

# WIRG

## Wealden Iron Research Group

NEWSLETTER

No. 7

November 1986

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Secretary: Mrs. S. Swift, Hamfields, Withyham, Hartfield, Sussex, TN7 4BH. Tel: Groombridge 754.

### Letter from the Chairman

Dear Fellow Members,

The year since my last letter has been one of great variety. Those who were able to attend the Service of Thanksgiving for Fred Tebbutt will testify to the eminence of many of the congregation, reflecting the high esteem in which Fred was held. At a personal level, I miss talking to him. Many times have I arrived home from the daily grind to find a message, "Fred rang; would you ring him back". And I would, knowing full well that something had turned up or he had been to see something that needed action. Either way, I was to become involved, and willingly. He never demanded your involvement but the appeal was irresistible.

One such concern was the project to preserve Pippingford Furnace. On the face of it, it was too good a chance to miss. The most complete remains so far excavated, with a superb gun-casting pit. But there were problems: the drainage needed sorting out and regular maintenance would have been essential; grant aid was available but we could not get a lease on the land; finally, and this was the chief stumbling block, the land remains an Army Training Area and access, while available, could not be guaranteed. The committee felt that to expend a large sum of money and effort where the Group would be committed to the responsibility of maintenance at local level, for the foreseeable future, without the certainty of tenure and unrestricted public access, would be an unacceptable burden to place on a small group, the majority of whose members are not that active, and whose primary object is research.

In other areas, we have had our rewards. We have met for interesting and enjoyable meetings at Maresfield and at Fernhurst (the success of the latter was a great relief, being the furthest west we have been for a meeting). The Field Group keeps up an interesting programme of forays with a few themes making a regular appearance, and one-off explorations being fitted in when circumstances warrant it. We are mindful of two criteria for our field work; the integrity of our research and the enjoyment of the participants (there is little to surpass the pleasure of a thermos of hot soup after a winter's morning in what my family disparagingly refers to as 'muddy holes').

And then there is 'The Book', which has been finding its way onto the library shelves slowly. As long as librarians realise that it is a companion to Straker and not a replacement, and we don't get libraries throwing out all their old copies of Straker (though I am sure there are some WIRG members who would give one a good home!):

As usual, do keep the committee informed of anything of interest.

With my best wishes for Christmas and the New Year, sincerely  
Jeremy Hodgkinson.

### The Tebbutt Research Fund

Donations are invited, towards the establishment of this Fund, from those wishing to be associated with this tribute to the work of Fred Tebbutt. Cheques should be made payable to "The Tebbutt Research Fund" and sent to:

The Hon. Treasurer,  
The Wealden Iron Research Group,  
17, Woodland Close,  
Crawley Down,  
CRAWLEY,  
Sussex,  
RH10 4JZ.

### Field Group Activities for 1986/87

There was a meeting of the Field Group on 14th September 1986, attended by 15 members. Ideas for forays were discussed and the following programme was arranged:

- 11 October - Maresfield Bloomery - a survey using a resistivity meter will be carried out on a bloomery site on the proposed bypass route at Maresfield.
- 8 November - Langleys - the furnace site at Langleys will be surveyed and the surviving features plotted.
- 13 December - Langleys - as above.
- 10 January - Chitcombe - a visit will be made to this major Roman bloomery site and features will be noted, and the site thoroughly examined.
- 14 February - Chitcombe - as above.
- 14 March - Hodges Wood - a visit to complete the survey of the fields alongside Hodges Wood.
- 11 April - Dating sites on stream - a continuation of dating sites on the stream near Crowborough which was visited last year.
- 9 May - Newbridge - a resistivity meter survey of land at Newbridge.

If any members would like to join the Field Group and participate in these forays please contact:  
Mrs. S. Swift, Hamfields, Withyham, Hartfield, Sussex.

### Winter Meeting

The Winter Meeting was held on 25th January at Maresfield Village Hall and was attended by 50 members and friends of WIRG. We listened to a most enlightened talk by Mr. R. Smith of the Armouries at the Tower of London. His talk was on the Eridge Gun and the Bodiam Mortar and was illustrated by some most interesting slides.

