

NEWSLETTER

Number 21

Spring 1995

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The New Book!

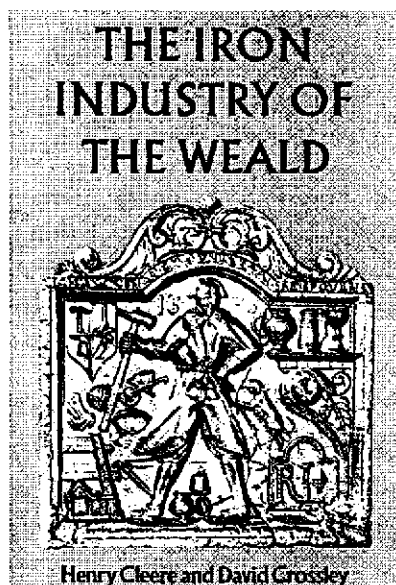
Jeremy introduces the second edition of Cleere and Crossley.

Ten years after its original publication, Henry

Cleere and David Crossley's acclaimed survey of the Wealden iron industry is being republished by Merton Priory Press. WIRG obtained the rights to the book in 1992, from the original publishers, Leicester University Press, and the new edition is the culmination of more than a year's work. Straker's *Wealden Iron* was republished two or three times, but in each instance it was merely a photographic

reprint of the original. The new edition of Cleere and Crossley's book contains the original text and illustrations but, in addition, there are supplements to the three gazetteers, listing additional bloomery sites, Roman bloomeries, and water-powered sites, together with the fruits of recent research into known sites already published.

Accompanying this new material is a supplement to the bibliography, a list of *corrigenda* to the original text, a revised list of abbreviations, and a completely new index by Ann Hudson, whose work will be known to many in the South-East. The index will now include the gazetteers, which were omitted from the original index; a considerable aid to research. Because the original text has not been touched, the maps of sites have not been revised, nor has it been felt appropriate to introduce any new sections, such as



a gazetteer of Medieval sites. Such was the quantity of new material for the supplementary gazetteer of water-powered sites, and so comprehensive is the index, that the initial number of pages planned for the new edition has been exceeded, and it will now be forty-five printed pages longer than the first edition. As with its original publication in 1985, it is hoped that this new edition will be a spur to further research. Many of the questions posed then remain unanswered; such as why the Roman iron industry apparently declined in the Weald after the middle of the third century AD, or what was the nature of the water-powered iron industry in the Weald of the fifteenth century?

It is to be hoped that the wider availability, and affordability, of this new edition will make it as familiar a source of reference for the general reader as Straker's classic has been up to now. To obtain a copy of the new Cleere and Crossley please refer to the leaflet that is included with this newsletter.

Winter Meeting 1995

Northerly Tunbridge Wells, lying in Straker's 'Lower Medway', was host to a healthy number of WIRG members who attended the Winter Meeting on 4th February 1995. Hugh Sawyer reports.

Continuing the well-established custom of providing a wide range of topics for the bi-annual meetings, Jeremy Hodgkinson introduced Tony North - Assistant Curator from the Metalwork Department of the Victoria and Albert Museum.

Mr North was pleased to have the opportunity of giving publicity to the recently completed Ironwork Gallery which featured many items of

interest first collected in 1853, including lamps, mortars and firebacks - many with provenances. Over sixty slides were enthusiastically presented, showing a myriad of iron items - from caskets, coffee pots and candlesticks to the anticipated firetools, firedogs, fireirons and firebacks.

Of particular interest were:

- A picture of a Flemish landscape showing iron production, with bellows, wheels and the finished product.

- A 1602 Stoveplate from a castle in Augsburg, featuring a design which had originated from a pattern book - as evidenced by another slide.

- The Lenard fireback at Lewes, bearing the year 1636 when dating first appeared. The detail, showing a man with iron (?) vessels, tools and a dog was similar to the next slide which was believed to be an 'aftercast'. Although the copy looked older, it was in fact thought to have been made some 100 years later.

- A three foot high German lock crafted in the 1880's for treasuries, monasteries and convents. The slide highlighted the pierced fretting which would have involved many hours of effort.

