operation, each biro pen holder was held in a clenched hand some 6 inches from the chest, with thumbs pressed against the top of the holders (but not touching the wire) and with the pieces of wire held so that they pointed away from the operator. Then, whilst walking over the item to be detected, the iron wires should automatically swing together, or sometimes apart.

To our great surprise, the course of The Road was easily found, even when little or no slag could be seen or probed: whilst for doubters, the experiment was repeated by two other people.

It had been hoped to cross the Medway and study some large sandstone blocks on the floodplain and then continue on to Gallypot Street; but as usual time was against us. Nevertheless, by

walking back via Chartner's Farm, we passed between two enormous pits (probably one pit originally) having a face at least 30 feet high. These pits and others on an E/W line are on a faulted junction of the Wadhurst Clay/Ashdown Sand, and are undoubtedly mine pits.

Due to the cancellation of the April foray to Great Cansiron, (the fields had not been ploughed because of the wet weather), arrangements were made to walk the final stretch of the London/Lewes Roman Road from the Medway to Gallypot Street. Once again the weather was fine but cool, as a depleted band of only four forayers set out from Hodore Farm, where the farmer had kindly let us park, to make for the Medway.

After much probing beside the Medway, (we knew the precise course of The Road from the previous foray) a well slagged surface was found some 2 feet down. Unfortunately, the slagged surface did not reach the Medway, and much discussion ensued as to whether the Medway had moved its course or else The Road had zigzagged across the river at a more convenient position; unfortunately, only excavation will tell.

The well slagged surface reached almost as far as the Forest Row to Hartfield Railway line, and for the remainder of the day only small patches of slagged surface were found. Nevertheless, pieces of slag were found where a pipe had recently been laid, and also where two small streams were crossed. After a following The Road's course through wet, rough woodland, with a boundary bank to one side, nothing was found by probing. Finally, in the last two fields small patches of slag were found all the way to the Forest Row to Hartfield road, at Gallypot Street.

It is perhaps fortunate that this is the end of the road for this series of forays, as, beyond the Hartfield road, there is an immaculate lawn with a tennis court covering The Road.

The writer would like to thank all the loyal WIRG forayers who have accompanied him on The Road over the last four years, and he hopes they have enjoyed the experience as much as he has.

Last but by no means least, we would like to thank all eleven landowners who allowed us to pass so freely over their land, without which my initial

plan would have come to nought. There were occasions when we had the feeling that we might have encroached on "next door's" land, but it was only by a hair's breadth, and, in retrospect, we apologise.

Tebbutt Research Fund

Applications are invited from individuals and groups for grants towards research in the Wealden iron industry. It is anticipated that approximately £200 will be available from the fund in 1995 and anyone interested in receiving a grant should write a suitable letter of application, giving details of themselves, together with relevant information about the research envisaged.

Applications should be sent to the Hon. Secretary of WIRG, Mrs S. Broomfield, 8, Woodview Crescent, Hildenborough, Tonbridge, Kent, TN11 9HD, to reach her by 31st March 1994.

Recent Research

J.S.Hodgkinson, *The iron industry in the Weald in the period of the Seven Years' War: 1750-1770* (unpublished MA diss., University of Brighton 1993); bibliography, map, graphs, tables.

This study covers the years of the last period of importance for the iron industry in the region, before improved production methods in other regions, particularly in *gunfounding*, reduced the competitiveness of the ironworks in the Weald. The introduction sets out the industrial, political and local economic background to the industry in the period, as well as surveying the historiography and sources of research. The first of three detailed chapters describes the organisation of the industry in the Weald, examining ownership, partnerships, sub-contracting, and the financial aspects of ironworking. Particular attention is paid to the instances, and causes, of bankruptcy in four of the firms operating in the region at the time. The third chapter describes the products of the furnaces and forges, and the markets available to them. The ordnance trade figured large in the output of the

period, and the Board of Ordnance, the major purchaser, is considered at length. In the fourth chapter the location of the ironworks, the raw materials, transport and labour force are discussed. The shortage of wood, for long argued as a significant factor in the demise of the industry in the Weald, is challenged.

