

Wealden Iron

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1978

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Wealden Iron
Research Group

WEALDEN IRON RESEARCH GROUP

BULLETIN NO. 14

1978

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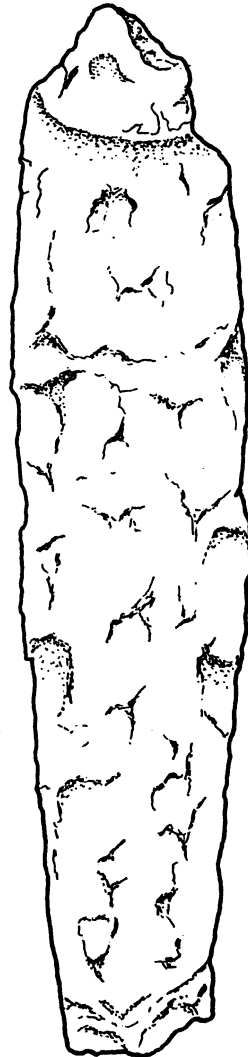
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The Cranbrook Bloom

A short time ago Henry Cleere presented WIRG with part of a forged Roman bloom to add to the exhibition at Anne of Cleves Museum, Lewes. In its present form it is roughly rectangular, measuring 3 x 14cm. One face has been polished, so the original thickness is unknown. It is awaiting final conservation by David Butler before being placed on exhibition. Some notes on the origin of this bloom and the only two other known blooms from Sussex and the Weald might be of interest.

The bloom in our possession came from Little Farningham Farm, Cranbrook, Kent, from an excavation of which there is only a brief account, by Mrs M. C. Lebon (*Archaeologia Cantiana* 76 (1961), xlviii-xlix). In this account, although iron working at the site is inferred, the bloom itself is not specifically mentioned. The chief interest seemed to be in a large complete Roman pot 11in. high with long neck and bulbous body,



1/4

Roman bloom from Cranbrook

believed to be of 1st or 2nd century date. Round its widest part the pot was pierced by three holes, one inch in diameter, spaced equidistantly. One hole had a prominent lip. It was suggested that this formed part of a 'pot bellows', and there is a reference to such an object in recent use in Africa. It is stated that the pot is in Maidstone Museum. An earlier note (Arch Cant. 71 (1957), 224) records C.L.B.R. tiles found at the site.

The information that the bloom actually did come from the above site at Cranbrook is contained in an article 'Roman Bloom from Cranbrook, Kent' by G. T. Brown (Journal of the Iron and Steel Institute 202 (1964), 502-4). This article records the metallurgical examination of the bloom, which involved cutting it in half longitudinally. It seems probable that what we have is one of the halves. Without repeating all the technicalities of the examination it can be said that the results showed a very high carbon content, 1.16-1.46%, and that the final heating had been in excess of 1130°C. This had been followed by quenching.

The Nanny's Croft Bloom

This would seem to have been a raw bloom, not forged to a marketable shape, and is described as resembling the next one to be considered, i.e. 'rounded and knobbly'. It was quite small, weighing only 0.66lbs.

It was found during an excavation of a site in Arundel Park known as Nanny's Croft (TQ 013 092) by 'The Nature and Archaeology Circle, Littlehampton' which is described in their report for 1926-27, pp.17-23 with plates 1 and 2. (There is a copy in the library at Barbican House, Lewes). The bloom is not mentioned in the report, which described the site and finds as Roman. Some medieval material was also found there.

The information that the bloom came from this site comes in an article 'Ancient Sussex Iron Blooms' by J. A. Smythe (Newcomen Society 17 (1936-7), 197-203, and plates 8 and 9). The bloom was examined metallographically and found to be very hard. It is described as 'a bloom of wrought iron which by heating to a high temperature in contact with carbonaceous matter has become highly carburised and is, to all intents, cementation steel'. It is suggested that it was virtually a 'waster' found to be too hard for forging and so had to be discarded. This view could perhaps be challenged.

This bloom appears to be now lost. The Nanny's Croft finds are no longer at Arundel Castle, as stated in the original article, but have since been dispersed among local museums. I have contacted the curators of museums at Arundel, Littlehampton, Worthing and Chichester but can discover no trace of it.

