

'The Vale of Ashburnham'
(J. M. W. Turner, engraved by W. B. Cooke 1816)

Henry Forester Cleere

Field Notes

A probable ironworking site in Busbridge, Surrey

Chiddingstone Furnace and Forge

A duplicate iron graveslab

A projected lease of Ashburnham Furnace

Ashburnham Furnace - the final blow

Judie English

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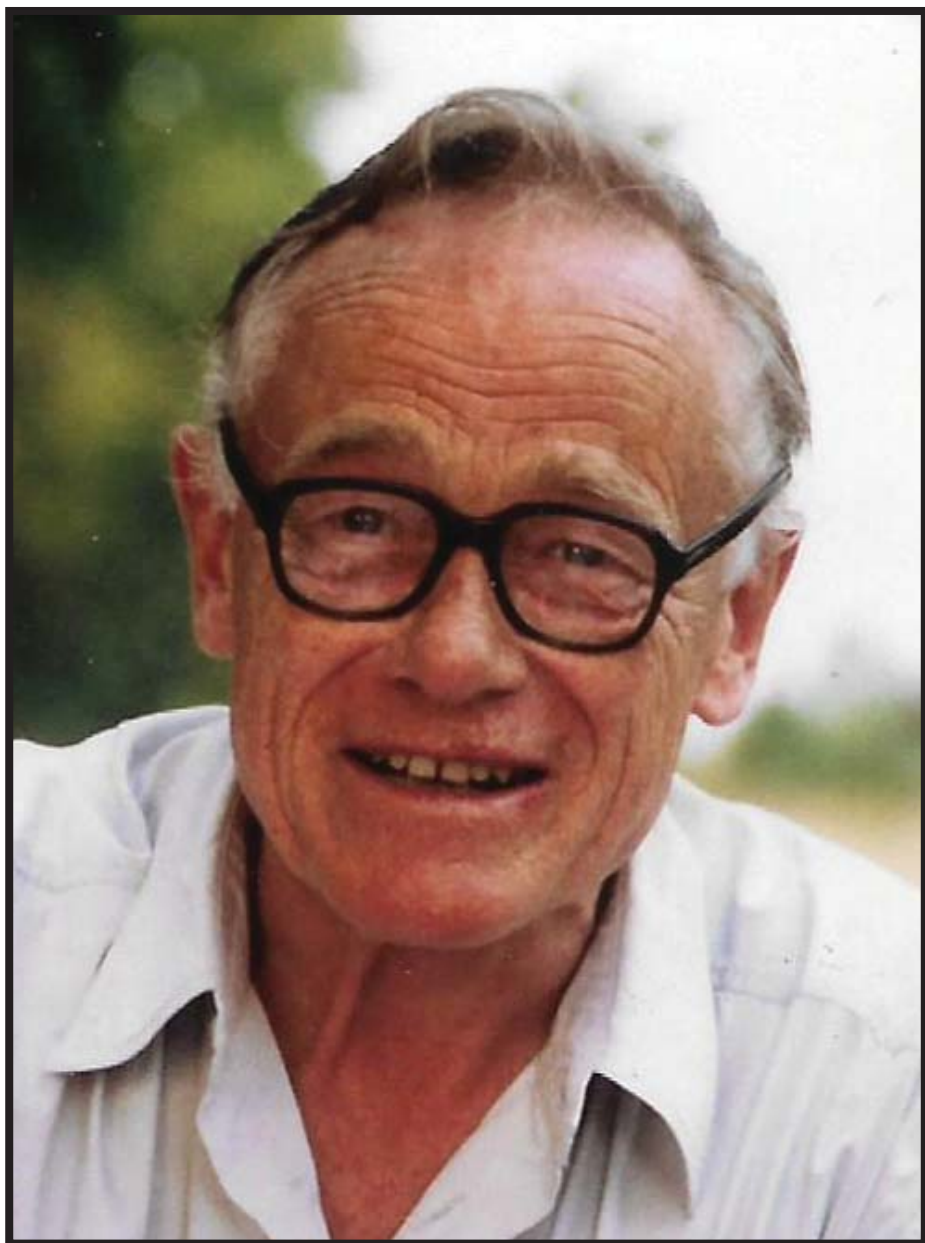
J. S. Hodgkinson

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HENRY CLEERE
1926-2018

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HENRY FORESTER CLEERE

OBE, BA, PhD, HonDLitt, FSA

1926-2018

After National Service in the Royal Artillery and a degree in English from University College, London, Henry Cleere worked for 19 years in editorial and administrative capacities at the Iron and Steel Institute. And it was during this period that he began to take an interest in the history of ironworking and, specifically, the Roman ironworking site at Bardown, which he excavated from 1960 to 69, and at nearby Holbeanwood until 1971. But his interest was not purely centred on the Weald. In 1963 he, together with David Crossley, was among the founder members of the Historical Metallurgy Group (later Society). Their association resulted in the convening of the Wealden Iron Research Group in 1968. Then occupying a cottage at Stonegate, Henry took an active role in the nascent group, engaging in fieldwork as well as excavating, with Fred Tebbutt, a bloomery in Pippingford Park. He was also writing articles on various aspects of early iron smelting, including the forms of tuyeres, the classification of bloomery furnaces, and smelting in a reconstruction of a bloomery carried out at Horam, anticipating WIRG's experiments which began in the 1970s. Henry acted as editor of *Wealden Iron* from 1972 -3. A year earlier, however, he had joined with Gerald Brodribb in excavating the bath-house that had been discovered at the extensive Roman ironworking site at Beauport Park. Like Bardown, this site had evidence of the involvement of the *Classis Britannica* in the form of stamped tiles – over 1000 in fact – prompting Henry's seminal paper on the connections between the *Classis* and the Wealden iron industry, which was published in 1975.

Henry had left the Iron and Steel Institute in 1971 and, after two years working for the United Nations in Vienna, was appointed Director of the Council for British Archaeology. From this time on, WIRG saw less of Henry although he had not lost interest in the Weald, moving to Ticehurst, and enrolling as a research student at the Institute of Archaeology in London, which culminated in 1980 in the award of a PhD for his thesis on the iron industry of Roman Britain. This served as a preparation for the project he



Henry Cleere and WIRG members excavating at Holbeanwood c. 1971

and David Crossley had envisaged when they formed WIRG more than 15 years earlier, the publication of a new study of the Wealden iron industry. *The Iron Industry of the Weald* was published by Leicester University Press in 1985, and in their introduction the authors pointed to the many unanswered questions that remained. It was surprising, therefore, that Henry had proposed that WIRG turn itself into WARG – a Wealden Archaeological Research Group – the fieldwork for the book having been completed; the committee did not agree. Henry was elected the group's second president in 1986. Due to pressure of work, the report on the excavations at Beauport Park was not published until 1988, but a full report on the digs at Bardown and Holbeanwood never appeared although a report on the pottery finds from the former has been compiled subsequently.

Henry retired from the CBA in 1991, for which he was made OBE and received an honorary doctorate from Sussex University, and for the next 11 years became World Heritage Co-ordinator for the International Council for Monuments and Sites, overseeing the granting of World Heritage Site status across the world. After his 'second' retirement, and by then an Honorary Professor at UCL, he was able to renew his contact with WIRG, attending meetings and visiting sites where his considerable knowledge and experience were much valued. During his long and distinguished career he was accorded many honours and in his passing WIRG has lost its most eminent member.

