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Second Series
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Contents

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Field Notes

compiled by J. S. Hodgkinson

Badsell Park Farm, Brenchley, Kent

('Matfield Furnace')

Straker and Cleere & Crossley include this site tentatively although in neither is there any convincing evidence that this was an ironworking site.[1] The Field Group's recent visit to the site has been described by Brian Herbert;[2] he reported no ironworking debris at any of the four bays. Suggestions that this might have been the location of the Brownes' 'brassworks' can be discounted on the evidence of the document cited by the present author,[3] which removes the likelihood that the brassworks were located anywhere else in Brenchley apart from at the iron smelting works adjacent to Horsmonden village. Investigations by the Royal Commission on the Historical Monuments of England, in advance of projected flooding of part of the area, have not been able to satisfactorily resolve the problem of the site's former use. It would therefore seem imprudent to continue to list this site with other Wealden furnaces and forges.

The place names, Cinderhill and Cinderfield, which are close by, are more likely to be associated with medieval or pre-medieval ironworking, although a search has so far failed to locate a site.

The Group is grateful to Alistair Oswald, of RCHME, for his advice, and for sight of the RCHME report.

Bloomery slag in Wivelsfield, East Sussex

Pipe laying, watched by members of the South Eastern Archeological Services, has revealed a small concentration of tap slag, with associated Romano-British pottery, close to South Road, on the edge of Grassy Wood, south east of Wivelsfield Green

(TQ 357194). There have been finds of Romano-British and prehistoric pottery in the field on the other side of the road; however the confined nature of the scatter, the absence of charcoal staining, and the former existence of a trackway across the site throw doubt on this slag being evidence of a bloomery in this location.

References

1. Straker, E., *Wealden Iron* (1931), 218. Cleere, H. & Crossley, D., *The Iron Industry of the Weald* (1985), 343.
2. WIRG, *Wealden Iron*, 2nd series **13** (1993), 11-4.
3. ibid. p.8.

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Buttons, Wadhurst, East Sussex

Anne Dalton

In November 1991, Elizabeth Gibb, Roma Ogilvy-Watson, Liz Fairclough and Anne Dalton went to 'Buttons', where the owners, Mr & Mrs J. Bellingham had found what they thought was slag in their wood.

This piece of woodland lies just north of Buttons at TQ 640295 and is bordered on the east by the railway line. The land rises from the field, alongside the lane to Buttons, up to the railway cutting where there has obviously been a great deal of ground disturbance. In the wood we found a number of pits filled with water, one large, marked as Gregory's Pit on the OS 1:10,000 map, and the others smaller. These latter appeared to have small earth embankment/ paths connecting them.

We found pieces of tap slag, cinder, iron ore and roasted ore. We came to the conclusion that there had, at some time, been a bloomery or bloomeries in the wood, and ore pits, all possibly connected with the bloomery at Wenbans and/or the workings at Scrag Oak, both sites being just north of Buttons.

A Possible Bloomery Site in the Upper Rother Valley

John Mew

Since moving to Pottens Mill, near Broad Oak, Heathfield, seven years ago, I have become interested in the history of the area. Cattell has published two articles on bloomery furnace sites in the upper Rother valley, one of which was close to Pottens Mill.

Pottens Mill (TQ 614242) was formerly called Parsons Mill (1737). It was recorded as a messuage in 1540, and as 'Brailsham' in 1623. The mill itself was demolished at the beginning of the twentieth century, and stood beside a tributary running north to join the river Rother. The present house was rebuilt in 1737, probably on the site of a 15th century hall house, and I am very grateful to David and Barbara Martin for their interest and especially for this information.[1]

The possible bloomery site was first identified by C. S. Cattell in 1970,[2] as being at TQ 6130 2365, 500m to the south of Pottens Mill. The ground rises to the south of the site, to a height of 178m at Tottingworth Park. Earthworks at Tottingworth were considered by both Dawson[3] and Allcroft[4] to have been Iron Age, but recent work by Gardiner[5] would suggest that some parts are no later than medieval. A polished late neolithic flint axe (Norris, curator Sx. Arch. Soc.) was found at Pottens Mill in 1969.

Geology

The site lies close to a major east-west fault line between Ashdown Sand and Wadhurst Clay. The stream runs northwards across the fault line, and on each side of it the ground rises to abut Lower Tunbridge Wells Sand. Along this junction are several large excavations, which may have fed iron ore to Fuller's furnace, known to have existed at Heathfield (2 miles to the west).

Foray

Brian Herbert, John Mew and Michael Mew examined the site mentioned by Cattell but could find no indication of slag on either bank. However two pieces of bloomery slag, about a foot in diameter, were found in the stream about 50m to the south. While this slag could have been imported to the neighbourhood, and fallen in the stream, there are at present no paths, roads, or buildings within several hundred yards of the site, which makes it more likely that there was one or possibly more bloomery furnaces nearby. No other signs were identified, but the site might merit further investigation, to confirm or otherwise Cattell's findings.

References

1. ROHAS report no. 1121. D. Martin & B. Martin, 1991.
2. C. S. Cattell, 'Preliminary research findings relating to the bloomery period in the iron industry in the upper basin of the Eastern Rother,' *Bulletin of Historical Metallurgy Group*., **4**, 1(1970), 18-20; 'Bloomeries in the upper (East) Rother basin,' WIRG, *Wealden Iron*, 1st series **III** (1972), 13.
3. C. Dawson, 'Excursion into Heathfield and Brightling', *Proc. Geologists Assoc*., **17** (1902), 171-5.
4. A. H. Allcroft, *Earthworks of England* (1908), 45.
5. M. Gardiner, 'An earthwork at Tottingworth,' *Sussex Archaeological Collections*, (1994) forthcoming.

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The London–Lewes Roman Road Part 3

March 1993

B. K. Herbert

This note reports the third foray to re-explore the London-Lewes Roman Road, this time to the south of the Kent/Sussex border.[1]

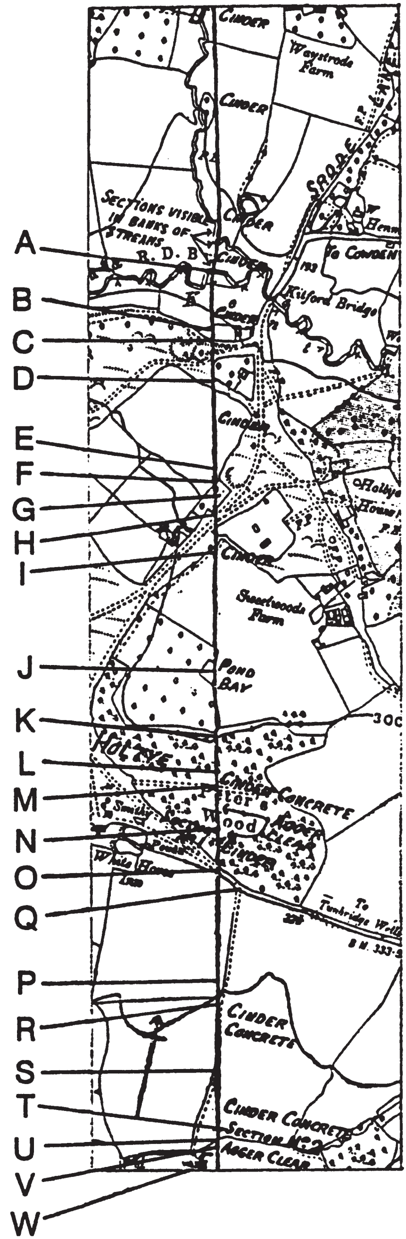
Points of interest along the route are noted in parentheses, and

indicated on maps reproduced from Margary's book *Roman Ways in the Weald*, whilst the associated list of map references is given at the end of the article.

The road is described from (A) southwards, (noting that (A) and (B) were investigated on the first foray),[1] although it was actually walked first north and then south from the Holtye road (O).

From the county boundary stream at (A) to the modern road (C) leading from Scarlets and Cowden blast furnaces, the Roman road passes through the garden of Kitford Mead. There is a great deal of disturbed slag here, especially near the cesspit outflow pipe which is on its course. The road is last seen across the corner of the kitchen garden (B) before it passes across the modern road (C) and up the steep, north-facing hillside, where quarrying has taken place and was not therefore investigated. The field boundary at (D) overlooks the garden of Framptons which is 2 ft lower than the field, indicating that a great deal of downwash has taken place. From (D) the road continues up the slope but there is no sign of it until the ground levels out (E) just before the fence (F). The metal-detector indicated a scatter of slag at (E), whilst it was visible by the fence (F). The slag persisted beyond the fence for some 20 feet; beyond this the ground has been disturbed by digging. A few yards to the south of (F) but not on the line of the road, gasworks cinder was discovered (G), close to an old cesspit outflow; a modern outflow is now at this point.