Tea followed and members were able to get together for an informal chat.

Report on the Annual General Meeting 1986

The 1986 WIRG AGM was held in the village hall of Fernhurst in the far west of Sussex and was well attended by members of WIRG and local societies. The first talk was given by Dr. E.M. Yates of King's College, London University, and was entitled "The Evolution of the Western Weald with Reference to the Iron Industry". The talk considered the geology of the area, where the North and South Greensand Ridges meet, and the special case of Fernhurst itself, which is an "inlier" of "Weald Clay" surrounded by the "Greensand". There is a close succession of differing geological strata in the area which has affected how the land could be utilised. For example woodland on the poor "Gault Clay" where there are few settlements; farming land on the fertile "Greensand"; and again woodland on the wet "Weald Clay", on which the only significant streams flow. This limited the sites suitable for building blast furnaces in the area and also defined where the fuel would be available.

The second lecture, given by Mr. J. Hodgkinson, Chairman of WIRG, considered gaps in our knowledge which have been shown up whilst reading "The Book". (see publications for sale on the back page)

1. Find "all" the furnace and forge sites listed in the "1548 List".
2. Make detailed ground plans of all the water-powered sites. For example:- Why is Socknersh Blast Furnace 250 metres from the bay and how was the water taken to the water wheel?
3. Identify the type of slag from water-powered bloomery furnaces.
4. Why are there two distinct groups of bloomery furnace sites, either side of a vertical line through Darwell Reservoir? See page 58 & 59 of "The Book". (An area beyond normal WIRG forays and the eastern sites which were known to Straker).
5. Study and search for other bloomery sites on the North Greensand Ridge and determine the source of ore.
6. Why is the Roman bloomery furnace site at Little Farningham Farm, Sissinghurst, well away from other bloomery sites? See page 59 of "The Book".
7. Study by excavation the two Medieval bloomeries for which documents are available: Tudeley in Kent and Roffey in Sussex. (First prove the location of Tudeley bloomery).
8. Find the bloomery at Leigh in Kent. (What about Cinderhill?).
9. Make a study of early wrought iron, such as the door of Staplehurst Church in Kent.
10. Determine the provenance of wrought iron artifacts, as has been done with silver. Perhaps only to differentiate between the Forest of Dean and the Weald, etc.
11. Differentiate between the areas using the "bowl" and "shaft" bloomery furnace structure.
12. Make a comprehensive study of Wealden firebacks.
13. Make a study of the East India Company's policies for obtaining cannons (from the Weald and elsewhere) for their ships.
14. Continue to study sections through mine pits.

Afternoon forays at AGM

The first foray was arranged to Fernhurst Blast Furnace which still supports a picturesque pond. The apparent site of the furnace structure was probably beside the north spillway where timbers and courses of ashlar may be seen in the water. However, a possible 19th century construction of a filtration bed makes the ashlar water courses impossible to study without a certain amount of destructive archaeology. This furnace probably retains the most slag of any Wealden water-powered site.

The second foray was to Verdley Wood, a site known to Straker and for which no documents exist. This site is not typical of a blast furnace; it is on the Weald Clay and there is sand close by, probably accounting for a large percentage of sand in the broken bay. The furnace structure is some fifty feet from the bay and poses a problem of how the water was taken to the water wheel. The area has now been planted (with conifers of course); however, in a few years all the undergrowth will have been killed off, making it easier to study the ground plan.

ADVANCE NOTICE OF SAS/WIRG CONFERENCE - "THE IRON INDUSTRY OF THE WEALD" - to be held on Saturday, 4th July 1987 at Claire Hall, Haywards Heath.

The programme for the combined WIRG/SAS Conference will be as follows:-

- 10.30 - 11.00 Coffee
- 11.00 - 11.05 Opening remarks by Chairman
- 11.05 - 11.45 Dr. Henry Cleere - "The Wealden Iron Industry in the Economy of the Roman Empire".

