Wealden Iron

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Wealden Iron
Research Group

WEALDEN IRON RESEARCH GROUP

BULLETIN NO. 3, SECOND SERIES

1983

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FIELD NOTES

Roffey Medieval Bloomery. TQ 208335.

This important site was identified by Straker (Wealden Iron (1931), 442) as one of the few medieval examples for which there was documentary evidence. In 1327 it was recorded as supplying 1000 horseshoes for military use. This presupposes large-scale production, for which a mechanical hammer would be of great service.

The site was visited on a Field Group foray on 6th November 1982, after previous reconnoitring and research by Brian Herbert and Jean Shelley. Their report has been placed with the Group records, and may be summarised as follows. The two fields, between the railway and the A264 road, described by Straker as being separated by a low lying area, 'The Lag', now form one large field of 20 or more acres. The Lag has been drained but is easily distinguished, in spite of some levelling, as a former shallow quarry.

Bloomery tap slag was found all over the large field, more intensely at the west end and tending to be in separated groups towards the middle and east end. The slag was mixed with possible iron ore (box stone) and sandstone. The Lag area, however, is devoid of stone or slag. Among the tap slag at the west end was a scatter of medieval pottery, including Surrey or Graffham white ware of the fourteenth century. The hedge at the west end of the field, bordering the bridleway, contains six shrub species, which may indicate an age of 500-600 years. The field to the west of the bridleway was under grass, but spiking produced no evidence of slag.

The whole field slopes down from the main road to a valley with a considerable stream which, it was reported, seldom dries up. It is however now cut off from the bloomery site by the railway. An examination of the stream was made through the grounds of the adjacent Brook House, Faygate. At the north-east end of a grass meadow in a small wood (TQ 206336) was a bay running north-west to south-east. It was 50m long, and 2m high on both upstream and downstream sides. Some of the original length may have been cut off by the railway. At the north-west

end of the bay an extension, possibly a protective bank for a weir stream, turns to the south. The present stream cuts through the bay and then turns parallel to it. Search was made under water in the stream and a number of pieces of cinder were found. Professor Tylecote considers that they are probably forging cinder.

Brook House, Faygate, has been the subject of a visit by the Wealden Buildings Study Group with the preliminary finding that it contains two complete bays, and part of a third, of a medieval open hall (Site visit note 6/77) of simple design.

It would seem that at Roffey there was medieval iron smelting on a large scale by hand bellows on the site of a shallow ore layer. Forging was done by a water-powered hammer. A nearby house may be contemporary. This may be one of very few medieval hammers not converted to post-medieval use.

Park Farm, Mayfield

Anne Dalton and Elizabeth Gibb report that in the course of forays on Park Farm, Mayfield (farm house TQ 577281) evidence was found of a bloomery at TQ 57702760. In the stream were several pieces of dense tap slag, the largest weighing 5½lbs. A 'plug'-shaped piece of glassy tap slag (¾lb) is now with Chris Cater of the Department of Metallurgy, University of Oxford, for analysis. In addition there was a bowl shaped 'bottom', which would seem to be from a smithing hearth. Box stone was found in the stream.

The reported 'bays' for which a search was being made seemed to be the possible remains of spoil from an opencast mining area on the left bank of the stream (TQ 57712771). There may be a further area downstream at TQ 57652738 where the ground on either side of the stream appears to have been cut back, leaving a large flat boggy area now crossed by two solid farm causeways connecting the west and east fields. There is no sign of slag in the stream here, though there is evidence of iron-stone. Neither the main stream below this point, nor the eastern branch were walked, for the banks become very steep.

Warbleton

Mr. Colin Rose has sent information of a possible bloomery site at Callers Corner (TQ 611195). Here a track crosses a stream, and on the west side the old hollow-way has recently been widened on its south side. This has exposed a saucer-shaped layer of cinder and burnt clay (? furnace lining) about 5m long, at a depth of approximately 1m from the surface. No tap slag was seen.

Mr. Rose reports other probable bloomery sites at TQ 618183.

Two forays in the West Hoathly/Ardingly area (8th January and 5th February 1983)

These were undertaken to investigate the possibility of examining a second study area, where later blast furnaces had exploited sources of ore in the Tunbridge Wells Sand.

The first foray, from TQ 354297 to about 361314, found no evidence of iron working in very dense undergrowth.

The second foray from 348310 along the Cob Brook again revealed no early working, though the site of Chittinglye Manor Farm Furnace was revisited, and a probable pen pond bay was noted at 346324 where the foray ended.

Our thanks to Broadlands Properties and to R. Strauss Esq. for permission to walk the land.

A Bloomery in the Charlwood area (5th March 1983)

The 1-inch Geological Map of the Horsham area (no.302) shows a broad outcrop of Weald Clay iron-stone running through Charlwood parish immediately to the west of Gatwick Airport. Examination of this outcrop revealed plenty of this ore, generally in pieces smaller than $8cm^3$. Also, a widespread and infrequent scatter of bloomery was noticed with a concentration immediately to the west of the airport runway, at TQ 248399, where part of a furnace bottom was found. Associated with the cinder was a scatter of medieval pottery sherds and an elongated hollow (perhaps a former pond), both suggestive of an abandoned habitation site. Elsewhere a long low ridge was noted. This was perhaps formed by the

deposited overburden from linear surface quarrying for the iron ore. There are many references to the presence and mining of ore in Charlwood as early as the 14th century, and Tifters Farm, over which the foray took place, was the subject of a deed of 1692 which specifically refers to ore.

SHEFFIELD FORGE - NEW DEVELOPMENTS

C.F. and M. TEBBUTT

The Forge site

Sheffield forge (TQ 404238) seems to have been established as a unit with Sheffield furnace (TQ 416257) by 1554 (E. Straker, Wealden Iron (1931), 412-14), but by 1598 (E. Straker (ed.), The Buckhurst Terrier, 1597-8, Sussex Rec. Soc. 39 (1933), 72-3), when the furnace had been converted to a corn mill, the forge remained in working order. It was still in use in 1653 but not in 1664. Included with it were 30 acres in adjoining Coleham.

The water system at the forge was an unusual one, although not unique, being paralleled at Kitchenham Forge (TQ 679135). Water from the Ouse was led into an embanked pond artificially constructed in the flood plain of the river, and returned to the main stream by a mile-long channel whose name, the Hammer Ditch, still survives.

In 1982 the farmer of Wapsbourne Farm, of which the site of Sheffield Forge forms a part, decided to drain and level the former river meadow, not knowing that the bay and some surviving banks of the pond were of historical interest. All that now remains above ground on the meadow is a small part of the bay bearing a wartime pill-box, which has so far defied destruction. Many circular forge bottoms are scattered around it. Unfortunately only a very inadequate sketch plan of the earthworks was made some years ago for attachment to the WIRG questionnaire form (Fig.1). We were informed that during the levelling operation the round pond-like depression at the south end of the bay was dug out. It was described as being 'full of timber'. The Hammer Ditch was also recut.

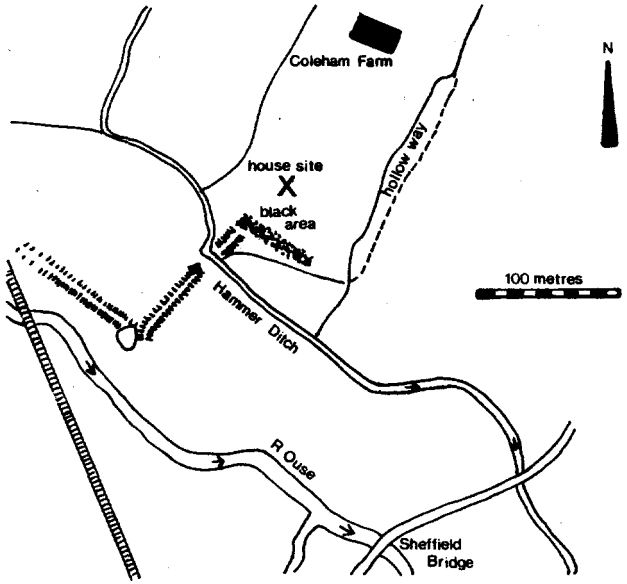

FIG.1 Sketch plan of Sheffield Forge area

Coleham Farm

In The Buckhurst Terrier (72-3) 30 acres of Coleham is recorded as part of the forge property, and the extreme northern tip of the forge bay can still be seen north of Hammer Ditch on Coleham Farm. In 1982 the grass field to the south of the farm building was ploughed for the first time in living memory. At TQ 405239 signs of a domestic building were revealed 50m south of an ancient walnut tree where a slightly hollowed platform could be seen. In the immediate area was a scatter of plain and pan roof tiles and a few bricks of 54mm thickness. From the site were collected clay pipes, dated by D. R. Atkinson as c.1660-1730 (see Appendix). Pottery sherds were submitted to A. D. F. Streeten, who found that most were of the same date as the pipes but there was some evidence of sixteenth-century occupation (see Appendix). Other domestic rubbish included globular wine bottles and a broken seventeenth-century pewter spoon.

It was noted that at the south end of the field was a rectangle of intensely black charcoal-impregnated soil containing a few pieces of cinder; this area measured approximately 60m in length and at its west end reached almost to the northern end of the forge bay. This was interpreted as the site of the 'colehouse' (The Buckhurst Terrier). The eastern boundary of the field, now a stream, had once been a hollow way which can be traced across fields to the north until it joins the present road at TQ 408241. This no doubt formed the link between Sheffield furnace and forge. A scatter of bloomery tap slag was found along this side of the field. The fact that the date of occupation of the house is contemporary with the forge, and its proximity, suggest that the forge manager once lived here but that its occupation survived the enterprise.

We are grateful to Mr. Cragg of Wapsbourne and Mr. Setford of Northall Farm who gave all the necessary permissions to examine these sites, and also to D. R. Atkinson and A. D. F. Streeten for their reports on clay pipes and pottery. Finds will be deposited in Barbican House Museum, Lewes.

Appendix 1 Clay pipes by D. R. Atkinson (summary)

1. Thomas Sharman, Lewes c.1730-1740
2. Stamped initial IB c.1780; unusual for Sussex
3. After c.1650, probably not later than c.1680
4. Bowl with spur c.1660
5. c.1660

Appendix 2 Pottery by A. D. F. Streeten (summary)

The majority of the sherds belong to the same period as the clay pipes, the second half of the seventeenth century. However, the pottery may extend the date range of the occupation.

One sherd may be medieval but this is not certain. The simple everted rim form represented in Fabric Bii may belong to the late sixteenth century or possibly earlier. Fabrics Bi and Bii are certainly likely to be earlier than the clay pipes.

The base of Raeren stoneware must be earlier still, and the handle fragment (Fabric Di) is probably from the same or similar

vessel. Even taken with the possibly earlier forms described above this does not necessarily take the occupation earlier than about 1550 allowing for variations in the life of a vessel.

The full report on the pottery has been placed with WIRG records relating to Sheffield Forge.

INVENTORY OF THE IRON-WORKS AT HAMSELL IN 1708 — ANNE DALTON

The inventory reproduced here was taken when Robert Baker, the owner of Hamsell Furnace and Birchden Forge, was declared bankrupt in 1708. It is mentioned by Straker[1] but many members may not have read Miss Bell-Irving's "Mayfield",[2] Straker's source, and seen a list of the equipment and manufactured goods to be found in a furnace and forge in the early eighteenth century.