After crossing the modern road to Cowden (H) and a private drive and then passing into the field (I), there has been too much ground disturbance for the road to survive. Even in the field beyond (I), which now dips down to two spring-fed ponds (J), the route could not be found. On a narrow strip of ground between these ponds, some material was found by the metal detector, but it was not slag, and may have been a dump for 'basic slag' which is used as fertiliser. Continuing up the field, now being landscaped as a golf course, the road will have been obliterated. However, further uphill, a small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R. D. B
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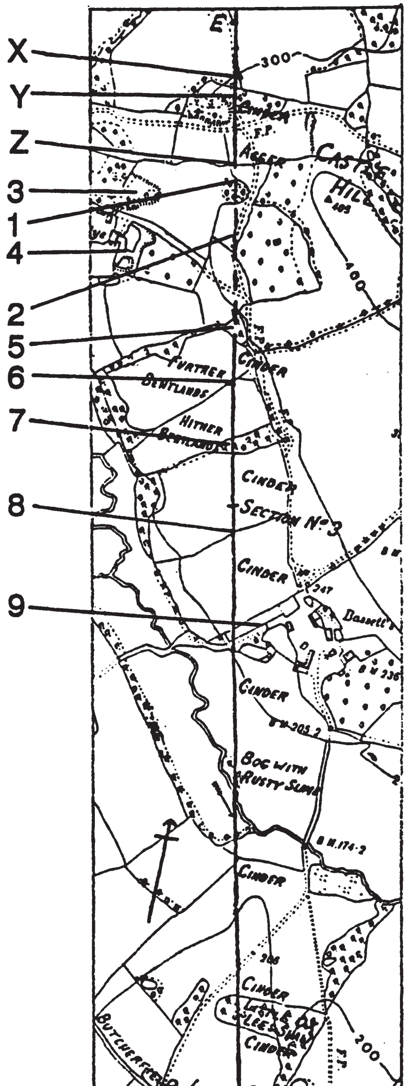
To COWDEN
Kilford Bridge
CINDER
CINDER
Holtye House
CINDER
Sweetwoods Farm
POND BAY
HOLTYE
CINDER CONCRETE
Wood
AGGER CLEAR
CINDER
White Horse Inn
To Tunbridge Wells
CINDER CONCRETE
CINDER CONCRETE
SECTION No 2
AGGER CLEAR

copse remains (K) to (M),where the road probably aligns with a short length of hollow-way (L) with banks some 5 feet high. On the top of the hill (N), Peter's Wood has been grubbed out to (O), the Holtye road, but the metal detector indicated that the Roman road was slag-surfaced through the wood.

Other WIRG members used the resistivity meter to try to locate the exact course of the road in Peter's Wood; unfortunately the results were inconclusive.

From (O) on the south side of the Holtye road, the route follows a downward course for nearly 500 yards to a stream (U). Beyond the Holtye road (O), a golf course covers the line, but the metal detector easily found the scattered slag to (P). It is interesting to note that a footpath starts at the Holtye road (Q) and converges with the road at (R), where they follow a high bank to the west. The footpath veers away to the right at (S), keeping the bank on the west side. It is suggested that the footpath is an old trackway which was following the course of the road. Slag was probed where the road joins the footpath at (R), and it was noted that it was probably a hollow-way north of (R) towards (P), but has been filled in for the golf course. At (T), Ivan Margary excavated a short length of exceptionally well preserved road in about 1930,[2] whilst in 1938, when the land came up for sale, a 100-yard section was excavated,[3] and this was opened to the public. It is now looked after by the Sussex Archaeological Society.

The road is very disturbed on the 3-feet-high north bank of the stream (U), where Margary's excavation finished and where land drains were placed. Just beyond the south bank (V), a considerable scatter of slag can be seen on a slightly raised causeway crossing the valley bottom, although there is negligible slag in the stream. Margary suggested that there would have been a bridge here; however this small river crossing should be compared with those at two larger streams on and near the county boundary (1), both of which had a solid slag base, and are assumed to be fords. A new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HITHER
SECTION No 3
Dassell's
BOG WITH
RUSTY SLIME
200
BUTCHERFIELD LANE
Butcher's
Cross
CONCRETE
F

interpretation of the situation at the stream (U) is that the large amount of slag (V) is the remains of a wide ford, and that the stream has cut a channel through the slag layer.

The route is now uphill from the river (U) to the brow of the hill (Y), whilst a hollow-way (a continuation of the trackway already mentioned) is seen climbing the hill in a narrow strip of trees (W) to (X), and slowly diverging from the road which is in the field to the west of the hollow-way.

At the brow of the hill (Y), there is a 100-yard-long east/west pit some 25 feet deep, and 30 yards across, cutting across the route. Although there is a raised bank across the pit some 20 yards east of the road, this is approximately in line with the track/hollow-way. According to the geological map, this pit follows an east/west faulted junction of the Ashdown Sand and Wadhurst Clay, and so it is assumed that iron ore was quarried here some time after the road fell into disuse. A gently sloping hollow leads north out of the pit, to the east of the track, a possible way out for the iron ore.

From the pit (Y) onward, the road is not discernible in any detail; scattered slag was detected in the field at (Z), and slag was seen on the north edge of a small pit (1), across which the route now passes; it then goes close, if not under, the pylon (2).

There has been a great deal of excavating to the west of the road, where the faulted junction of Ashdown Sand and Wadhurst Clay, noted above, turns south. There are references to this area in the Buckhurst Terrier of 1597-8,[4] where it is likely that Lower Brockshill Farm was called Broxils Farm and Pucksty Farm was called Claies Croft. To the east of Lower Brockshill Farm is a very large pit dug into the hillside called Claies Pit (3) and in the garden of Pucksty Farm there are several small pits (4).

At the start of Bassett's Manor fields (5), all field boundaries in the valleys (6), (7) and (8), up to the farm buildings (9), have been removed, whilst the small amount of slag probed near valley (8) was probably a wooded area when Margary cut a section through the road.

References

1. WIRG, *Wealden Iron*, 2nd series **12** (1992), 2-8; op.cit., 2nd series **13** (1993), 14-20.
2. Margary, I. D., 'A new Roman road to the coast', *Sussex Archaeological Collections*, **73** (1932), 33-82.
3. Margary, I. D., 'Excavation of the London-Lewes Roman Road at Holtye,' *Sussex Archaeological Collections*, **81** (1940), 42-53.
4. Straker, E. (ed.), *The Buckhurst Terrier 1597-1598*, Sussex Record Society 39 (1933).

Map References

The 1:25000 map, 1957 ed., shows the Roman road to be 10 metres too far west.

A TQ 4596 4013 Kent/Sussex boundary, river
B TQ 4598 4005 Kitford Mead kitchen garden
C TQ 4598 4003 Road to blast furnaces

The 1:25000 map (1965 edition) shows the road to be 20m too far west.

D TQ 4599 3996 North end field boundary
E TQ 4602 3981 Prior to fence below
F TQ 4603 3978 Fence at east side of field
G TQ 4601 3974 Gasworks cinder
H TQ 4602 3975 Cowden road
I TQ 4604 3970 North end of field
J TQ 4609 3951 Between two ponds
K TQ 4612 3941 North side of remaining copse
L TQ 4613 3934 South side of remaining copse

M	TQ 4612 3936	Hollow-way
N	TQ 4614 3928	Peter's Wood
O	TQ 4616 3920	Holtye road
P	TQ 4622 3900	R. road in hollow-way (now filled)
Q	TQ 4621 3917	Start of footpath
R	TQ 4622 3898	Converging of Roman road and footpath
S	TQ 4624 3890	Footpath veers west
T	TQ 4625 3882	Margary's road excavation
U	TQ 4626 3878	Stream
V	TQ 4627 3876	Slag for ford
W	TQ 4626 3872	Start of hollow-way up hill
X	TQ 4631 3860	End of hollow-way at hill top
Y	TQ 4630 3860	The road at east/west pit
Z	TQ 4634 3846	Field prior to small pit
1	TQ 4635 3842	Small pit
2	TQ 4636 3839	Pylon
3	TQ 4618 3840	Claies Pit east of Lower Brockshill Farm
4	TQ 4620 3830	Pits near Pucksty Farm
5	TQ 4641 3823	Start of Bassett's Manor fields
6	TQ 4643 3814	First valley
7	TQ 4645 3804	Second valley
8	TQ 4648 3791	Third valley with slag
9	TQ 4656 3779	Bassett's Manor farm buildings

The Possible Use of Coke for Smelting Iron in the Weald

Jeremy S. Hodgkinson

In a recent article, Philip Riden has discussed a list of coke iron furnaces which apparently ceased working before 1788.[1] The list is part of a document in which are named forges and their output in 1749, charcoal furnaces closed between 1750 and 1787 (to which the list of defunct coke furnaces is appended), and the output, by county, of coke furnaces at work in 1791.[2] At the end of the list of thirteen defunct coke furnaces is a site, or sites, which the author was unable to locate: Fordley North Park. The site is not mentioned in the similar lists of ironworks in the Weale Manuscripts.[3]

A clue to the possible identity of this site or sites is to be found in the list, in the same document, of charcoal furnaces in south-east England (all listed under Sussex), which fails to include North Park Furnace, near Fernhurst. This site is known to have operated until 1777, successively by John Butler, Joseph Wright & Thomas Prickett, and James Goodyer.[4] Butler is mentioned on the list, but as having worked 'Burhamfold' which can be identified as Burningfold Furnace, near Dunsfold, Surrey. The absence of North Park from the list of charcoal furnaces may therefore be explained by its inclusion in the subsequent list of coke furnaces.