The 16th Century Industry in the Ashdown Forest Area

- 11.45 - 12.05 Mr. Brian Awty - "The Immigrant Contribution to the 16th Century Industry".
- 12.05 - 12.25 Mr. Edmund Teesdale - "Ralph Hogge - The Queen's Gunstonemaker".
- 12.25 - 12.45 Mrs. Dot Meades - "Hogge's Ironworks in their Setting".
- 12.45 - 13.00 Discussion
- 13.00 - 14.00 Lunch
- 14.00 - 14.45 Dr. Owen Bedwin - "The Archaeology of Blast Furnaces".
- 14.45 - 15.15 Tea
- 15.15 - 16.00 Mr. Jeremy Hodgkinson - "The Wealden Industry in Decline - an Example".
- 16.00 - 16.15 Discussion and Closing Remarks.

Further details, cost, etc., will be sent to members nearer the time. Meanwhile please note the date in your diary.

Surrey Archaeology Society - Excavations Committee Annual Symposium

To be held on 21st February 1987 in the Dorking Halls, Dorking, Surrey. Chairman: Mrs. Elizabeth Eames.

- 10.30 Nicholas Riall : The Farnham tile kiln: the 12th/13th century kiln found on the Borelli Yard site.
- 11.00 Geoffrey Cole : The work of the Surrey Heath Group: recent excavations and fieldwork have changed our understanding of this previously neglected corner of Surrey.
- 11.30 Short break
- 11.40 Paul Larkin : Recent finds in the Shepperton/Chertsey area: discoveries of national importance made in gravel digging, including a LBA axe with its unique wooden handle.
- 12.10 Rob Poulton : Excavations at the former Goblin Works site, Leatherhead: a pagan and ?later Saxon cemetery.
- 12.40 Lunch and an opportunity to view the exhibits.
- 14.00 Paul Sowan : The Merstham/Chaldon stone mines: detailed underground survey of possibly medieval stone workings.
- 14.40 The Margary Award
- 14.50 Tea break
- 15.20 Jon Cotton : Recent work on the West Middlesex gravels: despite a lack of aerial photographs, work by the West London Archaeological Field Group has recovered evidence for prehistoric and RB farms. Finds include unique RB timber work of great interest.
- 16.00 (approx) Conclusion.

Each talk will be followed by a short discussion period. Coffee, tea and biscuits will be available at a small charge at the lunchtime and mid-afternoon breaks. Admittance will be £2 at the door or tickets may be bought in advance for £1.50, including postage, from:-

Mrs. S. Janaway at Castle Arch, Guildford, GU1 3SX. Cheques should be made payable to the Surrey Archaeological Society. There is ample parking adjacent to the Dorking Halls.

#### Experimental Bloomery Report

With the kind permission and encouragement of Mrs. Tebbutt and her late husband, many bloomery smelting experiments were conducted in their woodland over a period of several years. All were blown by manually operated bellows and most used charcoal made on the site.

During this time we have learnt a great deal about the construction and operation of the furnaces and about the use of the low grade Wealden iron ore.

Recently many experiments have been carried out in co-operation with Professor Ronald Tylecote of the Institute of Archaeology, using many types of high grade foreign ore and the size of iron or steel bloom they produce is surprisingly large compared with that produced from a similar weight of local ore, but it has shown that our method of working the process is about right and that very careful selection and treatment (or a great deal of luck) is required when using local ores.

I am very grateful to Dennis Beeney and Brian Herbert and to Miss Effie Photos and many others for their help and encouragement in this often unrewarding and always dirty process.

We have been very fortunate in obtaining a new site through the great kindness of Mr. Alan Morriss and I hope to continue with the experiments.

Roger Adams.

#### William Levett, Rector of Buxted (1533) and Herstmonceux (1545)

The office held by William Levett of King's Gunfounder is well known to members, but it is surprising to find a William Levett in the list of Rectors for All Saints Church, Herstmonceux. The list also appears to include the additional offices for Levett of Warden of All Souls, Oxford and Dean of Winchester. However, on checking this with the Deputy Archivist (Mr. J.S.G. Simmons of All Souls), it has become apparent that although Levett is listed as a scholar of All Souls and as Rector of both Buxted and Herstmonceux (which confirms that we are dealing with one and not two individual Levetts), it is nevertheless apparent that Levett did not occupy the offices of Warden of All Souls or Dean of Winchester.