"The Schedule or Inventory whereof mention is made in the Indenture annext Being the goods and chattells and effects of Robert Baker therein named.

	£.	s.	d.
Imprimis Nineteene Guns of Mr. Robert Baker's, q^{ty}. about 27 Tuns in the custody of James Felton Esq. lyeing in Woolwich Warren in Kent at £5 per Ton . . .	135	0	0
Item. Fifty Guns, q^{ty}. about 50 Tuns in the Custody of Mr. William Harison lyeing at Battell bridge wharf in Surrey at £5 p. Tun.	250	0	0
Item. Cash in his hands for other guns by him sold, about	40	0	0
Item. Two Entire Linsey beds, Two feather beds, two bolsters and four Blankets in the Custody of George Pescod and his wife lye-in at Sevenoakes in Kent and of John Harrison at Rotherfeild in Sussex . .	5	10	0

Item. Thirteene gallon pots, 6 kettles q^ty^. 2 gall. each, 2 pots q^ty^. 12 gall. each, one pot q^ty^. 9 gall., 2 pots q^ty^. 7 gal. each, 1 pott q^ty^. 5 gall., 7 skillets, q^ty^. 3 quarts each, 25 pint skillets, 16 quart skillets, 42 skillets 3 pints each, 4 pot skillets q^ty^. 3 quarts each, 5 pots q^ty^. 3 gall. each, 6 pots q^ty^. 3 quarts each, 3 pot skillets q^ty^. 3 quarts each, 1 gall. skillet, 8 skillets q^ty^. 3 pints each, 8 quart skillets, 5 pint skillets, and 22 Iron Backs q^ty^. 5 cwt. weight in the custody of the said John Harrison lyeing at Rotherfeild af^d^. 13 14 6

Item. Six Tun and four hundred w^t^. of square bar Iron at £10 p.Tun in the Custody of Alice Yateman lyeing at Caverlyes plaine in Tunbridge in Kent 62 0 0

Item. One Iron plate sett ag^t^. the Chimney q^t^. 1 cwt. w^t^., 1 sidesaddle, girt, bridle and whip, 1 side of an iron bar q^ty^. 10 lb. weight, 1 iron furnace q^ty^. 30 gall., 1 pewter Limback still (?) and bottome, 1 iron plate by the back doore in the custody of William Rabett at Birchden forge 3 8 6

Item. Cash in his hands for other goods sold by him at the s^d^. Forge. Item. In the Iron house in the custody of the s^d^. William Rabett. Ten halfe hundred weights, 9 boreing bars and a peice q^ty^. 3 cwt. weight, 5 Ringers q^ty^. 1 cwt. weight, 7 pair of forge tongs q^ty^. 4 cwt., 3 grate bars, and a piece q^ty^. 1 cwt., 2 bars and a piece q^ty^. 1 cwt., one old anvill q^ty^. 2 lbs., 2 iron hoops q^ty^. 1½ lb., a pr. of broome tongs q^ty^. ¼ cwt., 8 Hamer-heads, 2 gun-

rods, 5 gunearthes, 3 gunstoppers, one iron shovell and Ladle, 7 bellow hookes, 2 Hamer plates, 4 iron wheeles belonging to the boweing carriage, 4 rung pins, 3 old chisles and 2 punches q^ty. 30 cwt., a piece of steel q^ty. 4 lb., 2 hoes and an ax, 2 clapses for the boweing carriage, a pair of Rodes, 2 wrought sledges, 400 bellow nails, a pair of Smith's tongs, 3 drills, 2 furnace bellow pipes, 2 Clamps and a piece of boweing bar, 5 small rods, sevrall pieces of old iron, 2 old cast sledges, a large pair of forge scales and an iron hook belonging to them, and some old bellows leather 21 12 6

Item. In the fforge in the custody of the said William Rabett, 6 iron plates about the finery q^ty. 15 cwt., a loop plate q^ty. 4 cwt., an old anvill and a piece of a hamer and a sow taile q^ty. 10 cwt., 6 plates about the Chafing hearth we^g 12 cwt., 2 Smith's anvils, q^ty. 4½ cwt., 3 solid shott q^ty. 3 cwt., sevrall pieces of cast iron about 2 cwt., a shell q^ty. 2 cwt. a vice, a large Sow q^ty. 16 cwt., ¾ cwt. of wrought iron, some plates under the Anvell q^ty. 5 cwt., 4 cast plates, q^ty. 10 cwt., 9 forge hamers, 4 forge anvels, 5 husts, a gudgen, severall shotts, 4 bars of wrought iron, a small gun, 4 bellow pips, 8 load of braises, 2 old coalwaines and a large ringer at the flood gates . . . 60 12 10

Item. At Mr. Baker's furnace called Hamsell Furnace. A Vice, severall pieces of cast iron q^ty. 6 tuns, 11 iron plates q^ty. 1¼ cwt., a Sow q^ty. 15 cwt., 4 furnaces

q^{ty}. 30 gall. each, 2 pr. of bellows, 2 slabs of iron q^{ty}. 30 cwt., 12 rings to mould pins in q^{ty}. 10 cwt., old timber for moulding, 3 pullies, 3 old rops, 20 gun patterns for moulding and boards, 80 loads of coales (charcoal), 200 loads of mine, and 5 loads of Brayzes 120 0 0

Item. In the furnace house Six chaires, a table, a desk with drawers, 5 bundle and a peice of iron rods, 2 rols of bellows leather, 8 peices of steele, a small kettle with bellow nailes, 10 glass bottles, 4 broken pots, a small pott, 2 iron beames, severall peices of old iron, a timber chaine, shovell and spade, 8 shaires, 4 pr. of andirons, 1 iron back, a pr. of pot hangers, fire shovell and tongs and lanthorn and 2 chests 46 6 2

(The inventory follows of the furniture "at Mr. Robert Baker's dwellinghous called Birchden," which brings up the total of his effects to the sum of £947 15s. 0d.

The present whereabouts of the original inventory is not known, but documents of 1711, settling Robert Baker's affairs, and his will are among the Baker papers recently deposited in the East Sussex Record Office and now being catalogued.

1. Straker, Wealden Iron, (1931), 262.
2. Bell-Irving, Mayfield (Tunbridge Wells 1903), 177-9.
3. ESRO. C. Whittick personal comment.

THE RECOVERED COURTHOPE PAPERS: TRANSCRIPTIONS R. G. HOUGHTON

A number of documents, many relating to Wealden iron works of the 17th century, have recently been rediscovered, having been missing for some thirty years. The period covered by the documents is that of the Second and Third Dutch Wars, from around 1664 to the mid 1670s. Among them are letters, memoranda and documents relating to gun casting at Horsmonden, Hawkhurst, Ashburnham, Barden and Imbham, including copies of contracts. The letters were written by King Charles II's gun founder, George Browne, to his business associate Alexander Courthope. There is also a family connection, since Alexander Courthope married the widow of George Browne's brother John.[1]

The following two letters were written against a background of rising indignation in England against the Dutch over trading disputes in the East Indies, North America and West Africa. Already in 1664, there was virtually a state of war between the two countries in these areas. Early in the year, the Dutch had been expelled from several important trading centres on the West African coast, only for them to be recaptured in the autumn. In August, New Amsterdam (shortly to be renamed New York) was taken from the Dutch by an expedition under Captain Nicholls.

In October, the Government issued orders for the fitting out of forty ships.

London 29th December, 1664.

Dear Brother,

I rec'd your letter & Mr. Mays lease inclosed wch I delivered to Mr. May. he and I did agree to take her from Michellmass last and he is to allow us a years time to remove all things wch belongs to us. he wilbe with you himself or get his brother Mr. Ed. May to see the furnace ( ) repaired. I think it very hard measure for us to interpose between Mr. Ed. & Mr. Antho. May since they have been boath civill & it is hard for me to judge which of the two may be most usefull to us therefore I will not meddle in the Attachmt you mention. I desire so much wood may be brought for that Furnace as can be cut & coaled in due time wch I leave to your judgement. Feare

not undoeing, we have noe cause to complayne, wch you wilbe satisfied in when yr accts are made up. We must of necessity set Bedgeberry[2] on Guns for they are in such want that they will have all our Di Cull (=Demi-Culverin) of what length soever & call for more than we are able to make of all sorts & sizes. The Gin is to be provided by the Colonell & the Qable (= Cable) by us wch Mr. Heaster shall have order to take care of. The Guns intended to be Cast shalbe 10 Saker Cutts according to our contract 4 Di Cul. Cutts, 6 Di Cull of 8½ foot & so to whole Cull of 8½ foot & Di Cannon of 9 foote if possible. I pray god send us good successe in the casting the Di Cannon of Iron for on yt depends our well being in this affare of Gun founding. The 12 Brasse Guns I sent you word ware to be cast are to be six Di Cannon of 9 foot long not to be under 46^{C} (= 46 cwt) or above 47^{C} weight each Gun, And six whole Cull. of 9 foot long not to be under 35^{C} nor to exceed 37^{C} wt each gun. Let them cast & boare boath Brasse & Iron as fast as may be, for there is an intention to prove the Guns at Milhall[3] & from thence to come to the Furnace to prove all that are boared at the Furnace boath Brasse & Iron. I am in very great hast & can say noe more at present but that I am

most faythfully yrs
Geo. Browne

(P.S. at top of letter) pray remember my love to mat Ejmont & tell him I have sent him one pound of Spanish tobacco.

(There is an illegible post-script at the foot of the letter).

One wonders which furnace was the subject of the lease mentioned in the first part of the letter. Straker[4] notes that an Anthony May came into possession of Ashburnham Furnace about 1655. In the 1664 lists this is shown as ruined, and in February of that year Anthony May was bankrupt and noted in the Close Rolls as "Anthony May of Ashburnham Lodge, Chapman ..... maker of iron by the forge & furnace in the p'shes of Dallington, Ashburnham & Penhurst, late in possession of George Browne & Alexander Courthope." Presumably this was not the furnace referred to, but it was certainly producing cannon to help fulfill one of George Browne's contracts within two years, although according to Straker the furnace then became the property of Thomas Scarlett.

It would seem, from the prayer for success, that they were not as sure as they might have been of the technique of casting larger guns such as demi-cannons in iron.

This second letter was written after the declaration of war on February 22nd.

Dear Brother,

The Dutch are preparing speedily to come out to encounter his Ma(jes)ties Fleet and there being severall ships now ready to go Forth and doe stay for Demy Cannon & Cullver: His Maty hath commanded that we doe forthwith send away all that are cast & bored of those natures, though the Charge Light very heavy on us by this extraordinary hast, yet I am in hopes we shall be considered for the loss we shall sustain by our expediting his Maties service beyond our obligations of Contract. allso I desire that care may be taken for the boaring of guns cast at bedgeberry[2] and to be cast there and at Hawkhurst[5] which I hope will be at work the next week, allso the Cannon of 7 to be Caste (as I did write to you in my last) I doe desire may be cast & made ready with all convenient speed. So soon as you have sent any Considerable number of Guns from Horsmonden Furnace to Millall[3] pray give notice thereof to the Officers of the Ordnance who will be ready to prove them. I intend to go to Buckland[6] tomorrow therefore I desire you to let H. Dawson give a weekly account to the Officers of the Ordnance (according to Former order Given) of your proceedings and that you will keep a Correspondence with my brother Dr. Browne till my returne which I will hasten with as much Convenient speed as my occasions will permit.

Your very Affectionate Brother
& Faithful Servant

Geo. Browne

London
Feb. 27th
1664/5

pray present my service to my sister Courthope & Nephew Browne.