The 'Fordley' element in the name is not directly associated with the North Park site. It can, however, be identified on maps of the eighteenth century as the contemporary name for Verdley, which lies in Fernhurst parish about 3 km ESE of North Park, and which is the site of an iron furnace for which there has been no documented history hitherto.[5] The absence of physical remains of the use of coke at North Park, which has recently undergone limited excavation and

survey work, suggests, however, that coke smelting may have been confined to the site at Verdley.[6]

The use of coke for smelting iron has previously not been associated with the iron industry in the Weald because of the distance which supplies of mineral coal or coke would have had to have been transported from the coalfields in the Midlands or north of England, and because of the evident abundance of coppice wood for charcoal in the Weald, for which there is no evidence of a shortage in the second half of the eighteenth century. The Kent coalfield was not exploited until the early-twentieth century. It is worth noting that Goodyer's lease of North Park Furnace, while it obliged him to purchase iron ore from Lord Cowdray's estate, contained no obligation to purchase charcoal, although its availability at current prices was made clear.

Quite why an ironmaster in the Weald should wish to experiment with coke smelting is difficult to understand, given the geographical constraints. It is known that bar iron from the forges at Pophole and Thursley was transported by wagon to the River Wey at Godalming, and thence by barge, probably to London.[7] It is less certain whether carriers of ordnance from North Park used the same route, as to do so the steep escarpment of the Greensand ridge south of Haslemere would have had to have been ascended. The alternative was to carry them to the River Rother or River Arun for transportation to Littlehampton and thence by coastal vessel. Coke, or coal, for it is not known whether there were any means of coking available, could have been brought to the works at North Park and Verdley by either route, but at considerable cost. The successful financing of such an operation is therefore hard to contemplate, and may explain the bankruptcy of James Goodyer ten months after North Park and Pophole were put up for sale in January 1777. Goodyer had been in business in the iron trade for at least twenty years, although there is, at present, no evidence to connect his occupation of North Park with any use of coke.[8] Nor is there any evidence, it must be said, which

links him with the furnace at Verdley. It may be of some significance, however, that one of the assignees of Goodyer's bankruptcy was Richard Crawshay, a London iron merchant and later ironmaster at the Cyfarthfa coke ironworks in South Wales.[9]

Samples of slag from North Park and Verdley have been analysed by Chris Salter, at the Research Laboratory for Archaeology and the History of Art, at Oxford University.[10] Samples of slag from Lurgashall Furnace were included, as a control, as no use of coke has been suggested for that site, and its sources of ore are considered to have been similar to the other two. In all the samples tested, three from North Park, five from Verdley, and five from Lurgashall, the SO_3 level was at 0.1% or less, whereas in slags from coke furnaces at a number of locations elsewhere in Britain (Dale Abbey, Parker's, Tipton and Ebbw Vale), the sulphur level was in excess of 1%; only Ebbw Vale was the exception at 0.7%, but even that percentage was significantly above the Wealden examples, which corresponded closely with slag samples from charcoal furnaces in the Midlands and Furness. So no slag evidence could be adduced for the use of coke in the samples tested from either North Park or Verdley.

In the absence of any corroborative evidence, the use of coke to smelt iron in the Weald must be regarded with considerable scepticism.

Notes & References

1. P. Riden, 'Some unsuccessful blast furnaces of the early coke era,' *Historical Metallurgy*, **26** (1992), 36-44.
2. Birmingham Reference Library, Boulton & Watt Collection MII/5/10.
3. Science Museum Library Ms.371/1.
4. H. Cleere & D. Crossley, *The Iron Industry of the Weald* (Leicester 1985), 331. Magilton, J., *The Archaeology of Chichester & District* 1989 (Chichester 1990), 33-5.
5. Cleere & Crossley op. cit., 362-3. 1 am grateful to Carla Barnes for confirming the earlier name.
6. J. Magilton, pers. comm.
7. Both Pophole and Thursley forges are marked on Rocque's map of Surrey

(1762), and were noted as working in 1767 during the campaign for the repositioning of the tollgate on the Guildford-Liphook Turnpike, when the iron used was brought by water to Godalming and from thence by road. Guildford Muniment Room LM1064.

8. Goodyer occupied Abinger Hammer from at least 1756. Surrey Record Office PI/6/1.
9. Guildford Muniment Room 1503/4/2.
10. I am most grateful to Chris Salter for carrying out these analyses.

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The Mayfield Cannon – A Reappraisal

C. J. N. Trollope[1]

As part of the Queen's Silver Jubilee celebrations in 1977, a cannon which had formerly been dug from the slag heap of Mayfield Furnace, and had subsequently become the property of the Convent which occupied the old Archbishops' palace in the village, was mounted on a plinth in the High Street. A plaque fixed to it suggests that it was made in the mid-17th century.[2]

Considerable research into old English iron guns has taken place since the plaque was affixed; this suggested 1660 as the date of casting and Baker as the founder. May I propose that the date is 80 to 90 years too late for the following reasons. The Mayfield Falcon has an unfinished bore of 2½ inches. Finished it would have been 2¾ inches and fired a shot of 2½ inches. From the 1540s, up till 1587, the ratio between shot and circumference at vent was x 10. The circumference at the vent of the Falcon is 25⅝ inches; well within tolerance.

Double reinforce guns were introduced in approximately 1569 with a first reinforce length of 25% of the full gun length (base ring to muzzle) and the trunnions placed at around ⅖ of that length. The gun, therefore, dates from after 1569 and before 1587 when, from the

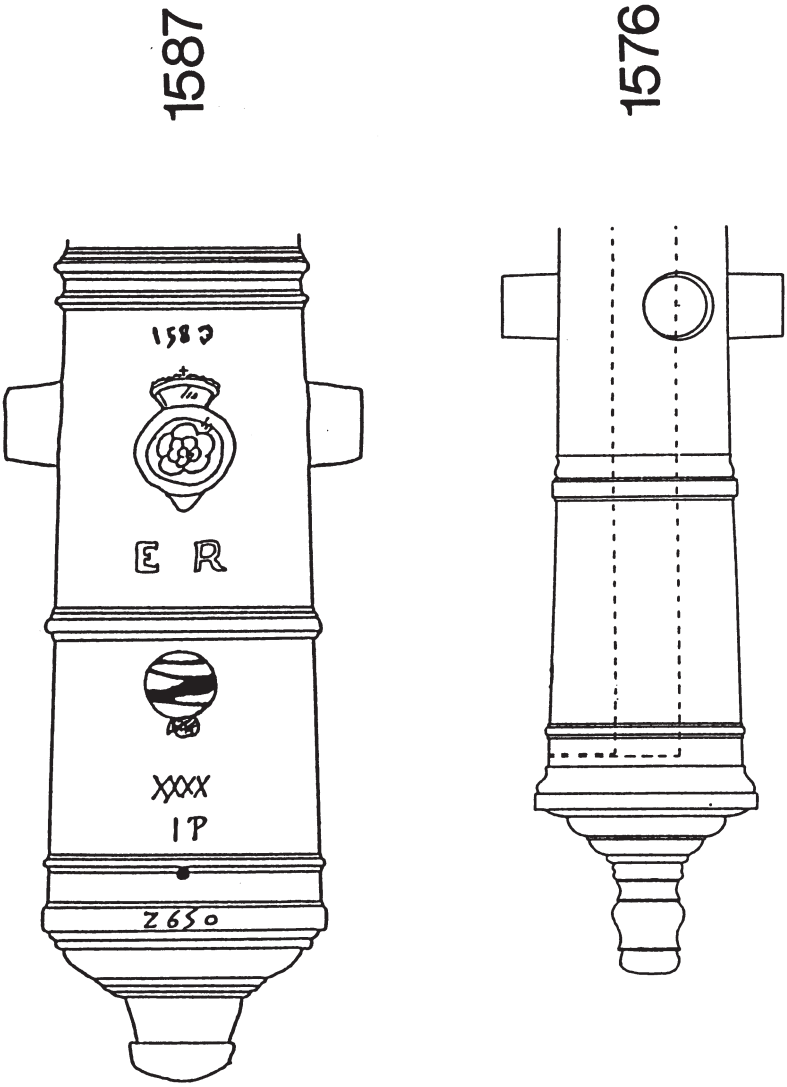
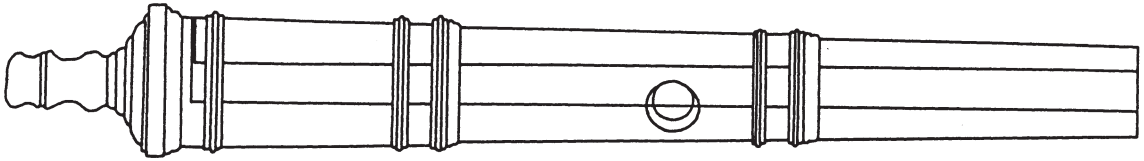


Figure 1

Mayfield falcon



Tøjhusmuseet, Denmark (A91)

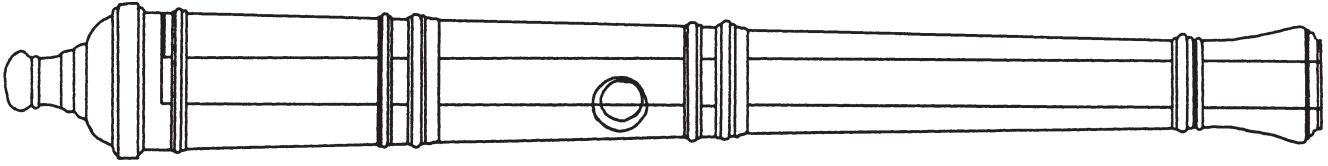


fig. 2

measurement of English brass and iron guns of this period, I have observed that the trunnion position was relocated at 3/7 of the length. The combined long neck and button, a feature of early Sussex guns like this one, was curtailed around the year 1580 (Fig.1). The date bracket is now 1569-1580. There are marked similarities in the layout and type of decoration between this Falcon and the Saker A91 in Denmark (Fig.2); this was almost certainly part of a consignment sent there in 1579 by Sir Thomas Gresham, the proprietor of Mayfield Furnace at that time.[3] Note that the neck has started to be reduced in length. By matching the decoration and design features, the gun length can be deduced at 7ft.6ins.