The Fore Wood Bloom

This raw bloom is described by Smythe as similar to that from Nanny's Croft but larger, weighing 2.75lbs. It was found by Ernest Straker at a large bloomery site at Fore Wood, Crowhurst, Sussex, TQ 751 130 (Wealden Iron 351). Straker considered the bloomery to be of 'Roman type' but could find no pottery there. After an intensive search the writer was also unsuccessful in this respect, and it is probable that large quantities of cinder have been removed in fairly recent times.

The Straker Collection, property of the Sussex Archaeological Society, is at present housed at Michelham Priory, Sussex. Recently it has been catalogued by WIRG members and the boxes renumbered. WIRG box 3 contains a large number of small boxes one of which (marked by Straker L13) is labelled 'Fore Wood, Crowhurst'. Its contents were recorded by the cataloguers as 'piece of iron'. An early opportunity will be sought to re-examine it to see if it is a bloom and if conservation is necessary

The above blooms are discussed by Dr Tylecote (Metallurgy in Archaeology, London 1962, p.203) who points out that chemical analysis of the Crowhurst bloom gave a carbon content of zero to 0.03%, compared with that from Nanny's Croft with 1.6% and from Cranbrook at well over 1%. A view is expressed in the above articles that the blooms from Nanny's Croft and Cranbrook are 'wasters', discarded owing to their high carbon content, which would make it impossible to use them for making artifacts, but that the Fore Wood bloom of soft iron was merely mislaid. It should be pointed out that the Cranbrook bloom had been successfully forged to a bar of roughly square section and that contemporary methods of dealing with hard blooms is unknown. They may even have been deliberately produced by altering the ratio of charcoal to iron ore in the furnace.

I am grateful for help and information from the museum curators at Worthing, Arundel, Littlehampton and Chichester.

Ore Mining and Transport near Ashburnham

C. C. Ennever

Further search of the area referred to in Wealden Iron Bulletin 11 (1977) p.3 has revealed a much larger acreage of bell pits. To the west of and in Combe Wood immediately behind lower Standard Hill Farm is an unspoilt two-acre site (TQ 690 128). From the nature of the area it is more than probable that the mining extended into what is now a pasture up to the farm buildings, and to the west of that. In all it would have been a large site.

On the south bank of the stream opposite Kitchenham (TQ 685 129) there is a two way man-made causeway leading down into the valley. This seems to have been in use for transport to the flooded valley as referred in the AID TO ASHBURNHAM NAVIGATION (Bulletin 11 (1977) p.14) and so could have been a collecting area for the mine into barges.

Bloomery at Rushlake Green

George Farebrother

The Bloomery was discovered whilst members of the Hailsham School Practical History group were exploring the stream on land belonging to Mr White of Blackman's farm during 1977. The National Grid Reference of the site is TQ 614 194. [altered to 614 172]

An area of tap-slag lies on a steep slope to the West of the stream and measures approximately 15 by 20 metres. A trench was dug measuring 3 by 2 metres. 20cm. from the surface a plain piece of Samian ware was found with its glazing still intact and bearing a thin ridged line. At the same level there was part of a clay tuyere.

There is a considerable thickness of slag and charcoal mixed with black soil; excavations are still in progress.

Etchingham: Burgh Wood Forge

C. F. Tebbutt

This good example of a forge site at TQ 717 276 was suspected by Straker (Wealden Iron p.299, para. 2). However after reading the above reference R.J. Adams noticed what appeared to be a bay marked on the 1:25000 Ordnance map, and a visit by the writer and his wife confirmed his identification. To avoid confusion with the other Etchingham Forge (WIRG Bulletin 9 (1976) p.10) it is suggested that it be named from the adjoining Burgh Wood. A public footpath passes through a gap in the bay.

The bay itself is c. 105yds. long and is in good condition except for a gap near each end. It is c. six feet high on the upstream and c. seven and a half feet on the downstream side, and spans the valley with the present Rother stream, just below its junction with the Limden, on its E. side. There is a scatter of forge cinder and forge bottoms on and about the bay but more thickly at the extreme E. end. There are no

cinder heaps to be seen, but irregular shallow excavations behind the W. end of the bay may represent places from which cinder has been carted away. At the E. end the ground is higher and the soil blacker with dense nettle growth. This seems the likely site of the forge, with the wheel pit and race where the present river flows.