The Duke of York took command on March 23rd of a fleet of 98 men-of-war. They sailed in May and fought the Dutch at the Battle of Lowestoft on June 2nd and 3rd.

George Browne refers to "our Contract". Several of these are included in the papers. One of the shortest and simplest is transcribed below.

14th February 1665.

Contracted & agreed the day & year abovesaid by & between the Rt Honble the Coms For Executing the Office of Mastr of his Ma(jes)ties Ordnance and the rest of the Officers of the same with George Browne Esqr his Mats Founder, For the Casting such copper mettle or Other Mettle which he shall Receave out of his Mats Stores within the Office of the Ordnance into Cannon of length, weight & height of Bore hereafter Mentio(ne)d, that is to say each Gunne shall be 9 Foote in Length, 7 inches in height of bore & not exceed the weight of 57^{C} (= 57 cwt): nor be under the weight of 55^{C}. it is Further agreed by this Contract that ten tons of Mettle, brass or Copper shall be taken off the hands of the saide George Browne and he shall be p'd the rate of 1001b. (= £100) per Tonne For the same to which he shall Receave a Sufficient quantity of Brasse & Copper Mettle with Shruffe out of his Mats Stores as shall Compleate the Casting of 40 Cannon of 7 For all which Mettle afforesaid he shall be allowed tenne pounds in every one hundred pounds neat Weight For waste that shall be Imployed in Casting of the said 40 Gunns pr'vided the saide George Browne in Casting the said Ordnance runne 4^{C} weight of Copper, 1^{C} weight of shruffe, $\frac{1}{2}^{C}$ of yellow Mettle, $\frac{1}{2}^{C}$ wt of Pott Mettle in proportion to the casting of every Gunne and he doth hereby undertake to Deliver or Cause the said Brasse Ordnance to be Del(ivere)d into his Mats Store at Tower Wharffe or elsewhere, Tower proofe, in manner & Forme Following, that is to say 10 thereof by the end of March next, 10 more by the end of Aprill, 10 by the end of May and the last 10 by the end of June following that for which he shall be pd the rate of 201b. per ton Finding himself tinne for Comixture and is to be at the Charge of Carriage &

recarriage pr'vided likewise that Mr. Browne Oblige himself by this Contract to Cast the saide Gunnes out of the same Mettle Dd (= Delivered) to him From this Office and to be pd per Debenture upon Delivery of every 10 guns into his Mats stores as aforesaid.

G.B.

According to the Oxford Shorter English Dictionary:-

Shruff = Old Brass (or Copper)
Pot Metal = An alloy of lead and copper
Yellow Metal = An alloy of two parts copper and one of zinc.

An unsigned memorandum noting guns cast:-

Iron Ordnance Cast at all the Works per Contract Dated ye 20th: 1666 (six) vizt:

Iron Ordnance	Horsmonden	Hawkhurst	Ashburnham	Bardens	Embham[8]	Total	Arrears of Contract	Hath exceeded
Dj Cannon 9 ft	62	-	21	-	-	83	-	01
24 Poundr	17	-	12	-	61	90	10	-
Culver 10 ft	20	-	-	-	-	20	-	-
Culver 9 ft	21	70	04	-	10	105	15	-
Culver 8½ ft	-	-	10	03	-	13	07	-
Dj Culver 10 ft	03	-	-	-	-	03	-	-
Dj Culver 9 ft	-	12	-	-	12	24	-	09
Dj Culver 8½ ft	-	-	10	32	-	42	-	06
Dj Culver 6 ft	-	05	05	-	10	20	-	04
Saker 6 ft	-	-	08	-	-	08	-	-
	123	87	70	35	93	408	112	20

Memo. Whereas 3 Culver of 8½ were broken in the First proofe at Snadland 3 of these are to be allowed to Compleat the Little Contract and I Doubt the 3 Cast at Barden are not to be accompted of upon any.

All other broken guns are here Discounted.

Notes and References

1. Notes made by R.C. January 1843. These were found among the rest of the documents and were probably the result of research by a Courthope of last century. See also E. Straker, Wealden Iron (1931), p.162 etc. for the Browne family.
2. Bedgebury furnace. In the 1664 lists this furnace was "discontinued before 1664 but repair'd stock'd upon account of the warre."
3. Millhall. On the Medway. Near Maidstone. Map ref. TQ 720591.
4. Straker, op. cit., pp.367-8. Presumably this is the same Anthony May.
5. Hawkhurst Furnace. In the 1664 lists this is quoted as Bedgebury above. Discontinued prior to 1664 but brought back into use.
6. The Browne family home, near Reigate.
7. Snodland. Slightly downstream from Millhall (see 3. above).
8. Imbhams. Near Haslemere.

RICHARD MAYNARD - YEOMAN AND IRONMASTER

MICHAEL J. BURCHALL

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Richard Maynard of Copyhold Farm at Hamsell in Rotherfield was the eldest son of John Maynard (d.1592) of Mead Farm in the same parish.[1] He was a substantial yeoman farmer with interests in at least two farms, and in addition derived considerable income as an ironmaster. Shortly before 1603 he rebuilt Copyhold Farm which in that year, together with his other lands held of Rotherfield Manor, were enfranchised.[2] He also held a lease of Birchden Farm valued at his death at £30. He was one of a number of joint occupiers of Old Mill Furnace in Mayfield but his interest there may only have been as a feofee of John Baker the owner. He held Birchden Forge of Baker, who had purchased it in 1617 of the Earl of Dorset.[3] It is also likely that he had some business connection with Hamsell Furnace in Rotherfield, owned by the Dyke family into which his son married. He died 12 January 1619 and was buried at Rotherfield the following day, leaving a son Richard then under age. On Richard obtaining his majority in 1623, an Inquisition Post Mortem was held on the father at Horsham, 20 August, and Richard declared heir.[4] Three years later, in 1626, Richard married Mary daughter of the ironmaster-rector of Frant, William Dyke,[5] and died 29 October 1631 aged 29 leaving two young children Elizabeth and William Maynard.

Richard Maynard senior left a will[6] and two copies of his probate inventory survive.[7] The inventory which is transcribed below shows clearly how wealthy Richard had become. Part of his capital was no doubt tied up in the new building of Copyhold Farm, a large house consisting of a hall, great and little parlours, kitchen, buttery, bakehouse and drinkhouse on the ground floor, with cellars under both parlours and upper chambers over all the ground floor rooms except the drinkhouse. In addition there were two garret chambers in the roof. Outside there were two barns, an oast

house and granary or garner all of which the inventory shows were well stocked, considering that it was just before harvest time when it was written. Inside in the house, in the garrets were hops and apples, flitches of bacon and possibly dead poultry. His large assortment of linen and blankets were probably all homemade; a number of spinning wheels, flax seed and woollen yarn indicate this. His stock consisted of pigs, cattle, an ox, four horses (one of which his wife no doubt used as a side saddle is mentioned in the house) as well as poultry, and his farming implements figure prominently.

A considerable portion of his wealth was invested in his iron-making activities. Out of his total moveable wealth of £1457, over £500 was in money due to him for iron supplied and in other debts. £546.13.0 was tied up in stock and equipment at the forge and furnace, and he was still engaged in building around the house at his death as evidenced by a small stock of planks and wood.

Although not outstandingly wealthy, his standing must have been the envy of many of his less well off neighbours, many of whom must have been occasionally entertained in his house, viewing with awe perhaps his silver double salt and silver cup on the table of the hall, his carpet (an unusual item in a yeoman's house), his books and pewter and many spoons and his cast iron fire back. Upstairs his servants were well supplied with beds and bedding and in his own chamber he no doubt slept well in his high bedstead.

An Inventary of all and singuler the goods cattell & debtes of Richard Maynerd late of Retherfeld in the county of Sussex yeoman deceased taken and prised the one & Twenteth day of January in Anno dni 1618 and also prised the Nyneteenth day of June Anno dni 1620 by John Porter gent Thomas Keylay John Relfe John Hilder & Roger Holman[8]

Inprimis his purse & ready money	10.0d
Itm his weareinge apparrell	10.00.0
In the hall	
Itm a table & forme a settle and a cubbard	1.06.8
Itm iii spitts iiii Chayers a payer of brandyrons a payer of cobyrons ii pott hangers a payer of tongs ii yron plats and a fire slice and a trevett	1.00.0
Itm bookes & other small ymplements	1.10.0
In the litle parler	
Itm a table forme & Joyne stooles	5.0
In the seller under the little parler	
Itm iiii beere vessells tallow & greese & other thinges of small value	1.00.0
In the kitchen	
Itm a brueing Fat ii tubbes iii payles	10.0
Itm yron marmalens yron potts & iii yron kettells	1.16.8
Itm iiii brasse kettells iiii possenetts ii skymmers with other small ymplements	10.0
In the bakehouse	
Itm a pouderinge troffe a kneadinge troffe a buntinge hutch and other lumbermente	13.4
Itm iii leather bottells	3.4
In the drinkehouse	
Itm ii tubbes iii keelers a cage a Cheesepresse cheese bayles & vallowers vi drinke vessells & other ymplements	2.00.0
In the seller under the great parler	
Itm iii barrells iii greater vessells ii pouderinge tubbes	1.00.0
Itm a table shelves crockes and other ymplements	5.0

In the greater parler	
Itm ii tables two frames a Carpett a forme ii chayers iiii lowe Joyned stooles vi high Joyned stooles A plate & a payer of brandyrons	2.18.4
In the buttery	
Itm a bason and Ewer a bason Nyneteene platters	2.00.0
Itm xxii pewter dishes & sawcers	10.0
Itm iii duble saltes & iiii single salts	4.0
Itm iiii porringers iiii dozen of spoones a Candellsticke	5.0
Itm a flaggon a pewter pott & cupp	8.0
Itm ii chaffeinge dishes iii brasse Canstickes	5.0
Itm iii drippinge pans a fryinge pan and cake yrons	16.0
Itm iii ould platters iiii sawcers vii dozen of trenchers and other ymplements	4.0
Itm a silver cup & a silver duble salt	6.00.0
Itm an yron cast plate	6.8
Itm at Farneham a spit & a cast plate	14.0
In the chamber ove(r) the great parlor	
Itm a high bedstdle and a truckell bedstedle	10.00.0
Itm iiii greate chestes & a litle table	2.00.0
Itm ii fetherbeds & a flockbed ii boulsters	5.00.0
Itm ii coverletts a Rugge iii blanketts curtaines and curtaine Rods bedmatts and cordes	4.00.0
Itm xi payer of fyne cheetes & an odde one & iii payer of coorser sheetes	7.00.0
Itm ii payer of pillowbeers a tablecloth vi peeces of flaxen cloth iiii kerchiffes	2.00.0
In the chamber ove(r) the buttery	
Itm a bedstedle a flockbed a feather boulster a payer of sheetes a Coverlett ii blanketts	1. 5.0
In the chamber ove(r) the bakehouse	
Itm a high bedstedle a truckell bedstedle a featherbed & ii boulsters and a chaffebed ii coverletts a blankett a payer of sheetes	3.00.0