May I stick my neck out and say that it is my opinion that the Mayfield Falcon was intended to be 7ft.6ins. long and was cast by Sir Thomas Gresham in the mid-1570s. Others may well wish to disagree.[4]

Notes & References

1. This article has been adapted, with permission, from two letters from Charles Trollope (J.S.H.).
2. P. McCarthy, "The Mayfield Cannon," WIRG, *Wealden Iron*, 1st series **XIII** (1978), 22-3.
3. Public Record Office, State Papers SP 12/95/62; H. Cleere & D. Crossley, *The Iron Industry of the Weald* (1985), 157; E.Teesdale, *Gunfounding in the Weald in the Sixteenth Century* (1991), 129.
4. e.g. R. Smith, "Early cast-iron ordnance with particular reference to guns on the Isle of Man," *Journal of the Ordnance Society*, **3** (1991), 37-8.

Contemporary Illustrations of Wealden Furnaces

Jeremy S. Hodgkinson

Contemporary pictures of Wealden furnaces are rare. There is nothing from the region to compare with the paintings of Bles or Breughel, or the *Encyclopédie* of Diderot, nor have the excavated remains been sufficient to allow us to easily reconstruct the outward appearance of Wealden works. Straker offered what he believed to be four contemporary representations; the Lenard fireback, the Ashburnham clockface, Swedenborg's drawing, and a sketch by Edward Browne.[1] The Ashburnham clockface has subsequently been discredited, with the figures recognised as dating from the early-twentieth century, engraved on a face of a century earlier or more.[2] The sketch by Browne, as Straker noted, is of the interior of a furnace.

The Lenard Fireback 1636

The furnace depicted in the bottom left corner of the fireback showing Richard Lenard, the founder at Brede Furnace, in 1636 (Fig. 1), is a truncated pyramid approximately as tall as it is wide at the base, although the design of the fireback has

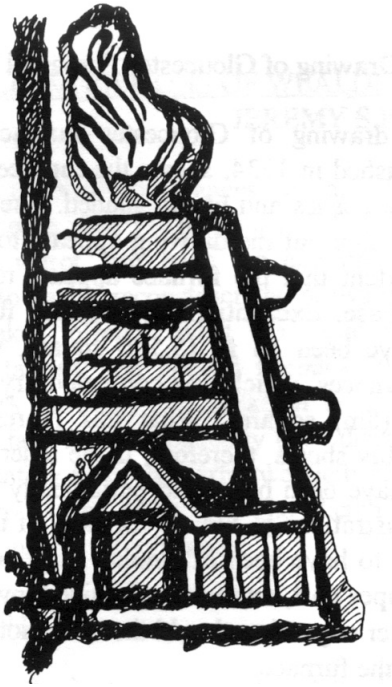


Figure 1

caused part of the furnace to be hidden behind the frame surrounding it. On a good casting the detail includes the stonework of the stack, a casting house with a gabled entrance, and the wooden framework which supported the furnace structure and was intended to restrict the expansion caused by the heat of the charge. Evidence of such a framework has been noted during the excavation of the blast furnaces at Chingley and Batsford.[3] On the fireback the frame appears to have been constructed using a method of joinery called an 'anchor beam.' Rare in external joinery, it is found in some furniture and in the construction of wooden machinery such as cider presses. It was noted in the construction of the watermill at La forge des Iles, near Neufchâtel-en-Bray, in France.[4]

Swedenborg's Drawing of Gloucester Furnace 1734[5]

Swedenborg's drawing of Gloucester Furnace, Lamberhurst (Fig.2) originally published in 1734, shows the furnace stack, with the relative positions of the boshes and hearth shaded. The furnace was said to be 28 feet (8.5m) high but the drawing appears to exaggerate the vertical scale to the extent that the furnace appears to be only 9 ft. (2.74m) square at the base. Excavations at Wealden furnaces have shown the smallest to have been 18 ft. (5.5m) square,[6] while the earlier of the Pippingford furnaces, which was contemporary with Lamberhurst, was all of 26 ft.

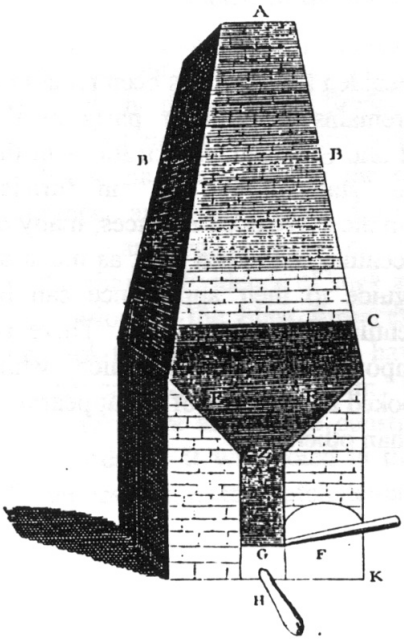


Figure 2

(8m) square.[6] What this representation of Gloucester Furnace probably shows, therefore, is the inner chamber of the furnace which would have been built, and periodically rebuilt, within the outer stone shell. Illustrations of French furnaces of this period show such an inner structure to have been of similar shape and proportions (Fig.3).[7] The sloping upper part, and vertically-sided lower part, of the structure in the Gloucester engraving should therefore not be taken as the outward appearance of the furnace.

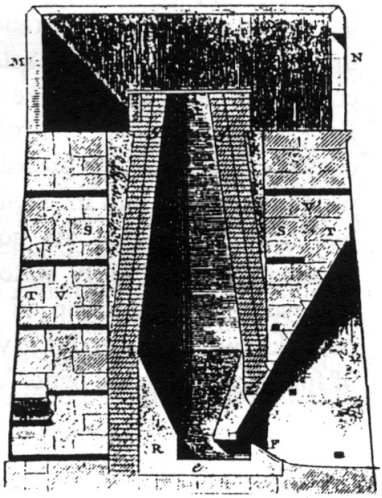


Figure 3

In the supposed absence of contemporary representations, the interpretation of the appearance of Wealden furnaces has been reliant on the evidence of more substantial remains from other parts of the country, notably in the Lake District and Scotland.[8] Illustrations in the French *Encyclopédie* represent the 'state of the art' in furnace construction, a far cry, probably, from most Wealden furnaces, many of which, surviving into the eighteenth century, had been built as much as two centuries earlier. As good a guide to their appearance can be gleaned from the early sixteenth century Flemish painters. There is, however, a small group of contemporary illustrations which, while being known, has been largely overlooked as evidence of the appearance of furnaces. Some are better known than others.

North Park Furnace 1660 [WSRO Cowdray 1640][9]

This is the earliest of the contemporary illustrations and shows the

furnace situated at right angles to the pond bay, with a dotted line apparently showing the course of an access track from the furnace to the top of the bay (Fig.4). The position of the wheel race is not shown but can be inferred from that of a sluice or spillway on the pond side of the bay. The view of the furnace stack appears to be a side elevation with the roofs of what are presumed to be the casting and blowing houses shown diagrammatically.

Figure 4

Mayfield Furnace (undated; c. 1665) [ESRO AMS 5831/3]

This illustration is the least distinct of all the examples described (Fig.5). Details of line are barely discernible; only the outline and areas of colour can be identified. It is not unlike the representation of North Park in that a sloping roof projects on both sides, and in front of the stack, with walls down to base level. Orange colouring on the roof suggests the use of tile. The furnace is shown approximately level with the middle of the bay, with water courses issuing from beneath the furnace and at the north end of the bay.