FIELD NOTES

A bloomery site in Capel, Kent

A concentration of lumps of dense bloomery slag has been found on a mound on the western edge of a quarry in Appletree Wood (TQ 59732 43285), about 1km ENE of the village of Southborough. Dry weather conditions and hard ground precluded any assessment of the depth of the deposit, which covered a roughly circular area of about 9m diameter. No tap slag was found and the shape of many of the lumps, some of which were fist size or larger, had flat upper surfaces and curved lower profiles, suggesting that they had been fragments of plano-convex hearth bottoms. A few pieces of slag indicated, from their more glassy appearance, that they had been formed at a higher temperature than the majority, and they were also of lower density suggesting that less iron had been retained therein. The underlying geology is the upper horizons of the Wadhurst Clay. The quarry, which was presumably for the extraction of clay, is immediately downhill from, and to the west of, a cap of Tunbridge Wells Sand which forms the landscape feature of Chowning Bank. Some small lumps of chalk (c.50mm) were found amongst the slag. The Iron Age hill forts of Castle Hill lie 500m to the ENE.¹

We are grateful to Nigel Stapple for informing us of this site.

Further evidence of Romano-British occupation and iron working in North Chailey

A series of post holes at 15, Downs View, North Chailey, together with pits containing Romano-British pottery and bloomery slag were discovered in 2005.² Recent excavation at the property during the building of an extension has revealed a further small assemblage of pottery, including Alice Holt,

1. J. H. Money, 'Excavations in the two Iron Age hill-forts on Castle Hill, Capel, near Tonbridge, 1965 and 1969-71', *Archaeologia Cantiana*, **91** (1975), 61-85.

2. 'Romano-British site at North Chailey, East Sussex', *Wealden Iron*, 2nd ser., **25** (2005), 2.

Nene Valley, Oxfordshire and East Sussex wares, together with a few pieces of bloomery slag. Of the latter, some were lumps in excess of 200mm in length used, together with pieces of sandstone and a piece of slagged bloomery furnace lining, to form what appeared to have been a low wall, perhaps enclosing a layer of charcoal staining, suggesting a hearth. The presence of the slag, does not, however, necessarily suggest that iron making was taking place *in situ*, but is likely to have come from the known site about 150m to the south.

We are grateful to Jack Ellis for notifying us of the recent excavation and to Dr Malcolm Lyne for identifying the pottery.

Bloomeries in Newick Wood, Heathfield, East Sussex

Jonathan Prus

In January WIRG members visited the Newick Wood area (near Broad Oak, Heathfield). The streams at the eastern edge of Newick Wood and the area to the south were investigated. Two bloomery sites were already known. That listed in the WIRG online database (www.wirgdata.org) as 'Magreed Farm' (TQ 6005 2292) could not be examined because the area is now covered with farm waste, including discarded roofing material. However, the location is well described and there is no reason to suppose that the archaeology has been destroyed. Some slag was found upstream (south) of this site, but no further bloomery sites were found.

The site listed as 'Newick Wood' was not at the location previously given. There is, nonetheless, a bloomery site on the opposite (western) bank of the ghyll which indicates an earlier GPS reading error, probably due to tree cover. This site, now listed as 'Newick Wood 1' (TQ 6016 2324), is evidenced by a fan spread of slag which appears to begin at the level of a beech tree about two metres below the ghyll edge. The slag fan appears to converge on a point just short of the stream and does not outcrop from the stream-bank. The slag may be the cause of what appears to be a mound about 10 metres in length. This mound might be a heap of slag, hinting at bloomery operation over an extended period. The slag includes drip and tap slag, but is predominantly non-diagnostic in form. Furnace wall material is also present. There is a

charcoal platform adjacent to this site above the ghyll. This is not necessarily connected to the bloomery.

A second site, now listed as 'Newick Wood 2 (TQ 6007 2302), was found on the same side of the stream, also apparently starting at a beech tree on the slope of the ghyll, which is very steep at this point. The slag outcrops from the stream bank over approximately 25 metres. Large blocks of sideritic ore also outcrop and occur in the stream bed. This ore is tabular in form and is characterised by exfoliating 'box stone'. There are three charcoal platforms adjacent to this site on relatively flat ground above the break of slope. These are not necessarily connected with the bloomery.

The study area is on the Ashdown Beds. The rock varies from hard sandstone to clay. Much of the surface soil on both sides of the ghyll is blackened.

EXCAVATION OF A PROBABLE IRONWORKING SITE IN BUSBRIDGE, SURREY, BY THE LATE GEORGE INWOOD

Judie English

In 1947 work involved in creating a drive and garden for a new house on the Thorncombe Estate, Bramley, Surrey revealed a scatter of Romano-British pottery and a small excavation was undertaken by Dr Nichols, honorary curator of Godalming Museum, and George Inwood. The site was briefly reported (Anon 1949); finds entered on the Surrey Heritage and Environmental Record (SHHER) include Bronze Age pottery (SHHER 2223), 'iron cinder' (SHHER 2224) and 1st to 4th century Romano-British pottery (SHHER 1797). These finds were deposited in Godalming Museum (accession numbers 239-264). Although the site is recorded in George Inwood's archive as 'Hascombe' the site is in Busbridge ecclesiastical and civil parish.

After George Inwood's death he was found to have accumulated a considerable archive from a number of sites, including more pottery and bloomery slag from the Busbridge site and a notebook giving some information about the excavation. This archive was rescued by Sue and John Janaway and handed over to this author for publication where justified.

The site

On a label in the archive the site is said to be 'near Badger's Rake', a house located at SU 99334155, and to have first been discovered when the drive and garden to a new house were under construction. In 1938 Dr Wilfrid Fox, who lived at Winkworth Farm, bought part of the Thorncombe Estate and started planting what became Winkworth Arboretum. His secretary, Mrs Madelaine Spitta, and her husband had a house designed by Sir Hugh Casson built on part of the land – Badger's Rake; the house was completed in

1950 but by 1948 the drive was in place and Dr Fox was planning the garden (Huxley 1979). It seems most likely that it was this work which revealed the site excavated by Dr Nichols and George Inwood. The site is situated on Sandgate Formation at 125m OD overlooking a stream now dammed to form a number of large ponds. Of the three trenches described in George Inwood's notebook, 'A' and 'B' were on Dr Fox's estate and one, 'C', on Mrs Hodsall's land – the former would have been the Thorncombe Estate and the latter Stilemans (SU 98804216) (Fig. 1).

The excavation

Trench 'A' was excavated in two spits to a depth of 3ft (0.9m) and yielded 34 small sherds grey ware and four of a red ware and a further 12 grey ware

and four red ware sherds were recovered from the 'soil dump' – presumably the spoil heap. Trench 'B', again excavated to 3ft produced a total of 93 sherds of grey ware, nine of red ware and a single buff ware sherd; and from Trench 'C' came only three sherds, two grey and one red, with several pieces of burnt sandstone. This total of 163 sherds is considerably fewer than exists in Godalming Museum and the archive; presumably George Inwood went back at some stage and collected further finds. A bag marked 'Hascombe trench' contained bloomery slag and other samples of production debris (see below).