In the chamber ove(r) the kitchen	
Itm a bedstedle & a blankett	1. 1.0
In the chamber ove(r) the hall	
Itm ii high bedstedles	1. 5.8
Itm ii presses	1. 6.8
Itm iii Chestes	1. 6.8
Itm a smale prese and a deske	10.0
Itm a featherbed ii boulsters iii pillowes a coverlett a blanketts bedmatts & cordes	2.00.0
Itm fifteene sheetes	2.00.0
Itm x tableclothes	1.00.0
Itm iii dozen of napkins	13.4
Itm vii handtowelles	5.0
Itm ii boxes a brandyron a warmeinge pan & other thinges of small value	6.0
In the chamber over the little parlor	
Itm a bedstedle a fetherbed iii blanketts & a whitle	1.00.0
In the closett	
Itm Candells and sope	5.0
Itm flax & hempe	10.0
In the folkes chamber	
Itm ii boord bedstedles a flockbed iii bedcases ii boulsters ii payer of sheetes iiii blanketts	1.00.0
In the garrett ove(r) the folkes chamber	
Itm xxx trugges	1.10.0
Itm hoopes	6.8
Itm apples	1.00.0
Itm oaten maulte	2.00.0
Itm spininge wheeles	5.0
Itm a chorne	1.8
Itm flaxe seede	3.4
Itm a copper Caldron	2.00.0
In the garrett over the parlor	
Itm a boorded bedstedle a bedcase and iii blanketts	10.0
Itm Towe	5.0
Itm Basketts & syves	3.4

Itm ii payer of sheetes	16.0
Itm new flaxen cloath	1.00.0
Itm a Coslett furnishte	1. 6.8
Itm butter and cheese	2.00.0
Itm wood & charcoles	1.00.0
Itm poultry	13.4
Itm viii fletches of bacon	2.10.0
Itm iii Rodsadles a sidesadell and rideinge furniture	3.00.0
Itm woollen yarne	3.00.0
In the Oast house	
Itm a wateringe fate & a brake	14.4
In the garner	
Itm wheate ready threshed x bushells	1.13.4
Itm oates threshed xx bushells	1.00.0
In the lower barne	
Itm xxxvi heapes of wheate	9.00.0
In the upper barne	
Itm xl heape of oates	2.13.4
Itm xxx loade of hay	15.0
Itm boordes plankes & pales about the house	2.00.0
Itm two waynes ii plowes a payer of plow sheeles ii payer of plowyrons ii chaynes iiii tyghtes ii cheapes some ould coortes & wheeles a payer of shooed wheeles certaine yoakes iii harrowes	5.00.0
Itm a boore & iiii other hogges	3.00.0
Itm six steeres & an oxe	24.13.4
Itm vi two yereinge beastes	12.00.0
Itm vii kyne	20.00.0
Itm iiii weaned calves	4.00.0
Itm a mare and a coulte	4.00.0
Itm two other horses	5.00.0
Itm xxxiiii sheepe & tagges	10.00.0
Itm xiii acres of wheat on the ground	36.00.0
Itm tymber	4.00.0
Itm in Mr Ralfe Popes custodie at Bucksted two yron sowes weighing 36 hundred	8.00.0

Itm paid uppon wood, cuttinge wood & coles	114. 2.0
Itm a lease of Birchden farme	30.00.0
Att the furnace	
Itm xxviii ton of sowes	112.00.0
Itm 208 loade of cole by estimacon	187. 4.0
Itm 356 loade of myne	47. 9.4
Itm yron vessells	2.10.0
Att the Forge	
Itm 135 loafe of coales	121.10.0
Itm 18 ton & a halfe of sowes at forge	74.00.0
Itm 7 yron plates in the forgemens houses	2.00.0
Itm debtes due for yron & yron Ready made	251. 3.4
Itm debtes due uppon billes & recconinges	239.17.9
Itm a gynne & a cable to loade tymber & other thinges forgotten & not prised	6.00.0
Summa totalis is	£1457. 9.1

References

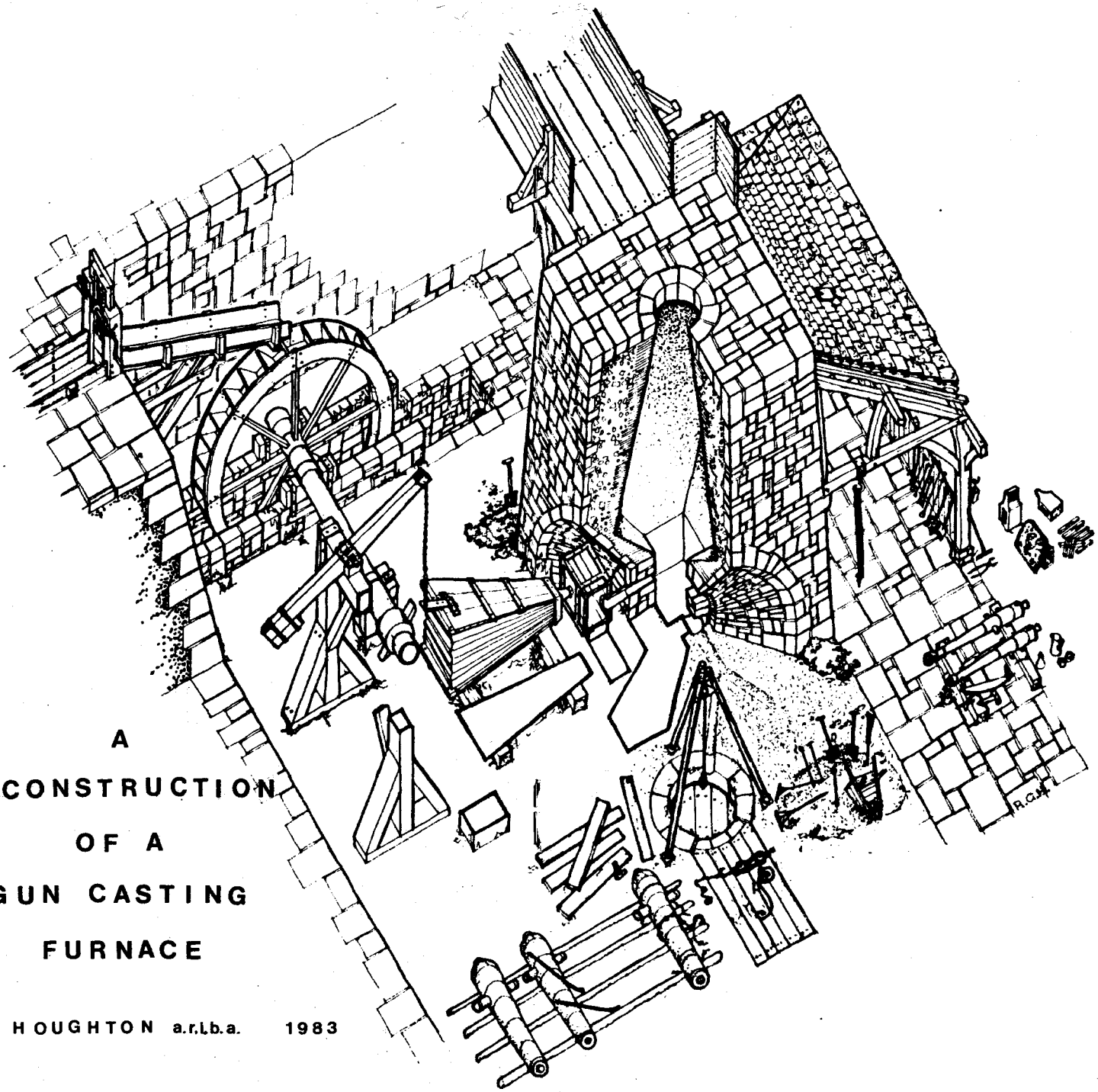
1. For a detailed pedigree and notes see C. Pullein, Rotherfield, the Story of a Wealden Parish.
2. Pullein, op.cit., pp.429-30.
3. E. Straker, Wealden Iron, p.285, quoting Sussex Archaeological Society Drake Ms.131.
4. Pullein, op.cit., p.430.
5. Marriage Settlement, 1626, ESRO, Dyke Hutton Ms.986.
6. Prerogative Court of Canterbury, 63 Parker.
7. PCC Probate Inventories, 1619; ESRO Dyke Hutton Ms.1011.
8. Original spelling is retained and money sums are represented in arabic rather than roman numerals. Individual rooms are underlined.

SOURCES IN THE PUBLIC RECORD OFFICE FOR THE HISTORY OF THE WEALDEN IRON INDUSTRY PART 4 SYBIL JACK

A question above all others concerned with the industry which exercised the minds of Tudor governments was that of the manufacture and sale of ordnance. The traditional story is that Henry VIII encouraged this. He summoned named gunfounders - Peter Bawd and van Collen - from the continent for the purpose, and iron ordnance was successfully cast at Buxted in 1543. This version we owe to Stowe and to others who were apologists for the Tudor monarchy. Other evidence that Henry was an active moving spirit is hard to find. It is certainly true that Bawd and Collen had been in his employ as gunfounders - they had been since at least 1538. This however was nothing new. The Tudor kings had regularly employed gunfounders in bronze and the two named were not the only men so working in 1543. It is true that in 1543 Ralph Hogge agreed to supply the king with cast iron ordnance at £10 a ton and that with new wars on the continent eating up the royal funds at an unprecedented rate cheaper guns would be welcome, if not to the king, who may have been above such mundane considerations, then to his hard pressed accountants. Cheap guns, however, were more likely to be a boon to others - Henry after all had a good supply of superior bronze cannon. The aristocracy was less well supplied and by no means wholly reconciled to the less autonomous role they were playing in the Tudor state. Is it wholly a coincidence that within a couple of years the powerful duke of Norfolk had a double furnace, capable of gun-casting, which was coveted by the up and coming Thomas Seymour?

Since the official records, with their preoccupation to ensure that this dangerous weapon should not fall into the wrong hands, tend to write the history of iron making in the Weald in terms of gunfounding, it might be as well to consider what money the monarchy actually spent on iron ordnance in the days of the alleged major expansion of iron working in the Weald. Unfortunately the surviving records of the ordnance office are not sufficiently complete to permit a full answer to this question. The overwhelming impression, however, is

(continued on page 28)



A RECONSTRUCTION OF A GUN CASTING FURNACE

R. HOUGHTON a.r.i.b.a. 1983

that royal expenditure on cast-iron ordnance was only a fraction of expenditure on bronze cannon right down to the end of Elizabeth's reign. In Mary's reign one account shows an expenditure of £1543.2.8 on 'brass' compared with £164.4.8 on cast pieces bought from 'divers furnaces within the county of Sussex'. On the other hand forged pieces (573 in all) worth virtually £2000 were brought and also large numbers of hand guns.[1] Between 1568 and 1582 the ordnance office apparently obtained only 417 cast iron pieces to 1073 forged and 937 'brass'.[2] This seems scarcely enough to make anyone's fortune. One may note that the Worth account for the two years bridging the end of Henry VIII's and the beginning of Edward VI's reign shows the furnace making considerably more ordnance than the Tower took. It also raises a question about the relative profitability of gun casting for the owner. In the Worth account the founders are paid differently for guns. The charge is £5 for everything 'excluding metal'. At £10 a ton delivered at the Tower (that is after transport costs) and including the furnace costs to the point of pouring the metal it does not look as if the marginal advantage can have been enormous. Offset against any advantage must also be the probability of a long delay before the crown actually paid.[3]

Sir Richard Sackville spoke of this in his correspondence with Gage when he speaks of abandoning gun casting as

> 'Rafe Hoge and some others have done, glade to give up or be dreven to give up the sewyng that wayes (that is service to the monarch's armouries) that must besydes as you know pay the workmen and for the stuff ready money and how long time of forbearing I will not write'[4]

Half a century later at least one owner thought the effort not worth the return. Anthony Culpeper, writing to Leveson about a new demand for bonds in 1590 said:

> 'I have found the troble in casting them to be so great considering the many toylls and extra-ordinary charges that belong thereto that I assure you sir, for my own part I would not willingly be lured to caste any again.'[5]

Clearly the manufacture of ordnance was not a path to instant riches. While the crown sought to have supplies assured when it required them it was reluctant to buy more than it immediately needed, so the founder was liable to have unused capacity and capital investment on his hands. In 1568 Ralph Hogge was able to drive a bargain with the Queen whereby in return for maintaining two furnaces (possibly a double furnace) for her service he was granted an exclusive licence to export any guns that the Master of the Ordnance considered could be spared.[6]

Circumstances, however, were to change fairly rapidly. The international situation deteriorated rapidly and a demand for ordnance by the ordinary merchant and the extraordinary venturers presumably increased in inverse proportion. By 1573 Ralph Hogge was seeing his advantage eroded by the entry of other ironmasters into an increasingly lucrative trade. He complained that besides himself, Hodgson and Arthur Middleton there were now Fowle, Fermer, Gresham and Weston making guns. The crown, undoubtedly less concerned for Hogge than for national safety instituted its own enquiry which produced the one major guide to ironworks for the century. Christopher Baker's list of gun founders differs from Hogge's. It omitted Hodgson and also Fermer and Weston, naming only Buckhurst, Midleton, Gresham, Fowle and Hogge.