Figure 5

Ashburnham Furnace 1717 [ESRO ASH 4385]

This illustration bears considerable similarities to the representation of both North Park and Mayfield furnaces in the shape of the roof. However, the quality of the draughtsmanship is clearer, if lacking in perspective, and other buildings illustrated on the same map, which clearly have hipped roofs, suggest that the building, presumably either the casting or blowing shed, standing in front of the furnace also had a hipped roof and was therefore more akin to a barn in construction (Fig.6). This may have implications for the interpretation of the roofs attached to North Park and Mayfield. The picture here is larger but, as with the other two furnaces, it is two-

dimensional and is unconvincing as a realistic image. The shaded parts, coloured green on the original may be intended to show similar building materials, such as brick and tile. An interesting feature of this representation is what appears to be close boarding at the top of the furnace. This may be intended to show the side of a charging house, or at least a fence around the mouth of the furnace as a safety measure for labourers loading the charge. The illustration of the French furnace (Fig.3) has a similar construction.

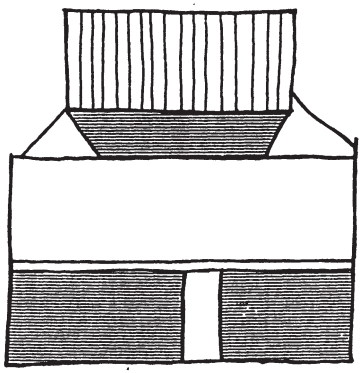


Figure 6

Beech Furnace 1724 [ESRO BAT 4421 map 11]

Here, we have a completely different type of illustration (Fig.7). Firstly the drawing shows perspective and an element of realism, with smoke issuing from the top of the stack; secondly it is an oblique view, with the tops of the buildings visible, although there is no detail of the mouth of the furnace. There is no lean-to canopy over the casting area; instead two gabled buildings covering the bellows and casting area respectively. Also the furnace stack is supported at its four corners by posts, similar to those shown on the Lenard fireback.

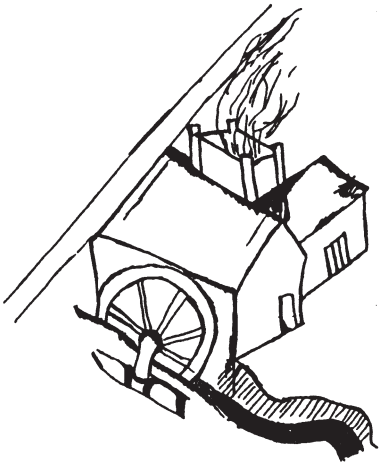


Figure 7

On a furnace of the first quarter of the eighteenth century, this is an interesting survival, and suggests that the stack at Beech Furnace was probably the original one, dating back to the latter half of the sixteenth century. Also of interest is the representation of the water-wheel.

Beckley Furnace 1746 [ESRO D165/1526]

The picture of this furnace is unique among the five described here in that there is no obvious representation of the furnace stack (Fig.8). From the position of the stream the large gabled building in the centre of the group would seem to occupy the most likely position. This view is supported by the curious slanting line drawn on its roof which may be the draughtsman's attempt to indicate the presence within of the pyramidal appearance of the furnace. The double doors into the building, wide enough, perhaps, to admit a waggon, and the unusually tall chimney, are further evidence that the whole furnace may be enclosed. At Bonawe Furnace, in Scotland, the gases emitted from the top of the furnace were directed through a chimney above the bridge house. Other chimneys on buildings in this picture may relate to smithing activities associated with the manufacture of gun moulds, and to residential buildings.[10]

Figure 8

A number of common features appear in the illustrations described above. Firstly, with the exception of the picture of the Gloucester Furnace which, it is suggested, was intended to illustrate the inner part of the stack, all the furnaces show adjoining buildings, either lean-to or gabled, covering the bellows and the casting arch; the former to protect the bellows, which were the subject of frequent maintenance in any case, from the further depredations of the weather, and the latter for similar protection but also to provide a dark environment for the easier monitoring of the fire and the contents of the hearth. What is also noticeable is the absence of a bridge on any of the furnaces, providing access to the top of the furnace for the purposes of loading the charge. The accounts for the Sidney ironworks in the 16th century mention such a structure but, with the possible exception of Beckley, where the furnace appears to have been completely enclosed in a gabled building, there is no evidence elsewhere.[11]

An area of doubt lies in the extent to which the people draughting the maps, of which these illustrations form a small part, had first-hand knowledge of the appearance of the furnaces. In the cases of Beech and Beckley, where perspective is used, it is hard to believe that these pictures were not based on personal acquaintance with the ironworks. The other pictures seem altogether more stylised, although their common features, notably the lean-to, or hipped, structure attached to the furnace stack, hint at some knowledge of the appearance of furnaces in general if not specifically.

Notes & References

1. E. Straker, *Wealden Iron* (1931), 75-80.
2. J. H. Combridge, "BEECHING/Ashburnham: A Georgian Dial with Edwardian scenic engravings," *Antiquarian Horology*, **X**, 4 (1977).
3. D. W. Crossley, *The Bewl Valley Ironworks* (1975), 29-30.
   O.R.Bedwin, 'The excavation of a late 16th-century blast furnace at Batsford, Herstmonceux, East Sussex, 1978,' *Post-Medieval Archaeology*, **XIV** (1980), 99.
4. WIRG, *Wealden Iron*, 2nd series **10** (1990), 32.
5. E. Swedenbourg, *De Ferro*. The engraving, together with a description were republished in de Courtivron & Bouchu (eds.), *Descriptions des Arts et Métiers, faites on approuvées par Messieurs de l'Académie Royale des Sciences* (Paris 1761-82). In this version, which is Volume 3, *Art des Forges et Fourneaux a Fer* (1762), pl.V, Swedenbourg's treatise is translated from the Latin by Bouchu.
6. H. Cleere & D. Crossley, *The Iron Industry of the Weald* (1985), 244.
7. Diderot & d'Alembert (eds.), *L'Encyclopédie, ou Dictionnaire Raisonné des Sciences, des Arts et des Métiers* (1763)
8. For examples see the illustrations in P. Riden, *A Gazetteer of Charcoal-fired Blast Furnaces in Great Britain in use since 1660* (second ed. 1993).
9. Otherwise known as Fernhurst Furnace, though actually in Linchmere parish.
10. In 1746 Beckley, or Conster, Furnace was a gunfoundry in the occupation of the Legas-Harrison partnership.
11. D. W. Crossley, *Sidney Ironworks Accounts 1541-1573*, Camden Fourth Series 15 (1975), 71n & 97.

Further Additions to the Catalogue of Early Wealden Iron Graveslabs[1]

J. S. Hodgkinson

Laughton, Sussex TQ 5012

1. 1689 LB (**Lucy Benge**), mural, under tower
   45.6cm x 87cm x 2.5cm

   L•B / 1689 / L•B

   Individual 8.5cm Roman upper case letters; plain borderless slab. Lettering is 18.5em from top and 34.5cm from bottom.

2. 1691 **Ann Benge**, mural, under tower
   42cm x 101cm x 1cm

   ANN / BENG / 1691

   7.5cm Roman upper case letters on a block, A with top bar, and middle horizontal of E sloping upwards. Plain borderless slab with inscription 49.5cm from top and 27.5cm from bottom.

   Lucy and Ann were the daughters of William and Dinah Benge of Wadhurst. Their mother, born Chauntler, from Laughton, was sister-in-law to John Barham of Shoesmiths, Wadhurst; their father cast shot for the government from 1686, and ten years later built Lamberhurst Furnace.[2]

References

1. R. M. Willatts, 'Pre-Industrial Revolution cast iron graveslabs,' WIRG, *Wealden Iron,* 2nd series **8** (1988), 12-47; 'Addition to the catalogue of early iron graveslabs in the Weald,' op. cit. 2nd series **9** (1989), 9. I am grateful to Michael Leppard for drawing my attention to these slabs, and filling in some genealogical gaps.
2. R. G. Fitzgerald-Uniacke, 'The Barhams of Shoesmiths in Wadhurst,' *Sussex Archaeological Collections*, **56** (1914), 155.

Mill Place and Gravetye Furnaces

A note on their operation or otherwise in the early 17th century

J. S. Hodgkinson

Depositions in a case laid before the Court of Chancery, in the matter of Katherine Infield v. Henry Faulconer, over his alleged improper occupation of the Gravetye estate, in West Hoathly, show that Mill Place Furnace was active between 1624 and 1638, and probably in the immediately preceding period.[1] The depositions of a number of persons who had known, or who had had business dealings with Mrs Infield or Mr Faulconer, were taken at East Grinstead in January and October 1638.

Richard Infield (sen.), husband of Katherine, built Gravetye in 1597 and died in 1619, and his memorial, on an iron plate, is attached to the wall of West Hoathly church.[2] His estate passed to his son, Richard (jun.), who died without issue in 1624/5. His similar memorial is fixed next to that of his father. Henry Faulconer was husband to Agnes, eldest sister of Richard (jun.), and had been appointed an executor of the will of his brother-in-law. An iron plate with a brass memorial to Agnes Faulconer, who died in 1635, also stands in West Hoathly church. By that will the estate passed to Richard's brother James, and to Infield Faulconer, son of Henry and Agnes. Henry took charge of the estate during the minority of James, and ran it as his own, continuing to do so after both had died. Old Mrs Infield's complaint was that Henry Faulconer, her son-in-law, improperly profited from his trusteeship of the estate.