The list of Herstmonceux Rectors includes, following Levett, one John Warner (1548) and Mr. Simmons' list (Emden)\* shows a John Warner - Fellow admitted 1520 and with a distinguished record including Warden (1536 & 1558), Dean of Winchester (1559) and Chaplain to the King (by 1549). However there is no mention of him as Rector of Herstmonceux.

What appears to have happened with the Herstmonceux list is that the references to Warden of All Souls and Dean of Winchester have been inserted under Levett's name instead of Warner's. This has been pointed out to the present Rector (Rev. Peter Ward) so that the list can be amended.

William Levett in the All Souls (Emden) record appears to have been additionally Rector of Guestling, West Dean and Stanford Rivers (Essex) and he bequeathed to poor scholars £100 to be distributed by his executors with the advice of Stephen Gardiner, Bishop of Winchester.

\* Ref: Emden H.B. A Biographical Register of the University of Oxford. AD 1501 - 1540. Clarendon Press Oxford 1972

T.E. Evans.

#### Bloomeries used by Early Ironworkers

Those who saw the film "Noces de Feu" given at the 1985 Winter Meeting will remember that this showed iron making by the Hausa people in the Niger. Made by Nicole Echard at a date not recorded, but certainly in the present century, it showed one of the early bloomeries then being used and a commentary was given by Henry Cleere.

It may not be known but Henry and Prof. R.F. Tylecote both wrote papers on this subject in the early sixties and they are worthy of study of methods that were used by widespread people in pre-industrial days that give us a good outline of systems of making iron then. These cover natural and forced draught furnaces in the Indian and African continents and with reference to Romano-British and later furnaces in Britain. There is useful information and comments about such items as roasting ore, ore sizes, charcoal sizes, fluxes, loads, shapes and sizes of furnaces with detailed drawings of various types and furnace practice that would be of interest to those not currently aware of these important papers.

I recently met people at the international Seminar on Wrought Iron at Ironbridge (July 1986) who are specifically interested in building and operating bloomery furnaces in Denmark and Williamsburg, Virginia, USA, with continuing correspondence on their progress. My own specific interest in the subject is how early settlers provided themselves with small amounts of iron for local communities and I am researching what types of simple furnaces were used. Any comments will be welcome.

Those who have access to the recent reprint of Percy's "Metallurgy - Iron and Steel", 1864, produced in association with the Historical Metallurgy Society, will be interested in his comments on furnaces in these specific areas, pp. 254-278. Other areas and much of the history of wrought and cast iron and steel to the date of initial publication (1864) is of considerable value to those interested in this subject.

1) H.F. Cleere: British Steelmaker, 1963, April Vol 29, 154-158.

2) R.F. Tylecote: JISI, April 1965, 340-348.

D. Braid.

#### Data Protection

WIRG has applied for registration under the Data Protection Act because we have membership records and the Bibliography on computer. The membership records consist of member's name and address and subscription details. Any member may obtain a printed copy of the details held under his/her name by writing to the Hon. Secretary and enclosing £3 to cover costs.

#### "The Prehistory of Metallurgy in the British Isles" by R.F. Tylecote

Professor Tylecote's new book is available from the Institute of Metals, price £19.95. However, as WIRG is a member of the Historical Metallurgy Society, WIRG members may obtain copies of the book at the reduced price of £15.96. If anyone is interested please send a cheque for £15.96 made out to the Institute of Metals, to the Secretary, Mrs. S. Swift, Hamfields, Withyham, Hartfield, Sussex, TN7 4BH.

#### About the Book:

Based upon the author's "Metallurgy in Archaeology" (published in 1962) which was one of the few books on this subject and became a minor classic in its time, this revised text incorporates the results of work done in the scientific investigations of archaeology between 1960 and 1982.