The finds

Details of the pottery recovered from the trenches together with that found in the archive are shown in the table. All date to the Romano-British period; the prehistoric pottery mentioned in the report (Anon 1949) and in SHHER

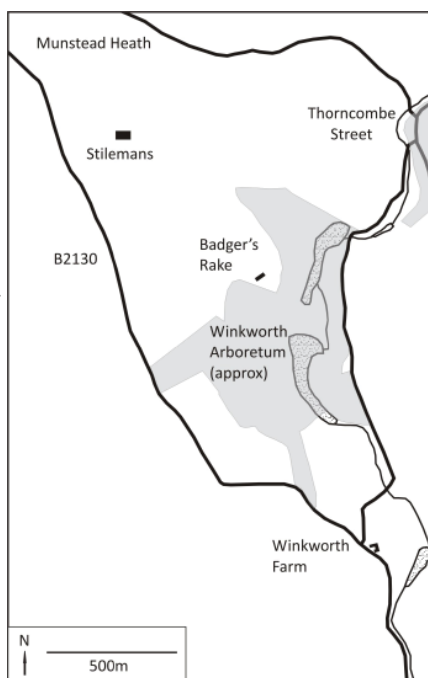


Figure 1: Location of sites in the text

2223 cannot now be located.

The bloomery smelting (tap) slag totalled 452g but it is not possible to say which trench produced either the slag or a piece of heavily slagged bloomery furnace lining. From a letter found in the archive it seems that some of the slag was sent to A. W. G. Lowther, who was then excavating an Iron Age and Romano-British site at Purberry Shot, Ewell. He correctly identified the slag but a piece which he identified as furnace bottom is, in fact, more likely to be a section of a primary forging (i.e. consolidation) hearth bottom (Jeremy Hodgkinson pers comm).

The excavations also produced a coin probably of Constantine II (337-340) (now missing) and four small pieces of Mayern lava, probably from a quern stone. A summary of the Romano-British pottery appears in Table 1.

Discussion

There is evidence of a number of Romano-British settlements, most of them probably farms, on the greensands of western Surrey (Clark and Nichols 1960). Other settlements may have been related to the large pottery industry on the Surrey / Hampshire border in Alice Holt, Farnham and the surrounding area (Clark 1950; Lyne and Jefferies 1979). George Inwood's fieldwalking located several other concentrations of Romano-British pottery, notably at Upper Eashing and Attleford (English submitted) and at the junction between the A3 and the roads to Hurtmore and Shackleford (English in prep.) pointing to a considerable density of Romanised settlements. However none of these sites yielded any evidence for iron production.

Locally Hascombe hillfort, some 2.5km to the south-east and dated to the Middle Iron Age has produced bloomery slag (Winbolt 1932) whilst large amounts of 'cinder' found associated with pits containing early Romano-British pottery on Hall Place Farm, Dunsfold were considered to indicate iron working (SHHER 680). A small amount of bloomery slag has been recovered from a 4th century AD context at Abinger Roman villa, 11km north-east, but no evidence of iron-working on site (Emma Corke pers comm). The dedication of a Romano-Celtic temple on Farley Heath to Sucellus suggested by stick figures on a 'sceptre binding' (Goodchild 1938) may indicate greater importance of iron production to the economy of the area than the sparse evidence so far suggests. The site at Badger's Rake is some way from a suitable source of clay ironstone; however an undated but possibly Romano-British

Archive	Location	Fabric	Date range	Sherds	Weight	Comments
Godalming Museum	Trench HAS47	SAND	50-400	2	174	2 ?beehive rims
Godalming Museum	Trench HAS47	OXID	50-400	1	11	Rim
Godalming Museum	Trench HAS47	AHSU	160-250	5	159	2 rims, one base
Godalming Museum	Trench HAS47	AHFA	250-400	1	17	Rim
Godalming Museum	Trench HAS47	GROG	50-400	2	118	Rims
George Inwood	Mrs Hodsall's land	PORD	350-400	1	14	Rim
George Inwood	Mrs Hodsall's land	VRW	100-350	1	37	Mortarium
George Inwood	Dr Fox's land	SAND	50-400	2	31	1 rim
George Inwood	Dr Fox's land	PORD	350-400	1	14	Mortarium
George Inwood	Unstratified	SAND	50-400	218	1849	23 rims, 1 sherd with white slip, 1 ?beehive rim
George Inwood	Unstratified	OXID	50-400	38	450	1 mortarium rim, 1 mortarium
George Inwood	Unstratified	PORD	350-400	24	129	
George Inwood	Unstratified	AHFA	250-400	25	196	
George Inwood	Unstratified	GROG	50-400	18	233	2 rims
George Inwood	Unstratified	AHSU	160-250	7	118	1 sherd with parallel lines inside and outside
George Inwood	Unstratified	CC	50-400	3	24	
George Inwood	Unstratified	COAR	50-400	4	26	
George Inwood	Unstratified	OXSU	50-400	2	36	Rounded rimmed storage jar
Totals				355 sherds	3636g	

Table 1

bloomery site at Combeswell, Thursley, is on a similar Lower Greensand geology and about 4km from a source of similar ore.

Although the site could have been in existence throughout the Romano-British period, none of the pottery necessarily pre-dates the middle of the 2nd century AD and several of the pieces are from late in the period. These include the base of a bulbous beaker (Godalming Museum catalogue no. 246) and two rims from a conical or hemispherical, black colour-coated flanged bowl (catalogue no 249 & 250).

It is intended that both written and finds archives will be deposited at Godalming Museum.

Fabrics in Table 1

PORD – Porchester D

VRW – Verulamium ware

GROG – grog-tempered ware

AHFA – Alice Holt Farnham

COAR – coarse tempered

OXID – oxidised ware

SAND – sand tempered

CC – Colchester

AHSU – Alice Holt Surrey

OXSU – oxidised Surrey

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CHIDDINGSTONE FURNACE AND FORGE

J. S. Hodgkinson

The interpretation of sites identified by Ernest Straker, where the navigational co-ordinates he gave contain errors, has already been shown, in the case of Riverhall and the spurious Henly Lower Furnace, to have resulted in the mistaken inclusion of at least one site in the gazetteer of Cleere and Crossley's The Iron Industry of the Weald.¹ Bough Beech Furnace (2) would seem to be another.