Four witnesses made relevant depositions; in each case, the questions are not known. The first, William Newton, of Lindfield,

one of Faulconer's fellow executors, confirmed that Faulconer enjoyed the lease of a furnace, although did not state which one. The curate at West Hoathly, John Hull, recalled timber being cut on James Infield's land, which may have been used by Faulconer, as he had built, and continued to use, a furnace and ironworks. Richard Infield, of Ardingly, presumably of a collateral branch of the family, said that he knew of no stock, mine, wood or coals other than that at Mill Place Furnace. Finally, Susan Holmewood, acknowledged Faulconer's payment of rent for a watercourse at Mill Place, the watercourse having been leased to Richard Infield.

The above depositions suggest that Mill Place Furnace was built and worked by Henry Faulconer subsequent to the death of Richard Infield jun. in 1624/5, although the rent paid for the watercourse at Mill Place by Richard Infield, and the existence of the iron memorials for both Richard jun. and sen. point to the possible occupation of the furnace by the Infield family since before 1619. Reference to charcoal supplied to Mill Place Furnace in 1612 confirms that it was working then.[3] According to the 1574 lists of ironworks Mill Place was then in the occupation of Robert Reynolds, of East Grinstead, so it seems likely that Faulconer's building of the furnace would have been a re-building.

In none of the depositions is there any statement suggesting that any other furnace existed on or adjacent to the Gravetye estate, which calls into question the existence of Gravetye Furnace, whether working or otherwise, at this period, as one would expect some comment distinguishing between neighbouring furnaces were both in existence. The furnace at "Hodly" in the 1574 lists, owned by Mr Michael and occupied by John Blacket, is probably that at Chittingly Manor, associated in earlier records with a Mr Mitchell.[4] The implications are that the iron graveslabs in West Hoathly church were all cast at Mill Place, and that Gravetye Furnace was a creation of the mid-eighteenth century, and as such, the only one in the Weald.[5]

References
1. Public Record Office C2 Chas I/IJ24/58. I am grateful to Mrs Kay Coutin for drawing my attention to this case, from amongst the correspondence and notes of the late R. H. Shelford.
2. R. M. Willatts, 'Pre-Industrial Revolution cast iron graveslabs,' WIRG, *Wealden Iron*, 2nd series **8** (1988), 45-6.
3. West Sussex Record Office, Archdeaconry Court of Lewes Deposition Books Ep II/5/9 f.48-50.
4. E. Teesdale, 'The 1574 lists of ironworks in the Weald: a re-examination,' WIRG, *Wealden Iron*, 2nd series **6** (1986), 30-1; H. Cleere & D. Crossley, *The Iron Industry of the Weald* (1985), 323.
5. ibid. p.333.

Wealden Ironmasters and the Board of Ordnance after 1770

Ruth R. Brown

The date 1770 is often taken as a watershed in the history of the iron industry in the Weald. Certainly after this date other areas are increasingly important as a source of iron guns for the Board of Ordnance, which bought stores for the British forces. However there are still a number of references in the Board papers which throw light on the last years of the Sussex iron industry. As in my previous paper I have selected entries which show specific founders or ironworks and which by no means exhaust the references to Wealden iron in the public records.[1]

Part 1 The Indian Summer

In the years following the Seven Years Wars the Carron Company of Falkirk had offered to cast iron guns at very low prices which most founders from the Weald refused to match. However in the early 1770s the Carron guns, not only those supplied to the government but also those for other customers such as the English and the Danish East India companies, began to burst at proof and in service. The Board decided to try guns cast by Sussex founders against those cast by the Carron Company. In the meantime a number of Wealden founders had either died or left business, including the Churchill family, the Harrison brothers and William Bowen. Their works were taken over by new founders such as Wright and Prickett from the Falcon Foundry, Southwark, or James Bourne, a cousin of the Churchills.[2]

WO 47/78, 167v 8 November 1771
Read a Letter from Messrs Wright and Prickett dated 1st instant tendering their service to cast Iron Mortars from the present Ore on as reasonable terms as any other Gunfounders.

WO 47/78, 188v 29 November 1771
A Letter from Mess: Wright & Prickett of the 8th instant proposing to cast Iron Mortars at 18/- pr cwt.

WO 47/80, 190v 18 November 1772
Ordered that Mr Hartwell pick out one 18 pounder Gun cast by each of the following Gunfounders which have passed proof vizt. Fuller, Bowen, Crowley and Raby, and cause them to be mounted upon old Ships Carriages and delivered into the Charge of the Commanding Officer whose is desired to try them all in the same manner as he did that which was cast by the Carron Company and report to the Board.

[The Board decided that not only they would no longer buy guns from the Carron Company, but the Carron guns were so untrustworthy

they would have to be removed from all ships. Thus the Board had to replace these guns quickly. Former and new suppliers were tried.]

WO 47/81, 99 22 January 1773

Mess. Wright & Prickett having represented in their Letter of this date that they have taken the 2 Iron Founderies in Sussex formerly occupied by Mess. Masters and Raby & Mess. Harrison and Bagshaw, but that it will not answer to put them in Blast merely for the 2 Iron Mortars last ordered, and therefore they requested Warrants for Casting some Guns likewise.

[The Board agreed to see what new guns would be needed.]

WO 47/82, 69 6 July 1773

Mess: Wright and Prickett having proposed to cast Iron Ordnance of all Natures at £16 pr. Ton.

[Agreed.]

WO 47/82, 82v 13 July 1773

Mr Josiah Millington having in his Letter of the 9th instant to the Surveyer General offered 160 tons of Iron Guns to be delivered by Mrs Theodosia Crowley and Company in 12 Months on such terms as may be agreed on with the rest of the English Founders.

Ordered a Letter to acquaint Mrs Crowley that the Board accept the Tender and have accordingly ordered a Contract for 160 Tons to be delivered within 12 months at £16 Per Ton being the same price that Mess. Wright and Pricket have agreed for.

Mess James Boume & Co having in their letter of this date rendered their Service to cast 160 Tons of Iron Ordnance at the Prizes formerly allowed to Mess. Churchill – vizt £20 per Ton from 32 pounders to 12 pounders inclusive & £18 per Ton for 9 Pounders to 3 Pounders.

Ordered to be acquainted that if they will take £16 for all Natures of Iron Guns (Being the price offered by other English Founders) the Board will agree with them for casting 160 Tons to be delivered by Lady Day next, and

for a further quantity if the Guns are approved of.

[Wright and Prickett leased Gloucester Furnace. One of the 13" mortars which they cast for Gibraltar has survived and can be seen at the Garrison Church, Portsmouth.[3] Mrs Crowley's son-in-law, the Earl of Ashburnham owned the Ashburnham works which her company, managed by the Millington family, ran. James Bourne had taken over Robertsbridge Furnace.]

W047/82, 118v 13 August 1773

Ordered that the Guns proved this day from the Founderies of Messr Wright and Co & the Guns from the Founderies of Mess: Eade and Wilton be not received into Store untill one Gun of each Nature from each Founder be tryed by the Officers of Artillery at Woolwich and that the Commanding Officer of Artillery be desired to make a Tryal of one of each Nature of each of the abovementioned Founders in the same manner as the Guns of the Carron Company were tried at Woolwich.

WO 47/82, 168v 8 November 1773

Messrs. James, Brown & Co. having signified in their Letter of the 12 Ulto. that they are willing to undertake, the casting of 300 Tons of Iron Guns to be delivered at Woolwich by Lady Day 1775, at £16 p Ton.

The Board agreed thereto and Ordered a Contract and that an account of the Numbers and Natures of Guns be sent them as soon as possible.

Mr Millington having signified in his Letter of the 1st instant that Mrs Theodosia Crowley & Co. agree to cast Iron Ordnance from 3 pounders to 32 pounders at £16 p ton, but hoped that if a better Price be given, that Mrs. Crowley & Co be allowed the same.

The Board agreed thereto and ordered accordingly a Contract, and to be acquainted that if the Price would be raised to others, it will be raised to them likewise.

WO 47/82, 210v 8 December 1773
[Orders for Wright and Prickett – 32, 24, 18, 9 pounder guns; Bourne and Co. – 32, 18, 9, 6, 3 p; and Mrs Crowley – 24, 18, and 9 p.]

WO 47/83, 96 14 January 1774
Ordered that Warrants be made out to Mess: Wright & Co for Casting 16 Iron Mortars of 13 Inches to complete the Numbers ordered for Gibralter.

WO 47/83, 101v 19 January 1774
Mess Wright and Prickett having signified in their Letter of this date that have delivered at Woolwich 2 Iron Mortars of 13 Inches which have been proved and received but no Price being added thereto, and being ordered to cast 16 more of the same nature they find upon a near Calculation that they cannot afford them under 18s pr Cwt which they hoped would not be deemed an unreasonable price.

[Agreed.]

WO 47/83, 172 29 March 1774
Mr Alexander Raby having represented in his Letter of 21st Instant that there appears by the Account of Brass delivered and received to and from his father to be a deficiency of 2 Tons 10 lb in his favor he therefore requested to be allowed the same and likweise to be granted a Warrant of Justification for 3 Iron mortars which have been proved and received at Woolwich and as he has left off the Foundery business, and has 1 - 12 Pdr & 12 - 9 pdr Surplus guns cast for the India company he requested the Board to receive them unto His Majesty's Stores.