Although the 1574 lists have been the subject of innumerable investigations it is worth considering them again from the point of view of the process they represent. The original list produced by Christopher Baker was the basis for the government's issuing summons to the individuals to appear. It is worth noticing that the government apparently chose not to summon certain people on that list. Notable are those around Frant, that is John Barham, said to have two forges there in other men's hands; 'Breechers' said to have two forges there in the hands of Mr. Wiborn and Mr. Leech - 'Bruggsell' a forge in Salehurst; and a Mr. Finch with a forge in Netherfield; Sir Thomas Fane with one or two furnaces in

Tonbridge; 'Quynton' with a furnace at Cowden, Mr. Myghell with a furnace in Hoathly were also left out. Possibly the forges were not considered to have any potential for gun casting although others who held forges only were nonetheless summoned. Perhaps other information suggested that these works were not currently in operating order. It is clear that the government's purpose was to interview whoever was at the time legally responsible for the mill whether owner or lessee; it is also intended to cover all operating works. The appearance book shows that most of those summoned did appear, or someone appeared who was accepted as legally responsible for that site. As a result of the appearances the council then drew up what it clearly regarded as a definitive list of 'the furnaces and forges in whose occupacion they are'.

The accuracy of this list may be gauged from a minor change to Baker's original. Baker attributed two forges and a furnace in Ifield to Roger Gratwick. In the council's list he is credited with two forges. The situation vis-a-vis the furnace is made clear in an almost concurrent lawsuit in the Court of Requests. The furnace in Ifield, it was agreed, was built by John Mayne esquire who leased it to Edward Fenner gentleman for twenty-one years. He passed it to his brother Thomas Fenner, who about 1567-8 sold the residue of the lease for £200 to Thomas Ilman of Ifield. Ilman on 16 February 1569 mortgaged the mill to Roger Gratwick the elder for £74.13.4 which was to be repaid on the feast of St. John the Baptist in the church porch at Horsham. The story, however, was more complicated than that, for Gratwick had agreed to be bound for Ilman to Mr. Alderman Bacon and Mr. Webbe of London for payment of five tons of iron, and he was unwilling to accept repayment of the mortgage until that bond was also discharged. The younger Roger had inherited an unsolved problem on his father's death. Ilman was heavily in debt and was conveying his goods to friends with evident intent to defraud. Gratwick's chance of seeing his bond discharged was therefore poor. Meanwhile, the title to possession of the furnace was encumbered and it was in the physical possession of Ninian Challenor and Richard Ilman (Thomas's brother) who paid 10 shillings for every founday and for repairs.[7]

Clearly the list must be accepted as a very accurate guide to those who were legally responsible for the works in 1574, even though Sidney had leased his works in 1573. That this list differs in the number of works it attributes to certain individuals from the list which Dr. Goring has recently published of 'ironmasters' which is based on this material should give no cause for surprise. It is clear that Ninian Challenor who is credited with 'a furnace at Blackfold and a forge at Gaston's bridge' was working other furnaces for which he was not, legally, responsible. The council also noted those who were warned 'but not bound nor appeared' It includes, as one might expect, those of greatest rank (who may well have been absent on official duties anyway). Montagu, Buckhurst, Sir Henry Sidney head the list. The council, however, caught up with at least some of them, for Gresham, Sir Richard Baker, John Blackett and John Stace subsequently entered into recognisances.

It is interesting to consider those who apparently did not enter into recognisances. Three of those who appeared did not do so - Sir Alexander Culpeper, Thomas Smith and Richard Weekes. Of those who did not appear, setting aside those who were excused from appearing because of infirmity - John Collins, Simon Colman and John Porter - and those who may not have been liable, like Sidney, one is left with Hogge himself and some known gunfounders, like Michael Weston, of whom Hogge was complaining. It looks very much as if the government was already envisaging a new dispensation whereby the number of those licensed to deal in guns was extended. One may suspect politicking behind the fact that Fowle and Fermor entered recognisances while Culpeper, Bowyer, David Willard, Thomas Smith and Michael Weston did not.[8] All were already equipped with furnaces capable of casting large guns.

The Crown's objective was merely to ensure so far as possible that guns were sold only to Englishmen or to foreigners friendly to England. Burghley, in fact, can be seen calculating how much ordnance must be cast yearly to keep English ships adequately equipped. He calculated on the basis of 1200 ships and, allowing them the 'waste' of one piece of ordnance a year, concluded that 600 tons would scant yield a sufficient supply.[9] On this basis ten gunfounders might well be a not unreasonable number to permit.

This was only the beginning of the government's attempts to regulate the trade in ordnance and the first of a variety of experiments in securing control. The government favoured monopoly, which naturally gave rise to power politics, as the curious conduct of Sir Henry Nevile in his attempts to enter the charmed circle suggest. Those outside who wished to cast guns had either to agree with a recognised agent or risk prosecution. The story of the ordnance trade can be followed in some detail in the Exchequer records which are full of prosecutions and informations, but they rarely cast direct light on the furnaces in the Weald. Perhaps however one should end with one unsuccessful smuggler. In 1574 Nicholas Fowler and Alexander Farmer were said to send their cast pieces along the coast at Lewes, John Harman of Lewes being the seller. The domestic sale of guns to private individuals was not however, so far as one can see, illegal although it was not popular with the government. The Harmans however evidently extended their trade. In 1596 John Harman junior of Lewes was fined £160 for carrying cast ordnance out of the realm contrary to obligations and bonds. He was also, for a period, imprisoned in the Fleet - at least until he had paid up.[10]

1. PRO E101/64/4; E351/2614 (bis)2615.
2. PRO E101/64/19.
3. M. S. Giuseppi, 'The accounts of the iron works at Sheffield and Worth in Sussex 1546-1549', Archaeologia 64 (1912) pp.276 ff.
4. WIRG 11 (1977) p.23.
5. Staffordshire Record Office Leveson Gower Papers D593/s/4/28/8.
6. CPR 1566-9 no.1525.
7. PRO Req2/226/4.
8. PRO SPDom 12/95/20, 21, 22, 61, 70, 79.
9. Ibid., 69.
10. PRO SpDom 12/95, 79; E159/408/Hilary 37 Eliz. unnumber rot.; E133/1180.

IRON PANS USED IN THE MAKING OF SALT IN THE SIXTEENTH CENTURY

ERIC HOLDEN

Miss Jane Evans has drawn attention to the article by W. J. Lewis entitled 'A Welsh salt-making venture of the sixteenth century' in the Journal of the National Library of Wales 8(1953-4), 419-25. There was a proposal to set up works on various parts of the coast to make salt in about 1565, including Blyth, Northumberland, as well as at Dover, Southampton and on the Essex coast. In 1567 similar concerns were set up in Suffolk and Essex. There are a number of letters about setting up a works in Wales, on the south side of the Dovey estuary. The method used was to allow sea-water in salt-marsh creeks to be exposed to air and sun for a few days, then to be boiled in two stages in buildings, to produce the salt. In the first stage the water was let into sun-pans for concentration into brine. The boiling pans were to be made of iron, but as cast-iron pans were not available they had to be made up from plates joined together on site. In 1564-5 pans had been imported from Germany. Lewis's article gives a good deal of information about the process and the equipment.

In the letters concerning the Welsh venture there are references to Sussex:

Letter 62. 18 Feb. 1567, Wightman (A London financier) to Herbert (Sheriff of Montgomery). This gives instructions on how to build a salt-works. 'As soon as he can have the pans made they shall be sent out of Sussex to Dovye'.

Letter 63. 21 Mar. 1567, Osborne and Wightman to Herbert, from London. 'Pray his (the German expert on salt manufacture) advice how to get the pans thither. Cast pans frame not in Sussex .... are driven to trust to plate pans'.

Lewis (p.422) assumes from this that such pans could not be cast in Sussex. Pickle pans, for the first boiling, were to be 10ft by 7ft, perhaps by about 18in deep, as shown by Agricola. The boiling pans were to be 'round or square, 15ft over'. Each salt-works needed 10 pickle and two salt-boiling pans. These were set up in well-ventilated buildings with louvred roofs.

Letter 69. 'Their house in Sussex is raised and towards thatching'. No location is given.

HOW OLDLANDS ROMAN BLOOMERY WAS REALLY DISCOVERED

ANNE DALTON

Lower's account of the discovery of Oldlands by the Rev. Edward Turner is well known.[1] What is probably not so well known is the story of how the Vicar of Maresfield came to hear of the slag heaps at Oldlands. This story appears in Miss Bell-Irving's Mayfield, in an extract of a letter to her of 16th February, 1895 from Dr. Prince of Crowborough.[2]

'So long ago as 1844 I was one day riding along the road from Buxted to Crowborough, when I saw a man emptying a cart-load of cinders upon the wayside, and as they rolled out of the cart, I noticed that some pottery was mixed therein. I asked the man to give me a few pieces, as I thought they had a rather unusual appearance. Before going home I took them to a well-known antiquary, the late Rev. E. Turner of Maresfield, who at once pronounced them to be Samian ware. He at once became very interested in the find, and arranged with me that I should drive him to the spot on the next morning, and this arrangement was carried out. I then took him to the field (on Old Land Farm close to Buxted, but in Maresfield parish) where some men were digging these cinders, and we had not been there long before a Roman coin was turned up, which was a very important clue. As my time was wholly occupied with my profession, I left further investigation wholly in the hands of Mr. Turner.'