Straker evidently surmised the existence of this furnace from Furnace Farm, which is marked on the 1769 map of Kent by Andrews, Dury and Herbert, naming it Bough Beech after the hamlet nearby:

There appears to be no record of this furnace. It is on the Weald Clay, two or three miles to the north of the nearest source of ore on the Hastings sands, but there are several large marlpits near it, which may have contained pockets of ferruginous stone. It is shown on Andrews' map, 1769, in a wrong position.²

Schubert was the first to identify it with the furnace belonging to Thomas Willoughby, citing evidence of its sale to Thomas Browne of Chiddingstone in September 1589.³ Later, Cattell noted Willoughby's forge and furnace in the list of Kent ironworks drawn up in 1588, in which it was stated that ordnance was cast there by Ephraim Arnold for Thomas Browne, who had

1. J. S. Hodgkinson, 'Henly and Riverhall Ironworks,' *Wealden Iron*, 2nd series, **36**, 1 (2016), 10-17.

2. E. Straker, *Wealden Iron*, London, Bell, 1931, 218.

3. H. R. Schubert, 'The northern extension of the Wealden iron industry,' *Journal of the Iron and Steel Institute*, **161** (1948), 245-246. The document Schubert cited, then in Sevenoaks Library, is now at the Kent History and Library Centre, Maidstone, U1000/3/T5; I am grateful to Dr Helen Wicker for locating it for me.

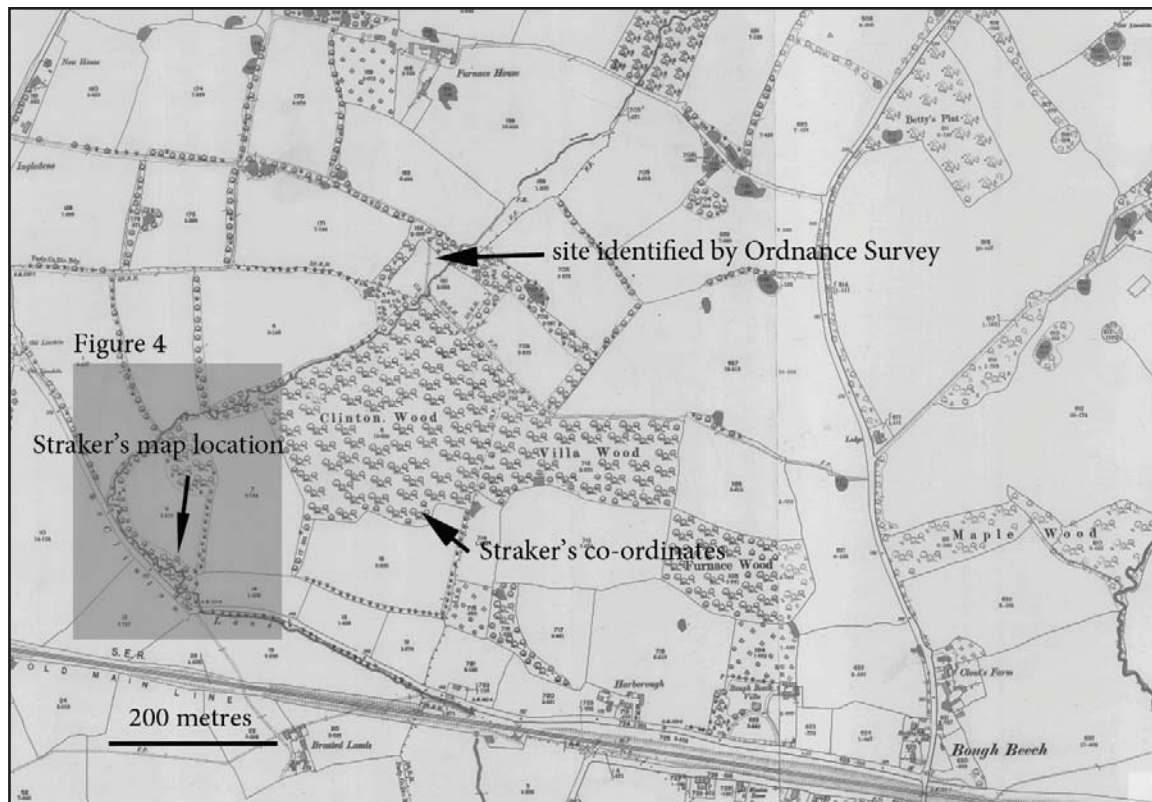


Figure 1: Map showing the area around Chiddingstone Furnace (detail of Ordnance Survey 1:2,500 map: Kent XLIX.7, 1896)

been Willoughby's tenant 'for yeares'.⁴

Straker identified the site of the furnace giving the co-ordinates 51° 12' 20" N, 0° 7' 10" E. Figure 1 shows that this is not a credible location for a blast furnace or forge, with no stream to power bellows. However, he marked the location in a different position on his map of the sites in the Eden, Kent Water, N. Ashdown, Lower Medway and E. Ashdown river basins (Fig. 2).⁵ This corresponds with the grid reference TQ 477473. In 1963 the Ordnance

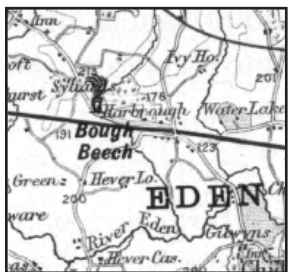


Figure 2: Detail from E. Straker, *Wealden Iron* (1931), between pages 224 and 225

Survey field investigator, A. S. Phillips, identified the site as being located at TQ 4813 4756, and the earthworks of the pond bay and 'old spillway' were thereafter marked on OS printed maps.⁶ Presumably taking the location from the OS, and not from Straker's co-ordinates or map, the site was recorded as a furnace at TQ 481475 in the list of sites recorded by him that was printed in the first issue of the WIRG Bulletin.⁷ In 1972 WIRG's East Grinstead group visited the same site, recording it (no less accurately) at TQ 4815 4760.⁸ In October 1973 members of WIRG paid a second visit to Bough Beech, this time to the site

that Straker had shown on his map. The site questionnaire was completed by Fred Tebbutt and summarised in the Bulletin the following year.⁹ The text of that published report is as follows:

This site seems to be just N of the public road [Clinton Lane B2027] where it crosses a bridge; Straker says nothing about any earthworks.

4. C. S. Cattell, 'An evaluation of the Loseley list of ironworks within the Weald in the year 1588', *Archaeologia Cantiana*, **86** (1971), 85-92; J. S. Hodgkinson, 'Ironworks in late 16th-century Kent', *Wealden Iron*, 2nd ser., **24** (2004), 11.

5. Straker, *Wealden Iron*, between pp. 224 and 225.

6. Ordnance Survey Record Card TQ 44 NE 3.

7. *Wealden Iron*, 1st ser., **1** (1969), 13.

8. B. K. Herbert, 'Local Team Report: East Grinstead', *Wealden Iron*, 1st ser., **4** (1972), 27.

9. C. F. Tebbutt, WIRG unpublished Field Notes, Oct 1973, 'Bough Beech Furnace'; 'Inventory of iron sites visited by WIRG', *Wealden Iron*, 1st ser., **7** (1974), 20.

Here for some hundreds of yards upstream the stream is flanked by high artificial banks and just above the road bridge there is what appears to be a short bay, about 30 yards long, breached by the stream at its SE end. Could the embanked stream have served as a pond? Some dark and streaky blast furnace slag was found and samples taken.

It might be expected that Straker's co-ordinates contained a simple numerical error.¹⁰ Indeed, if the Northing he gave was changed from 51° 12' 20" N to 51° 12' 30" N the location would match the one identified by the Ordnance Survey investigator and by WIRG's East Grinstead group. No such simple correction is possible to place the location to where Straker put it on his map.