WO 47/83, 255 7 June 1774
Ordered that Letters be wrote to acquaint the Gunfounders that the Board have agreed with Mr Bacon for casting Iron Ordnance and Boring them out of the Solid at £18 pr ton, and they therefore desire to know whether they will engage to provide Guns bored out of Solid at the same rate in case the Board should prefer those kind of guns to them for which they have already contracts.

WO 47/84,166 22 November 1774

Mess. Bourne & Co Gunfounders having represented in their Letter of 18 instant that they have at the Port of Hastings 26 - 18 pdr Guns ready for Proof, and having requested an Order for shipping the said Guns.

Ordered the usual Certificate be granted for the said Guns being landed at Woolwich.

WO 47/85, 205v 24 March 1775

Mr Hartwell having laid before the Board the No and Nature & length of New Iron guns that at this time remain wanting from the undermen'd Gunfounders to compleate their contracts:

Nature	**32Pdr**	**24**	**18**	**9**	**6**	**6**	**3**
Length	9½ft	9½	9	8½	7½	7	4½
Messr. Wright & Co	113	104	70	0	41	0	0
Bourne	28	0	19	0	5	12	4
Crowley	0	2	11	11	23	0	0
Eade	28	0	0	5	0	0	0
Walker	0	0	114	10	45	0	0
Jones	56	0	7	0	0	34	0
TOTAL	**256**	**107**	**221**	**26**	**114**	**46**	**4**

WO 47/86,136v 8 & 9 August 1775

Mr Millington having represented in his Letter of 3rd instant that Mrs Crowley and Co's Furnace is into Blast and therefore requested to know if they may supply such Guns in the Course of the next year as fell short of Delivery on their last contract, or be favoured with an order for 100 Tons of any nature from 9 to 32 pounder inclusive.

[Refused.]

WO 47/86,178 10 & 11 October 1775

[Eade and Wilton and Bourne and Co offered to finish contracts as above.]

Ordered that they be acquainted that the Board are determined to receive no Guns for the future but what are bored out of the solid.

[A few last guns were delivered from Wright and Prickett in 1776, but in general the Board would now only accept solid-bored guns. The Wealden founders had to look elsewhere.]

Part 2 The Fullers

Alone of the Wealden founders, the Fullers continued to write regularly offering guns to the Board, despite repeated discouragement. Their persistence was eventually rewarded, albeit with a very small order. Their correspondence with the Board shows that they continued to cast guns at Heathfield for other customers. As an epilogue I include the part played by Rose Fuller in the Siege of Gibraltar. George Augustus Elliott, future Lord Heathfield, was a near neighbour to the Fullers and the families were eventually united by marriage. He was appointed Governor of Gibraltar and commanded the successful defence of the island. His daughter married one of the Fuller cousins. Even in Gibraltar and Morocco, Sussex connections counted. [4]

WO 47/82,171 8 November 1773

Ordered that a Letter be wrote to acquaint Mr. Fuller in return to his of the 4th of Aug 1773 that several English Gunfounders have agreed to cast Iron Ordnance for His Majesty's Service upon the Terms and Conditions mentioned in the inclosed Copy of a Contract made with them, which is sent for his perusal, as also a Copy of the Orders for the conduct of the Proof Master's in proving Iron Ordnance and that he be likewise acquainted that it is not in the Board's Power to ascertain the time of Payment for such Guns as may be delivered.

WO 47/88, 229v 15 November 1776

Stephen Fuller Esqr having represented in his Letter of 4 inst that Mr Rose Fuller has now at Lewes in Sussex Cast for the Board one – 24 1.12 or 18 Pounders & at Troubridge in Kent 120 ½ Pdr of 3 feet all which he will lay down at Woolwich for Proof if the Board approve thereof the price for which he submitted to the Board.

Ordered that Mr Hartwell report if any ½ Pounder Guns are wanted.

WO 47/88, 244v 22 November 1776

Mr Hartwell having pursuant to Order of the 10th reported in his Letter of 18th inst that there is at this time in store 729 ½ Pdr Guns exclusive of what are under Orders but as there will be further Demands for those Natures he was of the Opinion the 120 ½ pounders offered by Mr Fuller may be rece'ed if the Board approve thereof.

Ordered that Mr Fuller be Acq'd the Board do not think themselves Justified in Receiving Guns not Bored out of solid.

WO 47/89, 366v 15 April 1777

Rose Fuller Esq having in the Letter of yesterday represented that several Parcels of Iron Ordnance have lately been & are now Casting in the Counties of Sussex & Kent & that there is no Deputy Proof Master appointed to prove them in the County & having reccommended William Greyson of Brightling in the County of Sussex Gentm. for that Employment.

Ordered that the Proof Master nominate a Deputy.

WO 47/91, 294v 16 April 1778

Ordered the Mr Stephen Fuller be acquainted in return to his Letter of 8th inst tendering sundry 6, 4 and 3 Pdr Iron Guns, that the Board can receive no Guns but such as are cast from the Solid.

WO 47/93, 170v 13 February 1779

Mr Stephen Fuller having by Letter of 12 instant proposed to supply the following Guns.viz.

26 – 4 Pdr of 5½ feet
40 – 3 Prs of 4½ feet
60 – ½ Pdr of 3 feet

for which he requires the same price as if cast from the Solid, altho' cast in the Old Way.

Ordered that the 4 Pdrs. and ½ Pounders be sent to Woolwich and if they pass Proof that they be paid for upon the terms proposed.

WO 47/93, 206v 9 March 1779

Read an Account of 4 Pdr and ½ Pdr Guns from Mr Fuller which were proved on the 3rd instant.

Ordered that they be delivered to the Surveyer General's Office, that Bills may be made for Payment of the Freight.

WO 51/289, 62 3 March 1779

To Stephen Fuller the Sum of Three hundred & twenty seven pounds 4/4d for delivery at Woolwich p. Warrt. Justification 26 Octob'r 1779 & cert.

				cwt	qr	lb				
Iron Ordnance	4 Pdr	5½ft	23	270	2	19	at 18/-	£243	12	0½
	½	3	39	64	1	8	at 26/-	£83	12	4¼
								£327	4	4¾

WO 47/94, 331 26 October 1779

That Warrants of Justification be made out to...

Mr Stephn. Fuller for 4 Pdr and ½ Pdr Guns proved and received by Woolwich on the 3rd March last as certified by the Respective Officer letter of Yesterday.

WO/47/95, 251v 8 April 1780

Mr Fuller having by Memm. of 23 Ulto requested that Mr Verbruggen may be permitted to furnish him with a Moulding Board for a 3 Pdr and to bore two Iron Guns for him in his Machine.

Ordered that he be acquainted that Messrs Verbruggan are so full of Business that they can only employ him for the office in their own department and that besides the retarding of other Services, they have reported the difficulty of boring Iron Guns on their Machine for the Board.

WO 47/97, 428v 12 June 1781

Mr Stephen Fuller having in his Letter of 7 Instant offered 40 - 3 Pdr Iron Ordnance of 4½ feet he had caused to be cast at his Foundery in expection of their being proper for His Majesty's Service.

Ordered that Mr Butler report if Guns of that Nature can be of use.

WO 47/106, 296 1 September 1785

Messrs Rose Fuller & Co having transmitted in their letter of 24 Ulto an Estimate of the Expence of 4 brass cannon presented to the Emperor Of Morrocco by Sir Roger Curtis as a present from his Britannic Majesty amount to £983: 6s: 0¾d & requested to be acquainted to whom they are to apply for Paymant of this sum as the 2nd Distribution of Prize Money to the naval Department & Garrison of Gibraltar will shortly take place.

Ordered to be sent to Sir Roger Curtis & that he be requested to inform the Board of the several Circumstances attending this Affair.

WO 47/106, 318v 26 September 1785

Captain Sir Roger Curtis having in Answer to the Board's Enquiry of 1st Instant signified by Letter of the 5th that the intent of the Embassy to the Court of Morrocco was to procure Fresh Provisions for the Garrison of Gibraltar During the late Seige & as he had received directions from His Majesty to consult Sir Geo Elliott upon the Measures he was to pursue, it was judged expedient to make the Emperor some present from His Brittannic Majesty, upon which His Excellency the Governor thought proper to furnish him with Four Brass Guns saved from the Wreck of the Spanish Floating Batteries for that Purpose.

Ordered that Messrs Fuller be acquainted that as these Guns were never delivered into the Charge of this Office the Board cannot grant Payment for them.

WO 47/110, 385v 12 October 1787

Having also by Letter of 29 Ultimo pursuant to reference of 28 August last reported on the Prices demanded by Messers Fuller & Co for some brass Guns which were taken at Gibraltar and made a Present of to the Emperor of Morrocco and signified that the Prices asked for the said Guns were reasonable provided they were Serviceable.

Ordered that Mr Rose be acquainted that upon Examanation it appears that the Price asked by Messrs Fuller and Bowman is reasonable provided the guns were serviceable when sent.

Part 3 Gloucester Furnace – a last gasp?