The Dr. Prince in question was Charles Leeson Prince, F.R.C.S., Licentiate of the Society of Apothecaries, Fellow of the Royal Astronomical Society and of the Royal Metereological Society. Born on 1st June, 1821[3] he lived and practised in Uckfield before moving to Crowborough where he built his own observatory. He was the author of a book on the climate of Crowborough as well as of works on astronomical subjects. He died at The Observatory, Crowborough, on 22nd April, 1899 and was buried in Uckfield six days later.[4]

As an addendum to the above it may be of interest to note that Leeson Prince was, a year after his discovery of the pottery, instrumental in the recognition, during excavations for the Lewes-Brighton Railway in the ruins of St. Pancras Priory, of what proved to be the cists containing the remains of William de Warenne and of his wife, Gundrada. The interest aroused by this discovery led to the formation in 1846 of the Sussex Archaeological Society, of which Prince became a member in 1848. At the age of 75 he was present at the Jubilee celebrations of the Society in 1896.[5] In the same year he also wrote a short article for the Society's Collections, on the discovery of the cists in 1845.[6] This aspect was further considered by Salzman on the occasion of the centenary of the Society in 1946.[7]

1. S.A.C. II(1849) and Bull. Wealden Iron Res. Gp. 10(1976).
2. E. M. Bell-Irving, Mayfield (1903), 166-7.
3. Sussex Daily News, 29 April 1899.
4. Kent & Sussex Courier, 28 April 1899.
5. Kent & Sussex Courier, 18 May, 1899: Letters from Charles Dawson.
6. S.A.C. XL(1896), 170-2.
7. S.A.C. 85(1946).

BASSETTS BLAST FURNACE BRIAN HERBERT

A blast furnace site has been discovered in the parish of Hartfield at TQ/46833738. The furnace site, which is under grass, and the leat which supplied water are owned by Mr. Whetstone of Bassetts Manor. Straker referred to this site as a corn mill in 1939,[1] but did mention that a little furnace slag was present. On investigation, in March 1980, a great deal of slag was found in the river and in the field to the south.

The most common method of providing a head of water for driving the wheels of Wealden furnaces and forges was to dam the river valley. At Bassetts, however, the supply came through a leat taken off the river half a mile above the furnace and descending less steeply than the river. A head of water was thus produced on the valley side, allowing flow through a tail race to the river. This system has a parallel at Lamberhurst furnace where the 'Great Ditch' at Hoathly was dug to provide power.[2] This was a safer method in a valley liable to flooding or where a bay right across a valley would have been impracticable. The water system for Bassetts Furnace is shown in Fig.1. Part of the first 125 yards of the silted leat is still visible; it would have left the river above a weir which has long since disappeared. This would have held back the river water, to keep the level in the leat constant, the excess flowing over the weir. Stream A (Fig.1) also fed into the leat, but now flows directly into the river. The length of the leat from stream A to the pond has recently been ploughed out, but followed a line of trees. The position of the leat can be seen where the field-level has sunk on either side of a small track. On probing, sandstone was located, suggesting the existence of a culvert.

The shallow valley associated with stream B was crossed by a bay, producing a pond, allowing the leat water to flow into one side of the pond and out of the other, and also

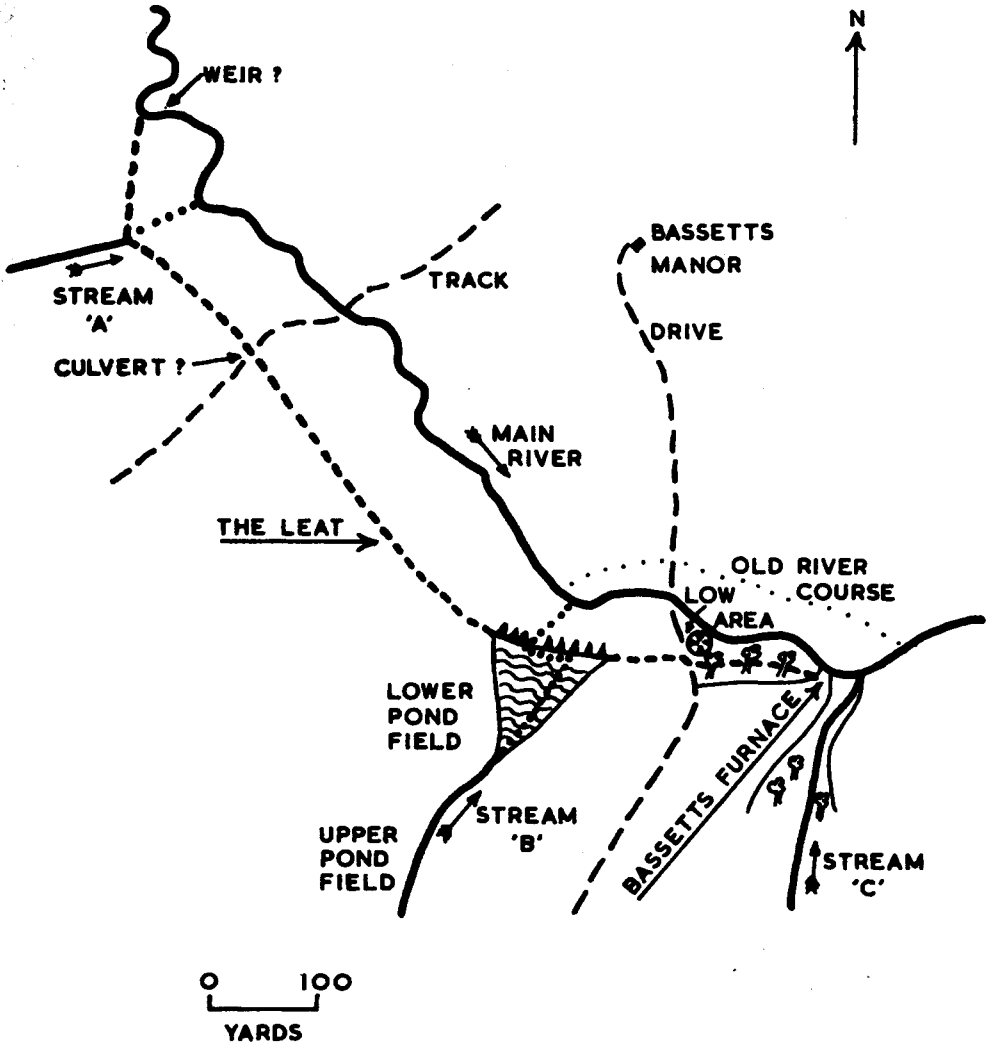


FIG. I. THE LEAT FOR AVERIES MILL AND BASSETTS FURNACE

utilising the water from stream B. The bay can still be seen, although much broken down, but the existence of the pond is shown by two field names on a 12-inch map at Bassetts Manor: Upper Pond Field and Lower Pond Field. At present stream B does not flow along the middle of the valley, but well to the east, to join the river. The leat is discernible again where it would have left the pond, although some of the embankment may have been removed adjacent to Bassetts Manor drive. Fig. 1 shows that the leat appears to be misaligned on either side of the drive. This point is considered below, in relation to the site of the corn mill.

As far as the drive the leat survives as little more than a ditch; however, beyond, it is much wider and deeper, and would have formed a pond some 125 yards long and about 8 yards wide. The position of the furnace is a matter for conjecture, for the end of the leat has been removed. The soil at the visible end of the leat shows no slag or charcoal, so it is suspected that the channel ran up to 30 yards further, towards the slag shown in Fig. 2.

As Straker considered this to be the site of Averies Mill, whose only record is in the Buckhurst Terrier (1597-8),[3] two entries from the latter are set out below.

p.24 **THOMAS WICKEN holds by deed a tenement called Broxills, 30 ac. - Bounds: river from Canserne to Averies Milne S., Lord Buckhurst's land called Bentons W., land of Wm. Norman called Broxills N., a parcel of John Woodies Boardewright E.**

Rent 2s. 4d.

p.25 **The heirs of John Averie hold by deed tenement called Bassetts with a wood before his door called Little Ayland, and certain lands called Sims feild, Chart feild, Birch feild, and Welfeild, Redden together with a meadow, in all 50 ac. - Bounds: Lord Buckhurst's manor of Bolebrook E., the river from Francis Averie's milne to Bolebrook Bridge S., Lord Buckhurst's Bentes, late of John Woody W., the said heirs' Broomeland N.**

Rent 12s. 8d.

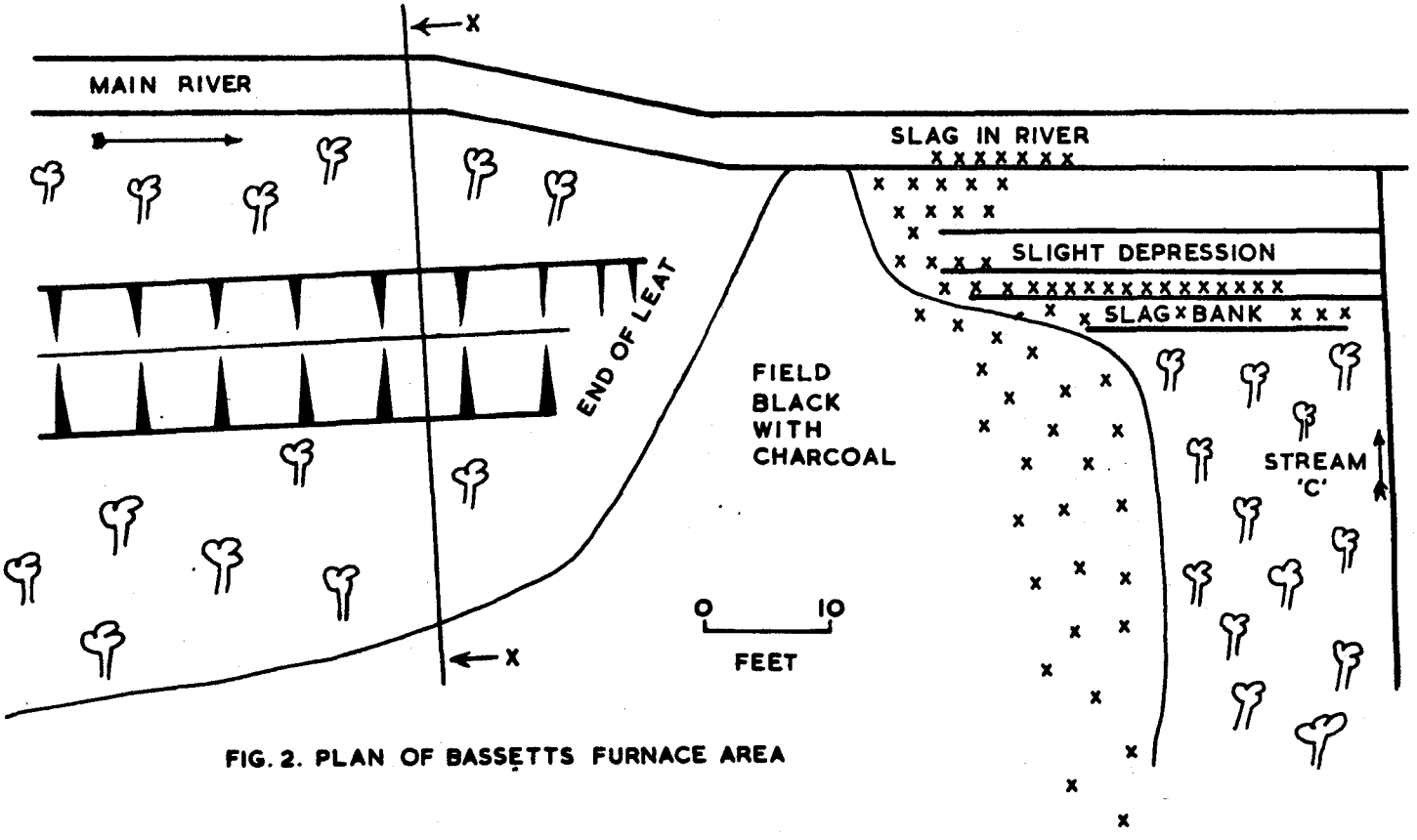


FIG. 2. PLAN OF BASSETTS FURNACE AREA

One map in the Terrier[4] shows the eastern side of the area of interest, but without Bassetts house, leat, mill or furnace. A Buckhurst estate map of 1799[5] shows Bassetts Manor, a line of trees along the line of the leat and two field names associated with the weir. From these references a composite map (Fig. 3) has been drawn. The names of places recorded in the Terrier which are identifiable today are underlined. The two field names from the 1799 map, Hither Weir Mead and Weir Mead confirm the existence of a weir, but this was not necessarily still in working order. Also shown in the 1799 map is the first trackway crossing the leat, which is marked 'An Old Road'..