The site that the Ordnance Survey and the East Grinstead group had verified was visited again in February 1974, with the site questionnaire completed by Brian Herbert and including a survey plan by D. Thorogood (Fig. 3).¹¹ It was summarised in the Bulletin in 1975 and acknowledged as the main site:¹²

BOUGH BEECH FURNACE: HEVER. TQ 4815 4760. Wealden Iron p.218

This has already been described in Bulletin 7, but a subsequent visit by Mr B.K. Herbert has shown that this site [i.e. at TQ 477473], although on the spot shown by Straker, is not the main one, although water seems to have been held up here, perhaps for a corn mill, The undoubted furnace site was some 750 yards upstream, at the above Grid Reference.

Tebbutt subsequently annotated his 1973 field questionnaire with the words, 'See more authentic survey by B. Herbert'. Nevertheless, Tebbutt revisited the lower site in 1980, adding the following comments to his field questionnaire:

Bank of dense glassy slag in bank of stream near road.

Small quantity in stream of broken pieces of 'forge bottoms'.

A very complicated site owing to thick undergrowth and swampy areas.

10. Several errors have been noted in the co-ordinates provided by Straker in *Wealden Iron*: two notable ones are Howbourn Forge, off the coast of Normandy, and Newfrith bloomery, in Cambridgeshire. Both are single digit errors.

11. B. K. Herbert, WIRG unpublished Field Questionnaire, 2 Feb 1974, 'Bough Beech'.

12. 'Inventory of iron sites visited by WIRG', *Wealden Iron*, 1st ser., 8 (1975), 22-3.

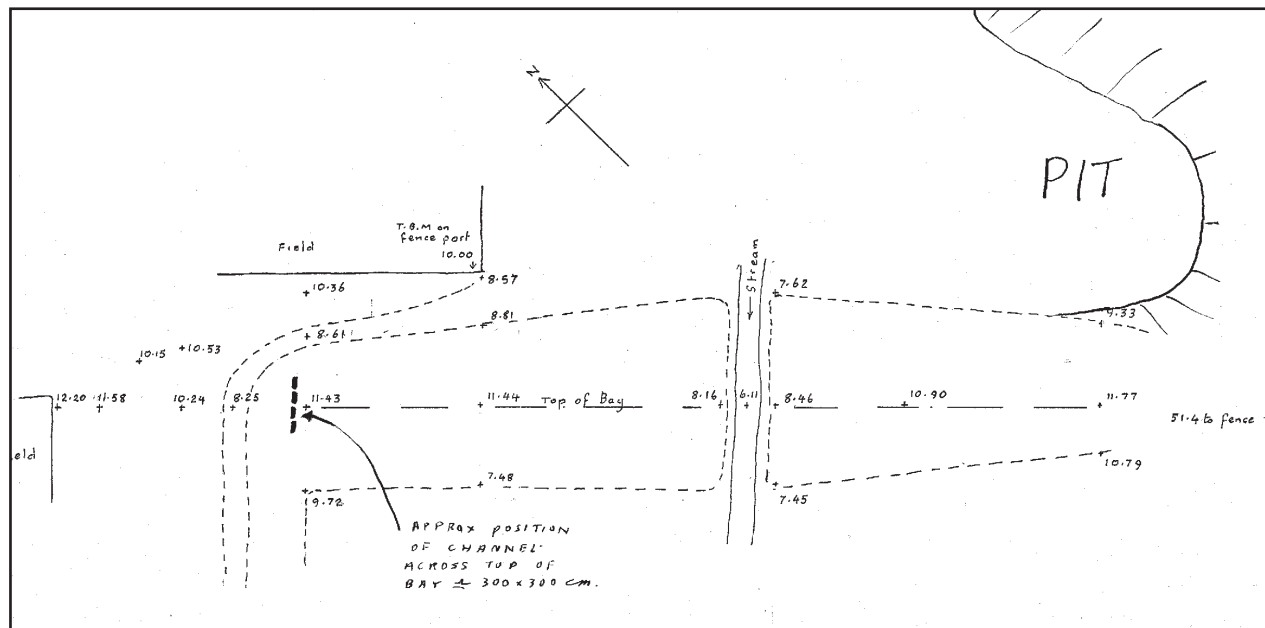


Figure 3: Bough Beech furnace bay survey (D. Thorogood)

After information (documentary) from D. W. Crossley that there were two sites in this area this is almost certainly the other. However there is both forge and furnace slag here.

It is likely that David Crossley, in reviewing the documentary evidence for the gazetteer of sites to be published in *The Iron Industry of the Weald*, had noted the forge mentioned in Cattell's paper. When the book was published in 1985 the site that had been identified by the Ordnance Survey and the WIRG East Grinstead group, was described as Bough Beech Furnace (1) and, significantly, 'not included by Straker'. While the site further downstream, the subject of the visits in 1973 and 1980, was listed as Bough Beech Furnace (2) or Forge, and identified as the site that Straker had recorded.¹³

Taking advantage of the prolonged dry spell in July 2018, the writer visited

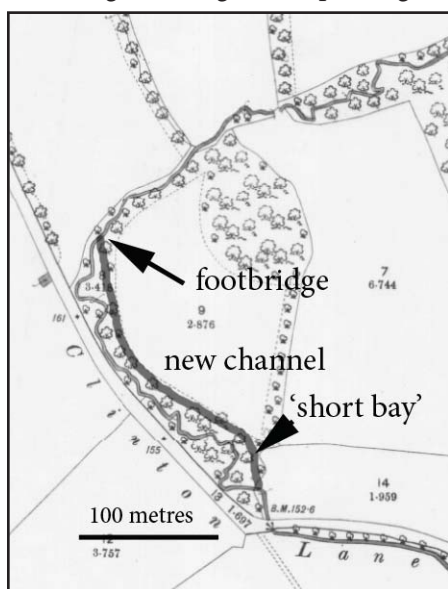


Figure 4: Map showing the area of 'Bough Beech Furnace (2)' (detail of Ordnance Survey 1:2,500 map: Kent XLIX.7, 1896)

the lower site on two occasions (Fig. 4). It might have been thought that the road had formed the bay of a putative pond, but in the lie of the land through which the stream approaches the road there is no indication that a pond had formerly existed. At TQ 47698 47271 there is a small footbridge crossing the stream. From this point downstream, to where it passes beneath Clinton Lane, a channel has been dug alongside the original course of the stream diverting the water along a more direct route, perhaps to speed the flow of water and prevent flooding across the road. This channel is not delineated on Ordnance Survey maps, the course shown being the original stream as surveyed by them in 1869-

13. H. Cleere and D. Crossley, *The Iron Industry of the Weald*, Leicester, Leicester University Press, 1985, 317.

70, which is now abandoned and probably represents the swampy area noted on previous visits. The later channel, which must date from after 1870, has been cut through the ground to the east of the original stream course, it being clear that the top of the west bank of the channel is level with the top of the east bank. Therefore, contrary to observations made in the 1970s, the west bank of the channel has not been artificially built up but is, in effect, the bank of the original stream. It was evidently not appreciated by those visiting the site in 1973 and 1980 that the course of the channel through which water was then flowing differed markedly from that shown on OS maps. The course of the stream along the north side and then along the south side of Clinton Lane does suggest that it might have followed a different course sometime in the past, with the line of the road affecting it, but reference to the earliest maps available, Andrews' map of 1769 and the Ordnance Survey draft drawing of 1799, show the juxtaposition of stream and road to have been the same then as now. The 'short pond bay' noted in the report of 1974 is not, this writer contends, a bay at all as it appears to cross the later channel and not the original stream, and the top of the 'bay' is level with the ground on the east side of the channel. The bank of blast furnace slag could not be located owing to the hardness of the ground, but its reported position near to the road suggests that it may have been the result of the deposit of slag on the road, which was a legal obligation for ironmasters following the Act of 1584.¹⁴ The writer noted a very few small lumps of forge slag in the bed of the later channel but they could not be described as pieces of 'forge bottoms' as noted in 1980. However, if the road were to be interpreted as a pond bay the working area would be expected to be on the south side of Clinton Lane, but after crossing under the road, the stream runs in an easterly direction along the side of the road for over 400m before turning south, leaving no room for a furnace or a forge.