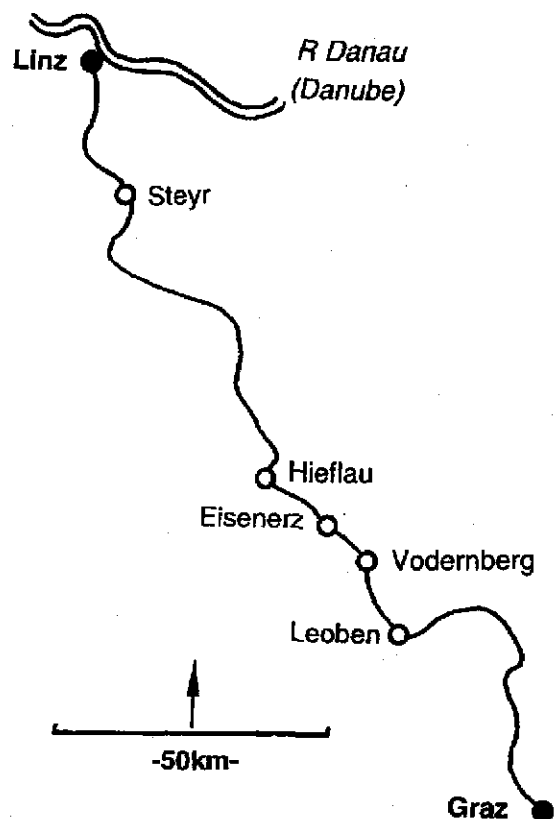
- 12th/13th century keys found outside Paris, with keys from the palace of Fontainebleau (1400) a set of top quality wrought fireirons known, from a 1669 inventory in Ham House, to have been made for Nell Gwynne.

Mr North brought his talk to a close, and members back to the 20th century - with a depressing picture of an iron dump from the 2nd World War. Sadly, despite all the combined effort of the people to salvage metal at that time, much of it appeared to have been in vain; the poor quality metal could not be used for the Hurricane fighters for which it had been destined!

The Styrian Trail

Friedrich Toussaint writes of iron producing areas in Austria. I'm obliged to Steel Times for permission to use this article.

Styria and Carinthia in Austria are very old iron producing areas. Iron production there goes back to Celtic and Roman times.



The iron trail follows an old commercial route between Linz in the north and Graz, some 170km to the south east (see map). A 40km section between Hieflau to Leoben, where the trail follows the valley of a small tributary of the river Enns, is particularly rich in preserved ironmaking sites, some dating from before the 13th century. In this section, the route passes through the town of Eisenerz (meaning iron ore), climbs the 1227m

Präbichl pass, and descends to the small town of Vordernberg (meaning in front of the mountain), before continuing on to Leoben.

Eisenerz with its Erzberg (ore mountain) is the very heart of this iron country. This mountain is one block of iron ore which originally was 1532m high, but is now reduced to 1466m. The ore is siderite (FeCO₃), rich in manganese and low in phosphorus and sulphur, so it was considered an excellent raw material for steel making at that time, but today, with an iron content of only 30% or less, it is no longer useful for modern blast furnaces. There are guided tours through the now extinct mining area, and the visitor has a wonderful view of the region from the Präbichl pass.

Iron production became very important from the 13th century onwards. At that time water wheels were introduced to power the blowers, and the bloomery furnaces became much bigger producing blooms two to three times larger than before. These high bloomery furnaces were called Stuckofen (Stuck-bloom). They developed into blast furnaces in Styria in the 14th century.

Styria was once the most important producer of scythes, millions of them being exported to Russia, a product which has since practically disappeared. The town of Steyr, not far from Linz where Voest-Alpine has a modern steelworks, today, was once the most important trading place for Styrian iron and steel. The beautiful houses (warehouses, offices and residences) of the iron and steel traders show the former wealth of the city.

A Likely Story.....

Reg Houghton leaves me at a loss for words!

Mr Pollard, the farmer, and I were standing at the top of the field called Ironsides, looking down into the old overgrown marlpit. His dog had wandered off somewhere and it was very quiet. The wind was coming from the west blowing low

clouds across a nearly, but not quite, overcast sky with a sprinkling of small blue open patches. A mild day in late February last year.

I give the weather report in case it should furnish anyone with a clue towards explaining what followed. I remember thinking that there must be a shooting party in the distance but suddenly the sounds were getting louder and before we realised it they were all around us. The effect is extremely difficult to describe.

Imagine a cloud of invisible bubbles drifting across the field with small groups of one, two or three popping spasmodically in all directions. A soft popping sound, as of a bubble, rather than the harsh bursting of a balloon. I walked out into the field since the sounds seemed to be coming from there rather than the wooded pit behind us, but could see absolutely nothing. It was easy to tell from which direction the sounds were coming but their distance was a different matter: were they 5 or 50 yards away? They seemed to drift away eastward with the wind, getting rapidly fainter, until some 3 minutes after first hearing them when all was quiet again.

Mr Pollard and I looked at each other: 'And what the Devil was that?' he asked. I could only echo his thoughts. Has anyone any ideas as to what was going on? The farm, by the way, is right out in open country, south of Benenden and I was checking to see if the field name, which dates back to the 18th Century at least, is related to the iron industry. Sadly, I could find nothing.

This little incident lead me to thinking about other odd happenings. The best known, especially among the older members, must be 'The Affair of the Pippingford Nun'. This happened before I joined the group, I believe about the time of the Pippingford excavation. When I first heard this referred to I assumed it to be a real nun since there was at one time a nunnery at Wych Cross, but I was wrong.....