The conclusion argues that the 'wealden' description of the industry in the region was, by this time, of solely geographical relevance, and emphasises the importance of ironmasters from London and elsewhere. The expertise of the labour force is identified as an important factor in the survival of the Wealden gunfounding industry, but the reliance on the manufacture of ordnance and the absence of all but local markets for other castings and bar iron is seen as a fundamental weakness. This is exemplified in the bankruptcies which occurred, of which Richard Tapsell's, in 1765, was to result in the permanent closure of four furnaces, and the end to the integration of the remaining furnace and four forges.

In a lengthy appendix are detailed biographies of the individuals and partnerships who operated in the Weald during the period, together with graphs of the ordnance purchased by the Board of Ordnance. Also there is a chart showing the changing ownership and tenancy of furnaces and forges, and statistics of purchases by the Board and the East India Company from both Wealden and other gunfounders.

Throughout the dissertation extensive use is made of contemporary sources, especially the papers of the Board of Ordnance.

Field Group 1994/95 Forays

Considering the wonderful support for forays by field group members last year, disappointingly few were able to come to the annual foray group meeting. However, those stalwarts who did attend decided to embark on a new bloomery study area.

The new area is to be a north/south strip to the east of the study already completed. (See Cleere & Crossley *The Iron Industry of the Weald* Appendix 2, p 280). We want to ascertain whether a similar

density of sites occurs there and, if it does, what are the locations and the ratio of Iron Age/Roman/medieval sites. We shall therefore inspect both streamside and fields wherever possible and excavate the slag beds of a proportion of those we find for datable material. We anticipate that the work may take several years to complete as not all forays will be devoted to it. Inevitably sites elsewhere that are drawn to our notice will have to be checked and field group members may feel that they would like a change of occupation from time to time! However, most people enjoy bloomery hunting so we hope this decision will have your support.

Field names are often valuable clues as to the location of sites. We should be pleased to hear of volunteers who would undertake to search the 1841 Tithe Award maps and schedules or other documents relating to this area. Their findings would then be followed up by the field group. This would be a valuable contribution from anyone who might hesitate to join the wet and muddy brigade! Advice is available for beginners.

Surveys of water-powered sites will continue but no new sites have been included this year as Little Forge and Iron Plat have still to be finished. These are "small group" tasks now that the initial inspections have been done. They will either take place on foray days or at members' convenience

Forays will take place on the following dates:

October 15th Paradise Wood, Hartfield -
field-walking. Surveyors to Little Forge.
November 12th Bloomery search of new study
area.
December 10th As above plus, possibly,
trenching for datable material.
January 14th ditto
February 11th ditto
March 11th Cinderfield, Horley
April 8th Bloomery search and/or
trenching in new study area.

Do join us if you can - new field group members are always welcome.

WIRG Publications

All the publications listed below are available from:

Mr. B.K. Herbert, 1, Stirling Way,
East Grinstead, SUSSEX RH19 3HG

The normal price includes postage within the UK, prices in brackets are available only when publications are collected at meetings.

The Excavation of a Late 16th/Early 17th Century Gun Casting Furnace at Maynard's Gate. O.Bedwin. £0.90 [0.60]

The Fieldwalker's Guide and an Introduction to the Iron Industries of the Weald. B.K Herbert. £3.00 [2.50]

The History of Watermills, the Wealden Iron Industry, and Geology of the South-East. C.E.Woodrow, B.K.Herbert, & C.Smart. 3rd updated edition. £1.60 [1.30]

Bombards, Mons Meg and her Sisters. A description of early wrought-iron cannon. R.D.Smith & R.R.Brown. Royal Armouries Monograph No 1. £6.50 [6.00]

Parson Levett and English Cannon Founding. B.G.Awty. £1.20 [1.00]

A Cast-Iron Cannon of the 1540s. B.G.Awty £1.20 [1.00]