It is difficult to categorise the Clinton Lane site as having been either a furnace or forge for three reasons:

- the landscape allows no room for a pond adequate to supply the requirements for the sustained operation of a hammer or bellows;
- apart from the modern channel, there is no evidence of one or two

14. 27 Elizabeth [1] c.19.

additional watercourses necessary for a furnace or forge respectively, nor of an adequate working area;

- the amount of waste slag, whether from a furnace or forge is very small indeed and certainly does not reflect the sort of accumulation from an operating period of any length.

Was Straker aware of the site later identified by the Ordnance Survey, his otherwise accurate co-ordinates for it containing a single typographical error? The lack of any mention by him in *Wealden Iron* of the earthworks subsequently recorded by the OS suggests otherwise. So it must be concluded that Straker believed that the site next to Clinton Lane was the site of the furnace. The subsequent identification of the furnace further upstream throws into question whether Straker's site should be given credence as an ironworking site at all. For the reasons given above, it is this writer's contention that it should not, and that it should be deleted from the list of ironworks in the Weald. The location of the forge belonging to Thomas Willoughby in 1588 has yet to be resolved. It may have been part of the furnace site upstream although no evidence of forge waste has been found there to date, but it cannot have been at the site next to Clinton Lane.

A DUPLICATE IRON GRAVESLAB

J. S. Hodgkinson

A cast-iron graveslab of 1688 lies behind the pews on the north side of the central aisle of the nave in St Peter and St Paul's Church, Wadhurst (Fig. 1), one of 31 such slabs inside the building. On its plain, rather rough, surface, the date lies across the centre of the slab, above and below which the initials DA are repeated, each pair of letters separated by a lozenge. From the passage of feet over the past 330 years, the characters, which stand proud of the surface of the slab, have been worn smooth. The slab is about 1cm thick and measures 46cm wide by only 98cm long and is thus about 60cm shorter than the average length of the graveslabs in Wadhurst. It would appear, on that basis, intended for a child. A. A. Wace, in his *Story of Wadhurst*, assigned the slab to Dorothy Alcherne.¹ In the Wadhurst registers, hers are the only initials of an individual buried in the parish in that year that match those on the slab. She was buried on 2 March 1688 and, rather than being a child, the 'Mrs' before her name clearly shows her to have been a married woman.



Figure 1: Graveslab of Dorothy Alcherne, 1688; St Peter & St Paul's church, Wadhurst

A cast-iron plate has been discovered recently during clearance of a

1. A. A. Wace, *The Story of Wadhurst*, Tunbridge Wells, Courier Publishing Co., 1923, 46.

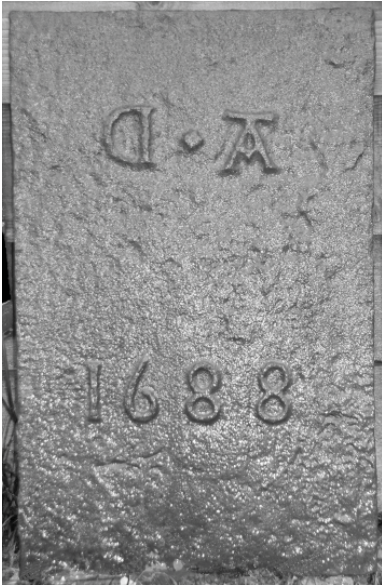


Figure 2: Cast-iron plate bearing initials DA, 1688; Ticehurst

property in the Wadhurst area (Fig. 2).² In several respects it bears a striking resemblance to the graveslab. It is the same thickness and width. On its surface are the date, 1688, and the initials DA separated by a lozenge. Of the numerals forming the date, the 6 is particularly distinctive - on both slabs the curl does not meet the upright line - and the 8 is evenly proportioned with both circular elements of similar size. The letter A is typical of capitals of the period, with a serifed and slightly curved horizontal line above the apex, and a v-shape for the bar between the converging sides. All of the characters are tapered in that they are wider at the surface of the slab than on the top.

Where the plate differs from the graveslab is in its length, 72.2cm, and in the fact that there is only one pair of initials, of which the D is reversed, placed above the date. The surface of the plate is similarly plain and rough but the characters are not worn smooth and thus stand prouder of the surface than on the graveslab. Measurements taken of the characters level with the surface of the plate show them to be of identical form and size as the characters on the Wadhurst slab. The proportions of the inscription on the plate are similar to the slab in Wadhurst church in the distance between the top edge and the initials, and in the distance between the initials and the date. On an adjacent graveslab of 1673 which is stylistically very similar, clear straight lines around the pairs of initials and the entire date show that they were carved from blocks which had been over-pressed into the casting sand. From the regular positioning of the letters and numbers on the 1688 slab this could also have been the case but the reversed 'D' on the plate indicates that

2. I am grateful to Mr D. Smith, of Ticehurst, for showing me this slab and allowing me to record its details.

the letters, at least, were cast from separate stamps.

It is not, alas, unknown for iron graveslabs to turn up in places where they might not be expected. Maidstone Museum has one, its original location unknown, bearing two shields and the crest of the Fowle family, and the Sussex Archaeological Society has fragments of two in its collection at Anne of Cleves House, Lewes, both originally from Withyham. Another, formerly at Mayfield, is at the premises of Ripley Forge and Fireplaces Ltd in Robertsbridge.³ Each of these graveslabs, all of which show signs of wear, must have been removed from the church or churchyard in which they had been placed originally as a result of renovations or rebuilding; such work is known to have occurred at Withyham in 1643. This may not be the case with the plate. The close correspondence between it and the slab at Wadhurst suggests that it may have been a rejected casting. Both its shorter length than the Wadhurst slab which, from examination of the plate, does not appear to be as a result of breakage, and the reversed D - perhaps the error of an illiterate ironworker - may have given cause for the family of the deceased to decline to accept the casting and require a replacement to be made, which was laid in the church instead. The lack of wear, which suggests that it had never been set into the floor of a church and suffered the passage of feet over its surface, also indicates that it was never used. Even those graveslabs that are now displayed on the walls of churches, for example at Burwash, Maresfield and West Hoathly, clearly indicate by the wear on their surfaces that they were formerly set into the floor. Dorothy Alcherne's family had, perhaps, retained the faulty version, which may explain its survival.