Down river from Bassetts Furnace there is a similar leat, on the north side of the river, used to take water to Bolebrook Mill. This mill is recorded in the Buckhurst Terrier and on the 1799 map. As it seems that both Averies Mill and Bolebrook Mill may be of a similar period, the Terrier entry has been included here, and the details added to Fig. 3.

p.32 **Robert Sackvill Esq. holds at will the manor house and demeanes of Bolebrooke, the tenement late Richard Saxbies, and a parcel of meadow called Joskins mead, 4 ac. 2 r. 11 p., viz. the house and park, Conieborough feild and Croft, Paines feilds, Shacketts feilds, Buttercroft, The Ridgey Croft, the Rye feild, Homegrove Wood and feild, Homegrove crofts, and Mead, Horsemead, Joskins feild, Bornemead, Mill meadow, waste ground, Wetland feild and meadow, Watsons Mead, Northland and Smaleland, 36 parcels in all. Rent £93**

Joskins mead, rent £2, Watermilne, millpond and ground about the same, rent £4. In all 475 ac. 2 r. 9 da. 1 p., viz. meadow 87 ac. 2 r. 1 da. 0 p., pasture 266 ac. 3 r. 3 da. 0 p., arable 90 ac. 0 r. 1 da. 2 p., wood 31 ac. 1 r. 3 da. 3 p. Rent, in all £99.

Although it is not known exactly where Averies Mill was situated, there is a low-lying area near the drive, shown in Fig. 1, which could be the mill pool. This would have formed where the spillway overflow eroded the river bank. It would

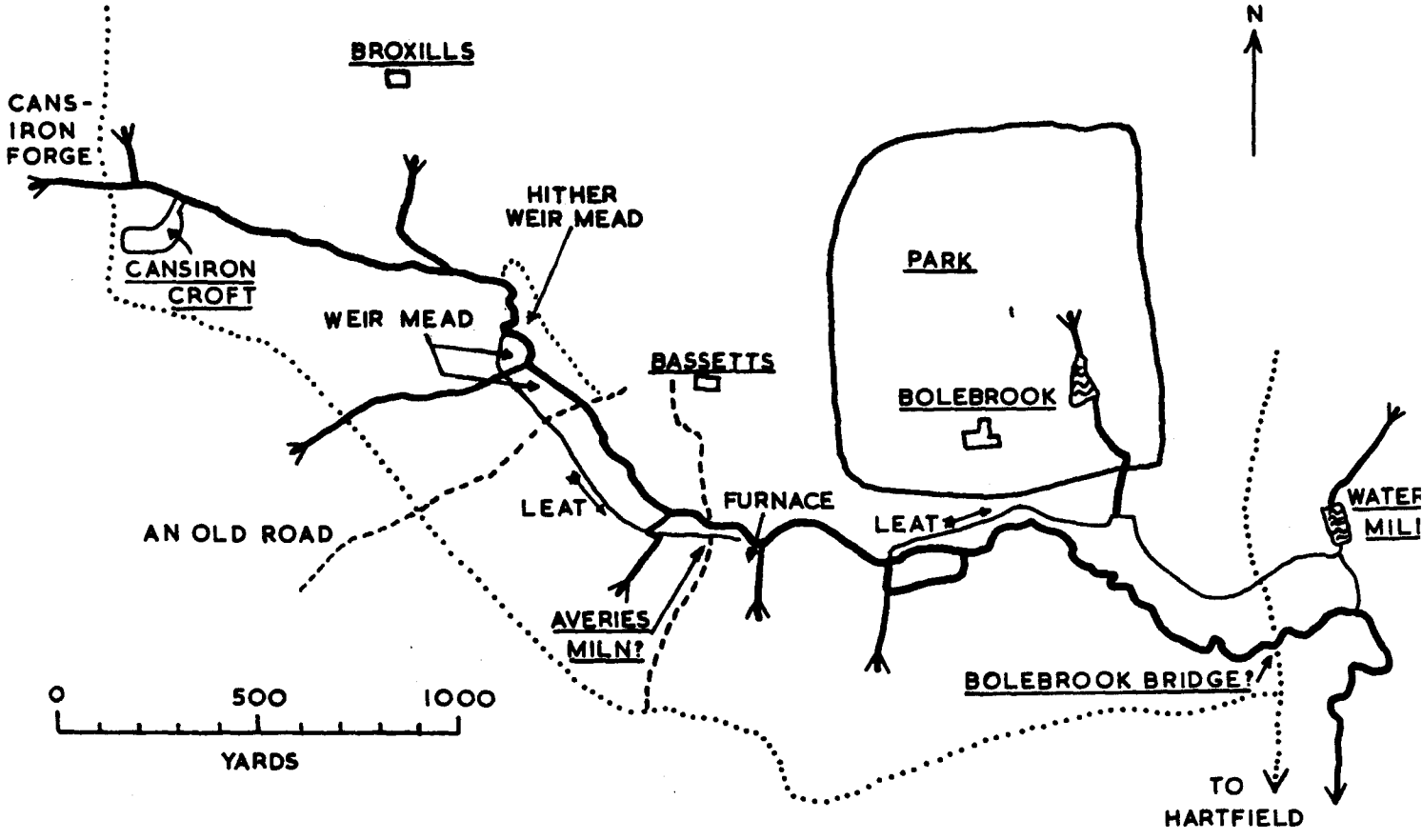


FIG. 3. MAP OF THE AREA, RELATING THE REFERENCES

also seem convenient to build the corn mill besides the drive to Bassetts house rather than at the end of the leat. It is possible that the mill and the furnace could have worked simultaneously from the same head leat, but spaced about 125 yards apart.

The last 125 yards of the leat, perhaps specially dug for the furnace, would have to bypass the mill, and this could only be done by deflecting the leat to the south. However the furnace would need to have priority for water whilst in blast. If the bellows should stop through lack of water, the furnace burden would consolidate, producing a bear[6] and the furnace would have to be pulled down to remove it.

An interesting point is that the river flows not in the valley bottom but well to the south: a study of the fields to the north of the river shows where it once flowed. It is not unknown for the whole course of a river to be moved to one side of a valley, at a lesser slope than on its original course, to gain a head of water. However, no reason can be seen for moving the river in connection with the mill and furnace. An example of a river which has been moved can be seen at Haxted Mill, near Edenbridge, where the Eden is used to power the overshot water wheel. After use, the water flows half a mile along a tail race, to return to the river.

The author wishes to thank Jacqueline Herbert for typing this report and all the other WIRG members who helped with the fieldwork and documentary research.

1. E. Straker, 'Lost mills of the Medway', Sussex County Magazine 13(1939), 531.
2. E. Straker Wealden Iron (1931), 269.
3. E. Straker (ed.), The Buckhurst Terrier, 1597-8, Sussex Rec. Soc. 39(1933).
4. Sussex Rec. Soc., Map 147.
5. ESRO De La Warr XC 65/20.
6. Straker 1931, 91.

EXCAVATIONS AT GREAT CANSIRON FARM, HARTFIELD, EAST SUSSEX: Interim Report for 1982

D. R. RUDLING

During the winter of 1981-2 Giles Swift of the Wealden Iron Research Group discovered in a ploughed field on Great Cansiron Farm, Hartfield, an area of burnt clay and Roman tile, together with a few pieces of Roman pottery. The site, which lies close to a small stream (Fig.1), is located between an extensive Roman iron-working site to the south west (Tebbutt 1972) and possible large Roman iron ore quarries to the north east (Swift, pers. comm.). In an attempt to interpret and more precisely date this site an excavation and survey were undertaken in the summer of 1982.

Trench 1 (Fig.2) was located directly over the area of burnt clay and tile spotted by Giles Swift, and revealed a Roman tile kiln and a building which is interpreted as a drying shed. Unfortunately extremely inclement weather during the second half of the excavation meant that it was impossible in the time available to finish excavating either of these discoveries, and it is therefore planned to do so during August and September 1983.

With regard to the kiln, which appears to be made entirely of 'brick' and tile, the firing chamber and stokehole were partially excavated, but the connecting fire-tunnel was left uninvestigated. The firing chamber, which still had a couple of flat tiles in situ as part of its floor, had a sub-floor structure of Grimes Type 3 (Grimes 1930), with a series of closely-spaced cross walls (two remain intact) which were carried across the main central flue by arches. In between the cross walls, at a higher level than the main flue, were cross flues with sloping floors. Parts of the firing chamber have been analysed by Tony Clark of the Ancient Monuments Laboratory with the aim of obtaining an archaeo-magnetic date for the kiln.

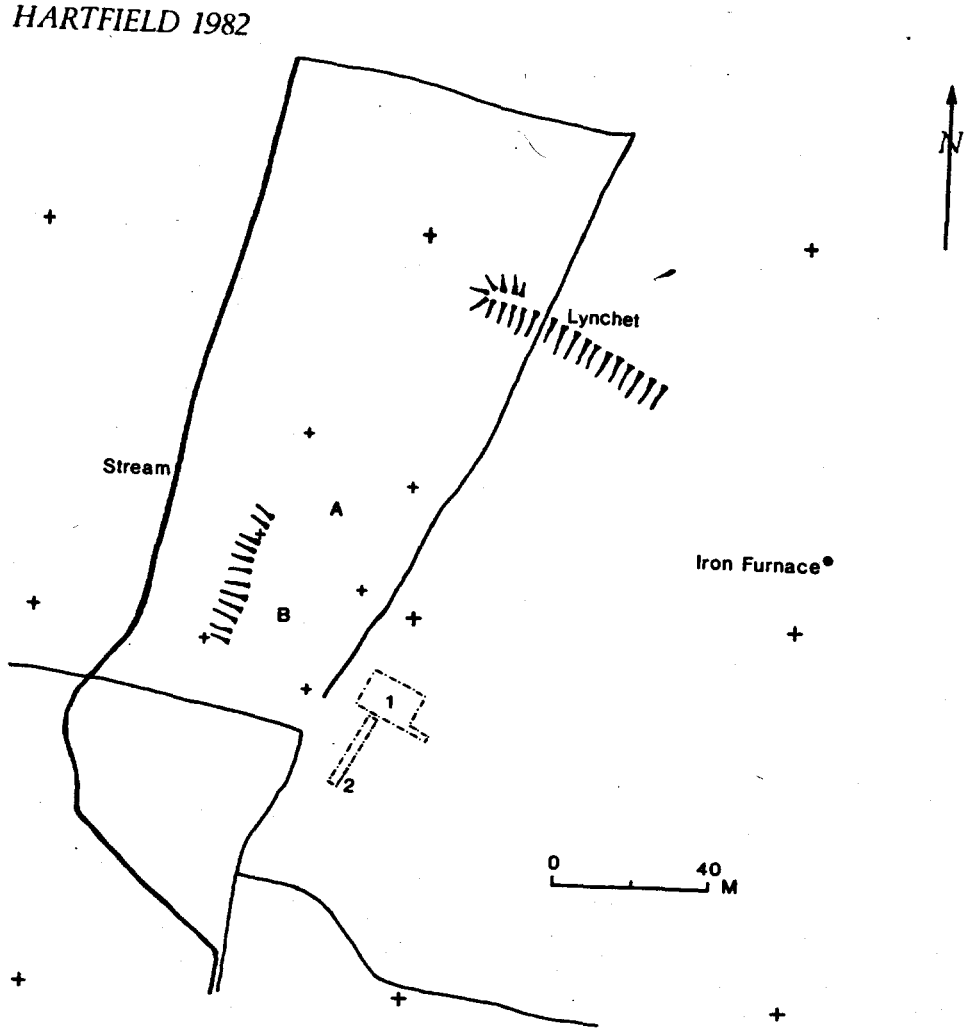


Fig.1 Hartfield, 1982. General map to show the locations of the excavations and the areas subjected to geographical survey.