It seems that Fred Tebbutt and Roger Adams were walking across the bay at Pippingford when Fred, glancing round, saw a nun walking behind

them. A further look seconds later and she had disappeared and was nowhere to be found. One rather bizarre detail - she was holding an orange. I had this story from both Margaret, Fred's wife, and from Jeremy, who were both told it directly by Fred.

I contacted Roger who wrote that he remembered the incident well, because it occurred just as he had slipped off the bay into some bushes, and was sorting himself out when Fred came up asking if he had seen 'that woman back there'. Of course he hadn't!

Some members will remember Roger's experimental bloomery furnaces in the woods between Fred's house, The Pheasantry, and Pippingford. In his letter to me Roger admitted that 'some of the sites are a bit spooky', and one place in particular he mentioned. This was on the side of a gulley just opposite his bloomery site where, he said, 'it took strong will power to remain, as far as I was concerned, and not only in the dark either'

For me Warren Furnace has sometimes had an atmosphere. A year or two ago when we were carrying out the level survey of the site the winter dusk would be falling as we packed up and climbed the bay in single file on our way home. Sometimes looking back across the still, empty site with a greyness gathering between the trees, I got the strongest impression that we were being watched. No, nothing hostile, they were just waiting for us to go. A definite 'they'. I think it was the old workers waiting to fire up the furnace again. As Roger said 'A spooky feeling'.

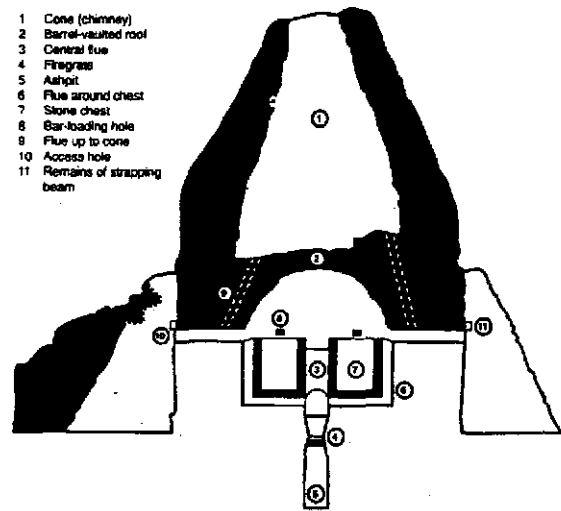
Derwentcote Furnace

Dorothy Hatswell reports on a holiday excursion.

On a recent holiday in Northumbria I visited the Derwentcote Steel Furnace. Situated in the Derwent valley, just off the A692 (NZ 131566), it is the only surviving furnace of the once thriving steel industry in that area. It was in a very dilapidated

condition when it was taken over by English Heritage in 1985. Only the main walls and the hearth remained reasonably intact. English Heritage consolidated the hearth and restored the walls. The building has now been roofed over again and houses a small but interesting exhibition of photographs relating to the later period of operation, together with a very clear diagram of the hearth and an explanation of its working.

The Technology of Steel



East-west cross-section of the furnace

Whereas modern steel is a true alloy of iron with other metals, the early form contained only iron and carbon. It was this type of 'shear' steel which was produced here in the 18th and 19th centuries. The technology came from Germany in about 1690. The process, called cementation, allowed carbon from the powdered charcoal which was packed around the iron bars to alloy with the iron. The high temperatures needed were obtained by firing the furnace with the high quality coal produced in the area. The iron bars were contained in stone chests to protect them from contamination by the sulphur in the coal fumes. To keep the sulphur content of the steel low the iron bars used were imported from Sweden via Newcastle, as Swedish iron was of greater purity than British.

The blister bars, so called because of their

appearance, which emerged from the furnace after a week's firing, were then forged to regain their flexibility. The more forgings, the higher quality the steel.

The mid 18th century saw a growth in technology which made it possible to melt blister steel and produce cast steel in large quantities. The small Derwent valley furnaces were rendered obsolete by the new process, which was centered on Sheffield. All of them gradually fell into disrepair and the building stone was robbed for houses and farm buildings, a familiar tale to WIRGers!

If you are in the area it is worth the ten minute walk from the Country Park car park across the road. The return journey is slightly longer, of course; it is uphill!

New Publications

D.W. Crossley, 'Early Industrial Landscapes,' in B. Vyner, (ed.), Building on the Past, Royal Archaeological Institute 150th anniversary volume (1994), 244-63.

David Crossley's paper starts by pointing to the limitations of the site-specific studies which have predominated in archaeological work on early industry until recently. The recent inclusion of related features, such as workshop areas, watercourses and process wastes, in fieldwork and excavation designs, is a step in the right direction, but there is, he maintains, a need for a more wide-ranging view. This would embrace sources of raw materials, power, and the study of the workforce in the economy of the industry and the rural landscape. The identification of industrial landscapes wherein the manufacturing processes form the focus of raw material extraction and preparation, woodland and water management, and the interaction of industrial and agrarian occupations, would establish the impact of industry on the local economy.