3. R. Willatts, Catalogue of Pre-Industrial Revolution Graveslabs in England; [www.wealdeniron.org.uk/Catalogue of Iron Graveslabs3.pdf](http://www.wealdeniron.org.uk/Catalogue%20of%20Iron%20Graveslabs3.pdf) (accessed 14 Mar 2018).

A PROJECTED LEASE OF ASHBURNHAM FURNACE

J. S. Hodgkinson

In 1709 Ashburnham Furnace was let, for seven years, to a group of ironmasters based in the Forest of Dean.¹ The Forest Partnership, as they called themselves, comprised, at that time, Thomas Foley, Philip Foley, Richard Knight and William Rea, the last of these being the principal involved. A year later the partners, this time represented by Thomas Hussey, leased Crowham Forge, at Westfield, from Peter Gott for the same length of time. Despite Rea's nominal involvement, it was Hussey who managed both works, doing business with several Wealden forges as well as with Sir Ambrose Crowley on Tyneside, London merchants and with the partners themselves and other forgemasters in Gloucestershire and the west Midlands. Records of the Forest Partnership in the Herefordshire archives are missing for eight years from 1717, when the two leases were due to have expired, but King has surmised that Hussey may have continued to manage the two ironworks on his own account, possibly with the involvement of John Legas.²

The untimely death, in 1725, of Samuel Gott, Peter Gott's eldest son and the active owner-ironmaster at Gloucester Furnace, Conster Forge and Furnace and Crowham Forge, may have precipitated, in April of that year, the formation of a partnership between Hussey, Legas, William Harrison, William Jukes and Maximilian, Samuel Gott's brother.³ The last of these had not been active in the iron industry hitherto and his possible inexperience on inheriting three productive ironworks may have caused him to seek a partnership with more experienced ironmasters. Although the exact term of the partnership is not known, it was still active in 1735 when both Gott and

1. P. W. King, 'Ashburnham furnace in the early 18th century', *Sussex Archaeological Collections*, **133** (1995), 255-62.

2. *Ibid.*, 260.

3. J. S. Hodgkinson, 'The Legas-Remnant Letters', *Wealden Iron*, 2nd ser., **29** (2009), 15.

Hussey died, and William Gott, who as a merchant at Leghorn (Livorno) in Italy, was even less involved in the iron industry, took his older brother's place.

In addition to the ironworks belonging to the Gotts, the partnership included five works managed by Hussey and Legas: Hawksden Forge, Chingley Forge, and three belonging to Henry Pelham, Bivelham Forge, Glazier's Forge and Waldron Furnace. William Harrison operated Brede Furnace and, together with William Jukes and his brother, had, in 1734, leased Robertsbridge Furnace from Sir Thomas Webster.

The recently published edition of the correspondence of the lawyer, John Collier of Hastings, has revealed that the partnership had contemplated adding to their extensive portfolio of ironworks by leasing Ashburnham Furnace as well.⁴ One of Collier's many offices was steward of the manors of Ashburnham and Penhurst, and in this capacity he received letters, from time to time, from John, the first earl of Ashburnham on matters relating to the latter's estate. In October of 1736 the following was received by Collier from his lordship:

*If you have the rough draught of those articles you drew between Mr Hussee etc., and me for takeing the furnace and woods, I wish you would bring them over here, any day, you will before Thursday next. I want to discourse you upon that affair.*⁵

It is reasonable to assume that by 'Mr Hussee etc.' Lord Ashburnham was referring to Hussey and his partners, with Hussey as the principal negotiator, and that the 'articles' had been drawn up by Collier the previous year, Hussey having died that December. Ashburnham was the only furnace owned by his lordship. Since ten months had passed since Hussey's death, Lord Ashburnham was evidently not in any hurry to conclude an agreement and presumably nor were the surviving partners. The deaths of two of their number in close succession probably gave them more pressing concerns but Lord Ashburnham's letter must have had a galvanising effect for, in an account of his expenses for November of 1736, Collier noted that he had called several times on both William Harrison and William Jukes in London

4. R. Saville, *The Letters of John Collier of Hastings*, Lewes, Sussex Record Society vol 96, 2016.

5. *Ibid.*, p. 96, letter 157, 24 Oct 1736.

and John Legas, probably at Wadhurst, 'about the furnace lease and the repairs'.⁶ The reference to repairs could imply that the partners were already operating the furnace under an informal arrangement, perhaps a throwback to Thomas Hussey's management of the furnace in the 1710s. Alternatively it could be reference to repairs that might be necessary prior to the partners coming to a formal agreement with the earl. It was not to be, though. Lord Ashburnham died only four months later and the proposed articles, of which no draft appears to have survived, were evidently set aside. About two years later John Crowley, whose grandfather had done business with Thomas Hussey 30 years earlier, took a lease of Ashburnham Furnace and Forge,⁷ beginning an association between the Crowley and Ashburnham families that included, in 1756, the marriage of his sister Elizabeth to the second earl, as well as the management of the ironworks until nearly the end of the century.⁸

6. Ibid., p. 383, Appendix no. 618, Account for executors of the Earl of Ashburnham for the month of November 1736.

7. Suffolk Record Office, Ipswich, HA1/G/D/2/3, Accounts of the estate of John Crowley deceased, 1739.

8. R. R. Brown, 'Wealden Ironmasters and the Board of Ordnance after 1770', *Wealden Iron*, 2nd ser., 14 (1994), 31-47.

ASHBURNHAM FURNACE: THE FINAL BLOW

Tim Smith

The last furnace to operate on the Weald was Ashburnham Furnace which survived until March 1813. This was one of the largest furnaces in the Weald, commencing operations in 1550, and casting both pig iron as sows for refining to bar at Ashburnham Upper Forge, $\frac{3}{4}$ mile downstream to the south, and finished articles such as firebacks, fire dogs, branding irons, agricultural equipment, kitchen ware and ordnance, including the most demanding casting of cannon.

A chance find in *The Hastings & St Leonards News* of April 29 1864 describes the final demise of the furnace by an eyewitness, Samuel Bartlett, who, he says, was one of two boys employed at the site. He records that in his time the furnace was in blast at intervals of about three years and a campaign lasted two to three months until the stock of materials was used up. The birth of a Samuel Bartlett is registered on 4 May 1801 at St John sub Castro, Lewes,¹ and since no other such name appears around these dates in the locality this points to him being just 11 years 10 months old at the time of closure of the furnace in March 1813. Bartlett's letter, 51 years after the event, was in response to an article in the same newspaper of 15 April 1864 entitled 'The Iron Trades in Sussex', heavily abridged from an article by Mark Antony Lower on the 'Iron Works of the County of Sussex' which appears in volume two of the *Sussex Archaeological Collections* along with a gazetteer of sites,² these being further expanded the following year.³ Bartlett's letter is reproduced below, interspersed with comments by the writer.

1. East Sussex Record Office, Brighton, PAR 412/1/1/5/028; Register of Births, St John sub Castro, Lewes.

2. M. A. Lower, 'Iron-Works of the County of Sussex', *Sussex Archaeological Collections* (hereafter *SxAC*), 2 (1849), 169-220.