The object of the first book was to gather together the wealth of information on metallurgical aspects of archaeology contained mainly in the appendices to excavation reports which had been contributed by metallurgists, chemists and other specialists in techniques. Today, efforts are being made to integrate the scientific work and to build it more into the body of the archaeological report so that its general relevance may be discussed and conclusions made.

A large proportion of sites excavated produce industrial material such as slags, furnaces and other metallurgical debris. However, up to the present time, few excavations have been carried out with the prime object of elucidating metallurgical techniques but, hopefully, many more excavations of this type will be made in the future.

Since this is a subject of interest to metallurgists as well as archaeologists, the work has not been treated as a textbook on metallurgy for the archaeologist, but is addressed to both archaeologists and metallurgists.

Contents:-

1. The native metals
  2. Copper and copper alloys
  3. The production and properties of tin and its alloys
  4. Lead, silver and antimony
  5. Fabrication
  6. The coming of iron
  7. The Roman Iron Age
  8. Iron in the early medieval period
  9. Water-powered bloomeries: the end of an era
  10. The charcoal blast furnace and the refinery
  11. Fuels and their ashes
- Appendices  
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FININGS

A. Raby v. R. Trevithick

An article by Mr. T.E. Evans is in the Sussex Industrial Archaeology Society's publication concerning this subject.

Sow at Littlehampton

News has reached us of stirring efforts by Victor Sheppard, recently appointed Museum Services Officer at Littlehampton, to move the Sow, which Straker found at Shipley Forge, from its long established site outside the library cycle sheds to a more appropriate one in the museum. The sow was, in all probability, a product of Knepp Furnace.

J.S.H.

Editor's Note

You will have noticed the new format of this Newsletter. This new format has been tried in order to save money on printing and postage costs. If you have any comments, I will be pleased to hear from you.

Dorothy Hatswell.

Publications for sale from WIRG are available from:-

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

	PRICE	
	BY POST	AT MEETINGS
A Gun-casting Furnace at Scarlets, Cowden, Kent. By:- D.W. Crossley	0.93	(0.75)
The Excavation of a Late 16th/Early 17th Century Gun Casting Furnace at Maynard's Gate, Crowborough, Sussex 1975-1976. By:- O. Bedwin	0.78	(0.60)
A Middle Saxon Iron Smelting Site at Millbrook, Ashdown Forest, Sussex. By:- C.F. Tebbutt	0.93	(0.75)
Wealden Bloomery Iron Smelting Furnaces. Survey of Wealden bloomeries in an area of approx. 200 km. By:- C.F. Tebbutt	0.78	(0.60)
The Finch Foundry Trust and Sticklepath Museum of Rural Industry. (A Water powered Smithing Forge on Dartmoor). By:- R.A. Brown	1.18	(1.00)
The Fieldwalker's Guide and an Introduction to the Iron Industries of the Weald. By:- B.K. Herbert	2.88	(2.50)
The Queen's Gunstonemaker. (Being an account of Ralph Hogge the Elizabethan Ironmaster and Gunfounder of Buxted in Sussex). By:- E. Teesdale	6.50	(5.50)
Bulletins of the Wealden Iron Research Group:-		
Volume 1, 3, 4, 9, 11, 13, 14, 15 & 16	0.75	(0.50) each
Volume 1 to 3, new series	1.18	(1.00) each
Volume 4 to 6, new series	1.68	(1.50) each

Volumes 2, 5, 6, 7, 8, 10, 12, 17 ARE OUT OF PRINT AND WILL NOT BE REPUBLISHED

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Dr. Henry Cleere can obtain copies of the book "The Iron Industries of the Weald" by H. Cleere and D.W. Crossley for the sum of £31.68 plus postage of £1.70, total = £33.38 a distinct saving on the book shop price of £47.50.

This offer is open to WIRG members only, who should send "money with order" to:-

Dr. H. Cleere,  
Acres Rise,  
Lower Platt,  
Ticehurst,  
Wadhurst,  
Sussex.

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