A strange footnote to the Kent furnaces is the sudden reappearance of Gloucester Furnace in the American Wars as a possible source of solid-bored guns.

WO 47/100, 405v 8 November 1782
Mr William Colleng of Brenchley near Tonbridge having in his Letter of this date offered to supply this Board with Ordnance bored out of the Solid, on the same Terms as the Other Contractors.

Ordered that a Contract be prepared.

WO 47/100, 426v 22 November 1782
Mr William Colleng one of the Gunfounders to this Office having in His Letter of 14 Instant requested to have Draughts of the different sizes of Iron Ordnance as his Furnaces are now in Blast & ready for casting.

WO 47/100, 458 6 December 1782
Ordered that Mr Butler lay before the Board a State of what Natures of Guns are most wanted in order that Mr Homfray and Mr Colling may proceed upon casting them.

WO 47/101, 209v 23 January 1783
Mr Wm Colleng hav'g requested in his Letter of this date to have Orders for casting Guns at Gloster Furnace, as he has received a Draft for 18 Pounders from Mr Butler.

Ordered that a Warrant be made out to him for thirty two l8 Pdrs of 9½ feet – and four 6 Pdrs of 8 feet according to the Drafts given to him by Mr Butler, and that a like Letter be written to him as was written to him as was writtem to the other Gunfounders on the 1st Nov last, on the Subject of casting Guns from one Furnace only.

WO 47/101, 243 12 February 1783
Mr William Colleng having by Letter of 24 Ulto requested farther Orders than those lately received for casting Iron Ordnance.

Ordered to be acquainted that the Board can give no more Orders; and that the Board had given Orders to the other Gunfounders not to cast anymore.

[By coincidence the entry following this concerns the return to England of Richard Prickett, smith to the Board of Ordnance, who had been stationed at New York with the Royal Artillery. Richard's

brother Thomas Prickett had been the tenant of Gloucester in the previous decade.]

WO 47/102, 199v 12 July 1783

Mr Geo. Matthews having by Letter of 16 Ultimo represented the Losses he shall sustain by his guns being not taken off his hands – that he enlarged his Works at the instance of the Board, that at the time his Guns (of Good Quality) were refused to be taken. Orders were given to Mr Collings of Lamberhurst and that The Imprest for ⅓ has been much to his prejudice.

Ordered that such Guns be received as were cast before the Order for Stopping their Proceedings upon an Affidavit having been made of the numbers & natures cast.

WO 52 20/19 30 June 1783

To Wm Collins the sum of Nine hundred and sixteen pounds 16/4 for delivering ay Woolwich p. Warrant Justification 28 Feby 1784 & Certificate:
Iron Ordnance 18 pdrs 9 feet … 25 … 1018 cwt. 2. 21 at 18/- p. cwt £926: 16: 4½.

WO 47/103, 218v 15 January 1784

Ordered that Warrants of Justification be granted to … Collins.

The complaint by George Matthews, who leased the ironworks of Calcuts in Shropshire should not be taken at face value. In 1784 William Collens wrote to the owner of nearby Hoathly Farm stating that he had taken on Gloucester Furnace with George Matthews.[5] At this time Matthews was at law against his former partners and associates, Francis Homfray and James Henckell.[3] Whether Collens' guns were really cast in Kent or at Matthews' works in Shropshire to avoid having to pay his creditors cannot be determined. Perhaps further research will show whether guns were really being cast and bored from the solid in Kent in the 1780s.

Part 4. New Markets

Unlike the Fullers, most Wealden ironmasters looked for new customers to replace the official contracts from the Board of Ordnance. However there is still information on this aspect in the Board's papers. Traditionally founders could have certain guns proofed at Woolwich by the Board's officials, as long as they or the client paid. This privilege was usually restricted to guns for the East India Company and their ships, for protection of colonies abroad and for foreign governments. The war with the American colonists brought a new market. The Board had to hire armed ships to carry troops and stores across the ocean. These had to be armed with guns which had passed proof, but did not have to be solid-bored. Most of the guns for the armed ships were provided by Eade and Wilton or Muir and Atkinson. Surviving proof results for them show guns marked with A or G, the marks of two existing furnaces, Ashburnham and Gloucester furnaces.[3] However Eade and Wilton also had access to solid-bored guns, so that one cannot assume every gun they offered was cast in Sussex or Kent.

Following the war the Wealden gunfounders were increasingly dependent on the East India Company and their ships and other merchants at a time when the other, more modern founders were also trying to replace their lost government contracts. Moreover there was a new threat from that old enemy of the Wealden ironmasters, the Carron Company. In an effort to regain the government contracts they had lost in the 1770s, they developed a new type of gun, the carronade, the same length as a ½ or 3 pounder gun, but firing a ball of 6lb, 12lb or heavier. Merchant ships could now have a heavier armament for not much more money than the small guns which had been the backbone of the Wealden ironworks in the past decade. The popularity of the carronade which could be cast in the 'potshops' of London with the merchant ships and even the east Indiamen may have been one of the final blows to the surviving furnaces. Ashburnham was the last to go, under the Millingtons. By the 1790s

a list of suppliers to be billed for proofing guns at Woolwich includes no founders which can be identified as from the Weald.

WO 47/76,113 12 July 1771

The Russian Ambassador having desired that the undermentioned Guns may be proved at Woolwich vizt:

Iron Ordnance

12 Pdr 8 from the Carron Company
6 Pdr 6 from Messrs Eade & Wilton or Mrs Crowley

WO 47/77, 308 3 May 1771

[Value of powder, shot etc expended in the proof of guns for the Empress of Russia and the East India Company includes:]

Mrs Theodosia Crowley & Co	£18: 12: 0
Mr Edward Raby	£ 9: 9: 7
Do	£59: 18: 6
Mess. Eade and Wilton	£14: 2: 10

WO 47/80, 176Av 3 November 1772

Ordered that letters be wrote to Mr Edward Raby to demand the several Sums undermentioned being the value of Stores, Etc expended in proving Brass and Iron Ordnance Cast by him for the following Services.

Proof of Brass and Iron Ordnance for the King of Sardinia on the 11 April & 31 May 1769	£14: 16: 8 £ 5: 8: 9
Proof of Brass and Iron Ordnance in 1771 & 1772 for the East India Company	£58: 15: 10 £29: 18: 0¾

WO 47/80, 189v 18 November 1772
[Payment for proof for the EICo 20 Dec 1771 and Feb 1772 from Mrs Theodosia Crowley, Edward Raby, Eade and Wilton, and Wright and Co.]

WO 47/87, 341v 17 May 1776
Messrs Eade & Wilton having represented in their Letter of 16 Inst that they have rece'ed orders for a Quantity of Iron Ordnance for supplying Transports & Armed Ships on His Majesty's Service & also for use of the Post Office Pacquets they therefore requested the Board to grant them leave to send ordnance to be proofed at Woolwich.
[Agreed.]

WO 47/87, 387 20 & 21 June 1776
Mr. Josiah Millington having represented in his Letter of 10 inst that Mrs Crowley & Co has the Guns therein mentioned at their Furnace in Sussex for the Merchant Service he therefore requested the Board's permission for shipping the same for Woolwich.
Ordered to be acquainted the said request cannot be granted.

WO 47/92, 160v 24 July 1778
That the guns mentioned in Josiah Millington's Letter of [ ] inst be proved for Mrs Crowley & Co tomorrow.

WO 47193, 135 16 January 1779
… that the undennentioned Persons pay the sums against their names … being the Value of Powder, Shot, etc expended in proving their … iron ordnance at Woolwich between 30 June and September vizt. …
Mrs Crowley & Co £10: 0: 5½

WO 47/93, 152 30 January 1779
[Payment from Mrs Crowley for proof of guns for EICo and others.]

WO 47/103, 610v 28 June 1784
Mr Isaiah Millington having requested by Letter of the 17 Instant that 14 – 6 Pounder Guns cast for the Service of the East India Company may be proved at Woolwich as soon as convenient.
Ordered.

WO 47/105, 395 8 April 1785
[Account of money due to the Board for proofs include:]
Ex'ors of the late Mrs Crowley … £2: 1: 0½

WO 47/110, 296 31 August 1787
[Expences due to the Board for proofs from 8 companies, including:]
Messrs Crowley Millington & Co £145: 6: 8¾.

WO 47/114, 180v 1 July 1789
[Expences due to the Board for proof include:]
Messr Millington & Co … £3: 13: 1.

WO 47/119, 609v 5 June 1792
[Expences due to the Board for proof for EICo includes no Wealden founders.]

References

1. WIRG, *Wealden Iron,* 2nd series **13** (1993), 20-30.
2. J. S. Hodgkinson, *The Iron Industry in the Weald in the period of the Seven Years' War 1750-1770* (unpub. MA thesis, University of Brighton 1993), 96.
3. R. R. Brown, *An ABC of British Cannon Marks* (forthcoming).
4. Further information on the earlier career of Stephen Fuller can be found in D. W. Crossley and R. V. Saville, (eds.), *The Fuller Letters 1728-1755*, Sussex Record Society **76** (1991).
5. E. Melling, *Kentish Sources III. Aspects of Agriculture and Industry*, (Maidstone 1961), 99.