3. M. A. Lower, 'Supplementary Notes of the Iron-Works in the County of Sussex', *SxAC*, 3 (1850), 240-248.

THE HASTINGS AND ST. LEONARDS NEWS
INDEPENDENT in Politics; IMPARTIAL in Reporting

HASTINGS, FRIDAY, APRIL 29, 1864.

THE OLD IRON WORKS OF SUSSEX.

SIR,-On the 15th instant, you inserted a paper on the Iron Works of Sussex, where it was stated that at Ashburnham one of the two last furnaces was in use.

According to the article of 15 April 1864, in 1788 there were only two (in Sussex), Farnhurst (Fernhurst) in western, and Ashburnham in eastern Sussex.⁴ This late date for Fernhurst differs from current information about that site.

As I was there when a boy - and since while an apprentice at Battle - I can give you some particulars which I think may be interesting to some of your readers.

I will first note that the bed of the furnace from which the iron was drawn to be cast into "pigs," &c., was made of large blocks of stone, taken from some of the rocks at Hastings, which were about four feet square inside: two bellows, each about twelve feet long, were worked by an overshot water wheel. The iron ore was brought from pits some few miles distant. The fuel (charcoal) was made principally from, oak trees on the estate.

The "blasting" of this furnace was carried on at intervals of about three years, and continued in blast for about two or three months each time, till the stock of material was used up. The last casting was in the year 1809.

Bartlett's memory fails him here as the furnace account books continue until December 1812,⁵ and also a second boy at the furnace, William Hobday, recollected the death of a six year old child, William Jones, on the final day

4. Anon., 'The Iron Trades in Sussex', *The Hastings & St Leonards News*, 15 April 1864.

5. E. Straker, *Wealden Iron*, London, Bell, 1931, 364-370.

of the furnace due to drinking a bottle of gin.⁶ This death is recorded in the Ashburnham burial register of 3 March 1813.⁷

This was the last furnace in use in Sussex or Kent ; and it was brought abruptly to a close in consequence of the intoxicating habits of the foundry men. By neglecting the proper mixture of chalk, &c., with the ore, the flux did not separate as it should have done, to run off, and it remained a mass, from which the iron could not be drawn off to be run into "pigs" for the forge, - the blasting was of necessity stopped, and no attempt was made afterwards to renew the work.

The mention of chalk as the flux rather than limestone which occurs in the Weald, sometimes associated with the ore in the form of cyrena limestone, is of interest. Lady Dorothy Neville, in her book, *Under Five Reigns*, published in 1910, also refers to the use of chalk and in addition dates the closure of the furnace to 1809, as Bartlett does, and gives the cause as the inebriated state of the foundry men.⁸ The similarity of her account suggests it could well be derived from Bartlett's letter of 1864.

In the lumber room were deposited a great variety of patterns for chimney plates and brand-irons, with many ornamental devices, in carved work and other patterns, for kitchen utensils, &c.

Two of the patterns for chimney plates (i.e. firebacks) have survived and are now on display in Anne of Cleves House, Lewes (Figs. 1 and 2).

The forge was about three-quarters of a mile below, towards Ashburnham House, and the forging of the cast-iron was into bars, ploughshares, horse-shoe moulds, &c.; but the latter being made by weight were too heavy for the smith's to use, as they could get them elsewhere better prepared for their use, and the trade fell off.

Horse-shoe moulds were a T-shaped extension to the anvil, grooved to the profile of a horse shoe.

6. R. F. Whistler, 'Penhurst: being some account of its iron works, manor house, church etc,' SxAC, **36** (1888), 3-6.

7. W. Beswick, P. J. Broomhall and J. D. Bickersteth, 'Ashburnham blast furnace: a definitive date for its closure,' SxAC, **122** (1984), 226-7.

8. D. Neville, *Under Five Reigns*, London, Methuen, 1910, 123.



Figure 1: Wooden pattern for a fireback from Ashburnham Furnace, showing Hercules fighting the Hydra; Anne of Cleves House, Lewes Sussex



Figure 2: Wooden pattern for a fireback from Ashburnham Furnace, showing Phaeton riding Apollo's chariot; Anne of Cleves House, Lewes, Sussex

And here again the habits of gin-drinking assisted in bringing this work to a premature close before the iron was all worked up. It may be observed that at the time these works were in operation, smuggling was carried on to a great extent in the neighbourhood of Bexhill, &c., along the coast, to Pevensy; and it was not a matter of much difficulty for the men to procure a tub (half-anker) of Hollands gin.

Half a Dutch anker = about 19 litres or five gallons.

Although the iron was made here from wood charcoal, it was of a very superior quality to what was made at that time from pit coal in the north of England. The power to lift the forge hammer, and for the bellows, was by an undershot water-wheel, acting from a high head of water against flat boards around the circumference of the wheel; and the stream of water from the Battle powder mills supplied the furnace and forge ponds with water.

From the description, it is probable that by 'undershot' Bartlett is referring

to a breast-shot wheel in which the upstream end of the wheel pit is closely contoured to the circumference of the wheel and requires water to be brought in at about the level of the wheel axle, powering the wheel anti-clockwise, when viewed from the inside of the forge, the tail race flowing out under the wheel. Paddles, curved or straight, rather than buckets, are a feature of this type of wheel. His reference to a 'high head of water' supports this being a breast-shot wheel as an undershot wheel requires no head of water taking its power direct from the flow of the stream acting on the paddles as it passes beneath the wheel. Breast-shot is the most efficient type of wheel and was common in the 19th century. Indeed, excavation of one of two wheel-pits at the furnace site revealed this to be of a breast-shot type.⁹

Bartlett is incorrect about the source of the water powering the furnace and forge, which flowed into the sea at Pevensey, whereas the stream powering the Battle powder mills flowed into the sea at Bulverhythe.

Since the works, as above, have been stopped, the buildings have been pulled down, and the materials used in the buildings on the estate.

I am, sir, yours &c.,

SAMUEL BARTLETT.

Maidstone, April 25, 1864.

This chance find of a newspaper report really brings to life the final days of ironmaking on the Weald.

9. D. Crossley, 'Ashburnham Furnace, Penhurst', *Wealden Iron*, 1st ser., **12** (1977), 7-8.

CORRIGENDA

In *Wealden Iron*, 2nd series, **36**, pt. 1, p. 16, the fourth paragraph reads:

It is proposed that Straker's identification of Riverhall Furnace be reinstated in the archaeological record at TQ 6007 3388, and the name, Henly (Lower) Furnace, deleted, that Henly (Upper) Furnace be reinstated as a possible Henly (or Brinklaw) Forge at TQ 6011 3355, and that Riverhall Forge be located at TQ 6073 3353.

The first two grid references should be transposed to read:

*It is proposed that Straker's identification of Riverhall Furnace be reinstated in the archaeological record at **TQ 6011 3355**, and the name, Henly (Lower) Furnace, deleted, that Henly (Upper) Furnace be reinstated as a possible Henly (or Brinklaw) Forge at **TQ 6007 3388**, and that Riverhall Forge be located at TQ 6073 3353.*

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