Identifying 18th Century Trunnion Marks on British Iron Guns: a discussion. R.R.Brown. £0.70 [0.50]

The Woolwich Proof Registers, 1780-1781. R.R.Brown. £0.70 [0.50]

Guns Carried on the East Indiamen. R.R.Brown. £0.70 [0.50]

The Fuller Letters; Guns Slaves and Finance. (Ironmaster at the Heathfield Furnace in Sussex)

D.Crossley and R.Saville. £20.00 [17.50]

A Gazetteer of Charcoal-fired Blast Furnaces in Great Britain in use since 1660 (second ed. 1993) P.Riden, 174 pp., maps, photographs, index. £11.00 [£10.00]

Old Series WIRG Bulletins. Volumes 1,9,11,13,14,15,16,17. each £0.80 [0.50]. OLD SERIES VOLUMES 2,3,4,5,6,7,8,10,12 ARE OUT OF PRINT AND WILL NOT BE REPUBLISHED.

New Series WIRG Bulletins.

Volumes 1 to 7 (1981-1986) £1.30 [1.00]

Volumes 8 to 12 (1987-1991) £1.80 [1.50]

note: Volumes 5 & 10 have an index

Finings

CARRIER'S ACCOUNTS AT CHICHESTER
Until recently in private hands, the mid-eighteenth century accounts of Robert Knight, an East Grinstead carrier, have been deposited in West Sussex Record Office, Chichester. Comprising a single volume, the accounts record the carriage of guns from Warren and Gravetye furnaces to Woolwich in the 1760s. In addition are records of the carriage of oats, timber and bark, the last of these to Lewisham. The record office reference for the accounts is Add. Ms. 46,861.

ORIENTAL VISITORS TO THE WEALD

In April, members of the East Asian Archaeological Network visited the Weald following a conference in Leeds. They wanted to view the remains of ironworking in the region, and to observe the methods WIRG uses to study the industry, as a means of developing a methodology for the investigation of the 1st and 2nd century AD iron smelting industry in southern Korea. There was a truly international flavour to the party, with representatives from Japan, Korea, China, Denmark, England and the United States, and their

two day excursion, led by Jeremy Hodgkinson and Dot Meades respectively, took them to the Field Group's foray at Cinderhill, near Penshurst, and then to Beauport Park and Chitcombe, followed by visits to Hendall, Newbridge, some minepits near Fairwarp, and to Roger Adams' experimental bloomery site at Pippingford. The ease of access to archaeological sites, and the sampling methods employed, caused consternation as such study is much more rigidly controlled in the Far East. It is hoped that this international link may lead to a programme whereby fieldwork techniques are tested on a Wealden site in preparation for exploration in the orient.

up. It is hoped that this will lead to consolidation of, and greater access to, the well-preserved remains of the bath-house there. WIRG has carried out an archaeological assessment of the site, and will be represented on the Trust.

HISTORICAL SOCIETY NEWS

A rescue excavation has been carried out on a Roman smelting site threatened by quarrying at Creeton in Lincolnshire. The site is described as containing three groups of furnaces, all being of standard, tapped, shaft type about 1m in diameter, with dense fayalitic tap slag covering an area of about 30m diameter. As usual dating evidence was scarce but 1st century ceramics appeared to be associated; charcoal has been taken for radio-carbon dating.

Another site has been found by field walking at Ridlington in Leicestershire. Dense black tap slag was found over an area 80m in diameter in association with pottery of Roman date, and also 25 pieces of brick approximately 40mm thick. The fabric had been tempered with coarse organic material and had been reduce fired. A large number of vitrified "brick" fragments, some coated or blended into tap slag were also found. The last sound to the writer rather like what we would call furnace linings. R.G.H

NEWS FROM BEAUPORT PARK

Encouraging developments are taking place concerning the extensive Romano-British ironworks at Beauport Park, south east of Battle. A trust is being set up to safeguard the site as plans for the development of the Park are being drawn