The author then examines, with examples

from a wide variety of industries throughout Britain, the main determinants in the location of industry, starting with fuel. Increasing demands for wood led to the need for a reliable supply. This increase was either gradual, through the knock-on effect of the increase of population, or sudden such as rapid technological development (the changeover from the bloomery to the blast furnace in the Weald in the early-16th century is cited as an example). Changes in demand necessitated changes in the organisation of resources, and a similar situation has been observed in the tin, glass and pottery industries. Based on calculations made by Hammersley, for the Forest of Dean ironworks, Crossley has estimated that 4000 acres of coppice was needed to sustain a forge and furnace in the Weald perpetually, or a quarter of the ground within a radius of three miles. In 1574 this would have represented about 200,000 acres out of a possible 900,000. The distribution of such an acreage would be subject to distortions, notably by land ownership. Evidence of such distributions is available through documents and maps, but also through fieldwork, and more attention should be paid to the environmental evidence that can be derived for relict woodland in the form of charcoal types and the analysis of pollen.

Similar evidence for the distribution and location of ore sources is available, although re-exploitation of previously rejected resources may complicate fieldwork. Evidence of ore preparation is important to further our understanding of the industrial process, and the explanation of the absence of ore roasting sites, common near bloomeries, in association with blast furnaces in the Weald requires specific evidence.

A neglected topic is the source of clay and stone refractories for furnaces. These were of great importance and good sources were known. The precise location, and analysis of the properties which were valued, are further elements in the appreciation of the industrial landscape.

Water power is a resource for which the Weald has provided many examples, not only in

relation to the iron industry but also for milling. The management of water was of great importance and would have had a profound effect on the landscape, especially in the Weald, where the rainfall was barely adequate to sustain the iron industry.

Finally there was the workforce. There is little if any evidence in the Weald of secondary, cottage-metal working industries such as were found in the west Midlands or the Sheffield area, but in the landscape of an ironworks the agricultural workers were able to find employment digging ore or working teams of horses for the ironmasters when work on farms was slack.

David Crossley's paper points to a type of study with which researchers in the Weald have much evidence to begin. The landscape of ironworks in the region, changing with economic circumstances, land ownership and competition for wood, can form the basis of a discipline which has great relevance to Wealden iron studies.

Finings

New Prehistoric Gallery - Museum of London Sheila Broomfield reports.

Last Summer I had a telephone call from the Museum of London asking if I could obtain a piece of iron ore for the 'hands-on' exhibit in the new Prehistoric Gallery - obviously this was no problem as a quick phone call to Brian Herbert found exactly what was wanted. This resulted in Brian and myself being invited to the opening in November of last year. I was particularly pleased to accept as I have had many dealings with the Museum and the Barbican including taking slides of the building work whilst excavating nearby in the City in the '60s - when, incidentally, very little was known of the prehistory of London. We were two of many representatives of other organisations and had a very pleasant taste of mead and other 'prehistoric' delicacies! After the opening ceremony we had an opportunity to visit the Gallery which is a very

good example of what a modern museum should be like at the end of the twentieth century. We were pleased to find our piece of ore although keen-eyed visitors can spot the fact that the label should read 'Weald' instead of 'Kent' - I have pointed this out to the curators and this should be corrected shortly. WIRG has a credit in the information resource ring binders which are to be found in several places in the Gallery.

Theme and Variations!!! (Sheila again)

Whilst sitting at the computer writing the minutes for the last committee meeting one Sunday morning last year I had half an ear to Brian Kay's Sunday morning programme on Radio 3. My attention was diverted from the keyboard to a piece of ballet music with iron making connotations! I heard that it was a piece called "The Iron Foundry" but, as I did not recognise it, I wrote to Brian Kay requesting further details.

He replied that it was a short piece from a ballet called "Steel" by Alexander Mosolov (1900-1973) - I subsequently bought the CD and have found the piece to be all of 3 minutes long!! Anyway its worth listening to and certainly in the tradition of iron workers!

All this set the committee thinking about other appropriate pieces and Wagner seems to have cornered the market with the forging of the Sword Notung by Siegfried and hammering in Das Rheingold etc etc.

Of course such a list must include The Harmonious Blacksmith (Handel), The Anvil Chorus from Il Trovatore (Verdi), Belioz's opera Benvenuto Cellini (this involves the casting of a statue), Bizet's opera La Jolie Fille de Perth has an armourer, Henry Smith, as its hero and there must be many more - if you can think of them please let us know!! I did wonder if I should include Faure in the list although this is more of one of my puns!!!