The top of the stokehole was filled with large quantities of burnt clay (probably derived from the kiln superstructure) and small pieces of tile. Further down were discovered extremely large pieces of tile wasters, particularly from tegulae and box-flue tiles. Where the flue joined the stokehole its walls turned a right angle on each side, forming a tile wall on the south side of the stokehole. Such an arrangement was also a feature of the kiln found at Wykehurst Farm, Cranleigh, Surrey (Goodchild 1937), which is also similar in many other aspects to the Hartfield example. A small pit (19) containing charcoal was found next to the kiln. The 'drying shed' consists of two post holes (32 and 34) at its northern corners and to the south of these a rectangular floor of broken tiles. A thin curved line of burnt clay (17) at the northern end of the structure in the area between the tile floor and the post holes may indicate a fire. Possibly the floor continued further to the south, but this area was more severely disturbed by ploughing. Additional post holes may still remain undiscovered at the southern end. It is likely that such a building would have been open sided to aid the drying of the tiles prior to firing.

The tilery clearly produced a large range of tile types, including both varieties of roofing tiles, box-flue tiles (with combed decoration) and flat 'floor' tiles. None of the tiles so far discovered were stamped or decorated with roller-pattern designs.

Trench 1 also revealed several other features, such as a tile-lined post hole (23) and another post-hole (28) with tile and slag packing. At the eastern side of the trench were several other possible post holes and pits but lack of time prevented their investigation. A quick geophysical survey to the east of the trench located a possible pit.

Trench 2 was a trial trench designed to test a theory that a Roman road lay to the south of the kiln and drying shed. No such road or any other archaeological features were discovered however.

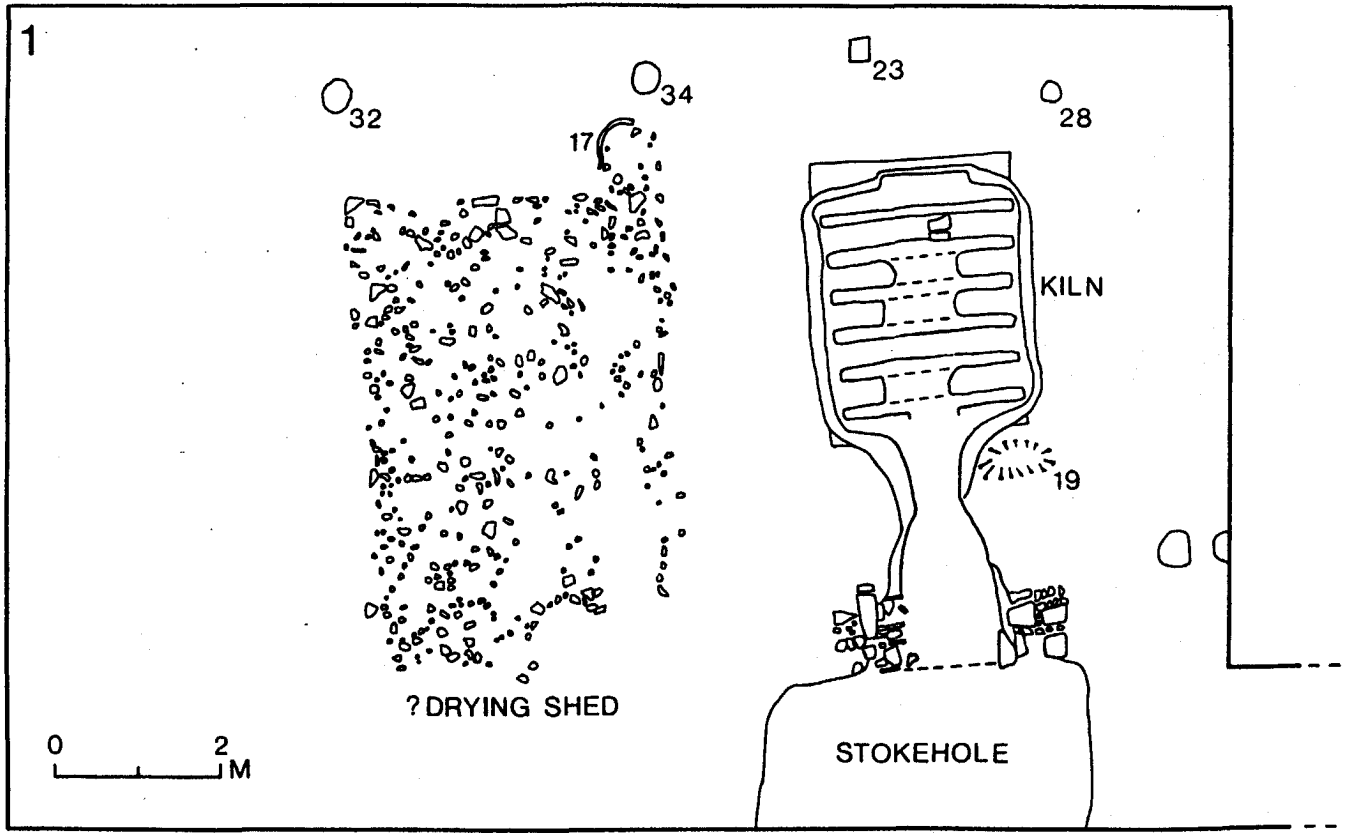


Fig.2 Hartfield, 1982. Plan of the main features in Trench I.

To the north of the kiln is a lynchet, and to the west before one reaches the stream a flat, 'terraced' area. Both are located on the survey (Fig.1) by David Tucker, as is a Roman/Medieval iron furnace discovered by the farmer, Mr. Udel, during this year's ploughing. In the autumn of 1982 a geophysical survey (supervised by David Haddon-Reece of the Ancient Monuments Laboratory) was undertaken on the 'terraced' area. Anomalies likely to be of archaeological interest were discovered in both of the survey squares (Fig.1, A and B), particularly so in square B. The report on the survey is awaited with interest, especially since this area by the stream may have been the location of the workshops.

During 1983 it is planned to carry out aerial reconnaisance of the area and to return to the site and finish the excavations already begun. It is also hoped that there will be sufficient time available to undertake small excavations to date the nearby lynchet and iron furnace, and perhaps to start investigating the 'terraced' area next to the stream.

Bibliography

C. F. Tebbutt, 'A Roman Bloomery at Great Cansiron, near Holtye, Sussex', Sussex Archaeol. Coll. 110 (1972), 10-13.

R. G. Goodchild, 'The Roman Brickworks at Wykehurst Farm in the Parish of Cranleigh', Surrey Archaeol. Coll. 45 (1937), 74-96.

W. F. Grimes, Holt, Denbighshire. The Twentieth Legion at Castle Lyons. Y Cymmrodor (1930), 41.

INCISED LETTERING ON GRAVESLABS

Further to Bulletin 1, 2nd Series (1981), 23, Mr. D. Braid of 27 Circle Gardens, Merton Park, London SW19 3JX writes:-

It was common practice to cut letters in cast iron with a cold chisel during my apprenticeship in 1925; and this would be similar to a mason's tool, with a possible difference in the hardening and tempering to withstand hammering with a hammer instead of the wooden maul of the mason. In the foundry we cast raised and incised letters, and it was easier to raise them if we used a pattern because we fastened small cast letters to the part and these were pressed into the sand. Such 'pattern alphabets' could have been used manually, fastened on individual pieces of wood, singly or in groups, to be pressed into the sand casting bed. The probable method of casting incised letters would be to make small sand, or possibly plaster, letters to stand proud of the casting bed. These would need keying in, and the usual method would be for the letters to be attached to a block of sand or plaster integral with the letter; this would be sunk into the casting bed and possibly be secured with sprigs or pins to prevent the flow of metal displacing them. I have assumed that the iron was poured into an open-top mould, as was still common in modern times for those simple plate-type products for which this method was acceptable.

This was considered to be more difficult in our foundries and the mould more likely to suffer damage, so we preferred raised letters from the point of productivity, also we could repair the mould or the casting if trouble occurred.

Having served an apprenticeship in the Royal Arsenal, Woolwich, where traditional craftsmen taught us their skills, I would be happy to recollect some of these if they helped individual members with queries.

PIPPINGFORD BLAST FURNACE TRUST

An historic special meeting of the WIRG Committee was held on 9 February 1983, when it was unanimously decided to form a charitable trust to preserve, and eventually to open to the public the considerable remains of Pippingford blast furnace. These are at present covered with sheets since the excavation by David Crossley in 1974/5

A steering committee, with power to act, was appointed to nominate trustees all of whom should be members of WIRG. This committee has since adopted, with modifications, a trust deed suggested by the Historical Metallurgy Society. This stipulates four to eight trustees, and the following have agreed to serve:

J. S. Hodgkinson, M. F. Tighe, D. M. Meades, C. F. Tebbutt, R. G. H. Houghton.

The last-named has agreed to act as architect, and M. F. Tighe to be treasurer. The secretary is S. Swift. Mr. A. Morriss, owner of the site of the furnace, has generously offered a lease of 50 years at a peppercorn rent. There seems every hope of a substantial grant from the D. of E. and help of various kinds from East Sussex County Council. However, a considerable sum will need to be raised from other sources in order to compete the work.

NOTES ON PUBLICATIONS

Brian G. Awty, 'The continental origins of Wealden Ironworkers, 1451-1544', Econ. Hist. Review 2 ser. xxxiv (1981), 524-539.

The Pays de Bray in northern France is shown to be the area whence many ironworkers came to the Weald after 1490. The records of denization (1544) and contemporary Subsidy Rolls are used to show the French places of origin and where in the Weald surviving immigrants were working.

Simon Kamer and John Bell, 'Iron working in Westfield', Sussex Industrial History 12 (1982), 38-43.

This article contains a summary of ironworking, from prehistoric to post-medieval, in the hinterland of Hastings. In particular it describes the foundation of Westfield Forge exposed when the bay was inadvertently destroyed by the water authority in 1980.

E. Lardner, 'The application of powder metallurgy in cutting-tool development', Powder Metallurgy 25 (1982) no.3, 130-135.

The author considers the Chiddingly cannon boring tool, discovered and conserved by WIRG, and dated 1650-63, to be the earliest known power tool with an inserted cutting edge. The boring tool is now displayed in Anne of Cleves Museum, Lewes.