Perhaps the most remarkable of the remains is at the extreme W. end where the valley side is steeply rising. Here a ditch falls rapidly into a deep wide pit, obviously dug out by the scour from a considerable stream of water falling over a weir or spillway. From this a wide channel, now dry and partly filled, runs S. along the edge of the rising ground for some 400 yards before turning sharply E. to join a drainage system in the valley centre. The bay is well sited to contain water from both the Rother and Limden, and apparently diverted both streams to a new course on the W. side of the valley.

The Excavation of a 'Bell Pit' in Benzells Wood, Herstmonceux, Sussex

C. F. Tebbutt

During July 1978 our member Dennis Beeney, with the kind permission of Mr R.J. Heal, re-excavated a 'bell pit' in Benzells Wood, Herstmonceux (TQ 6344 1425). This is one of numerous circular hollows situated close together on the south side of the wood where it slopes fairly steeply down to the stream. The wood is on Wadhurst Clay and the hollows are characteristic of those found in many areas in this geological context.

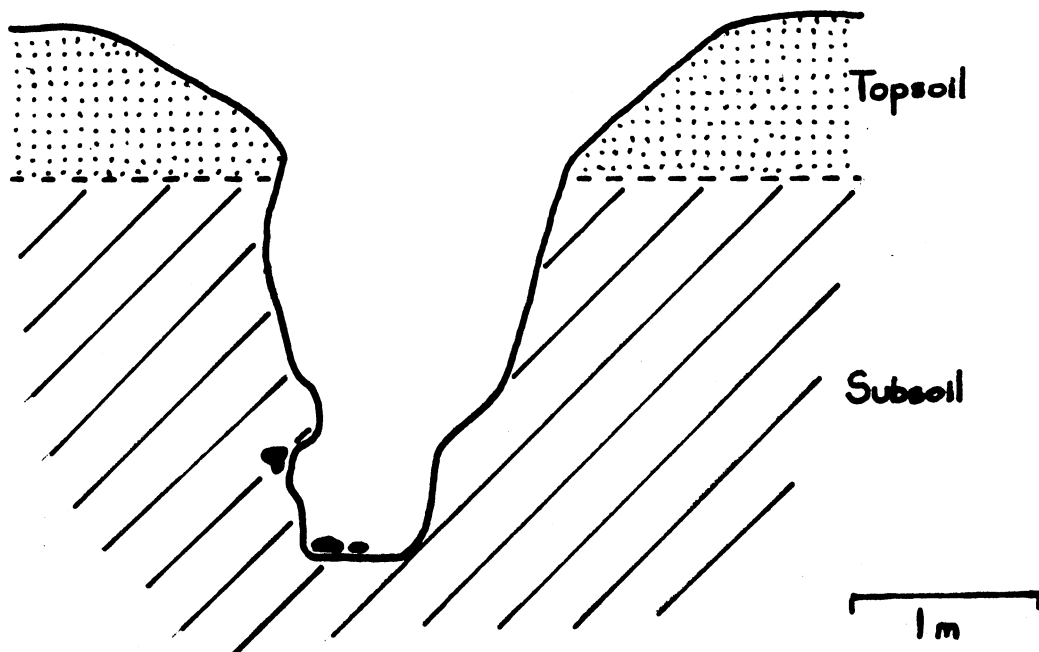


Fig.1. Profile across mine-pit at Benzells Wood

The excavated pit (Fig.1) was found to be 2.80m. deep and of somewhat irregular shape. Owing to heavy rain immediately after the excavation measurements were difficult to take, but the section depicted in the figure is substantially correct. It will be noticed that it in no way resembles a 'bell' except perhaps an inverted bell. Only one side had been undercut, about 50 cm. above the bottom, and for some unexplained reason nodules of iron ore were found still in situ at this level as well as lying on the floor of the pit. The diameter of the pit at surface level was far greater than that of the main shaft, thus preventing the loose topsoil from falling or being washed in during excavation.

Mr Beeney is a professionally experienced digger and it took him six hours unaided to re-excavate the pit, but he says that to have dug a similar new pit in undisturbed subsoil would have taken nearly two days. Without any help he was able to throw out all the excavated soil, and indeed could have done so even if it had been slightly deeper. An attempt was made to re-excavate a nearby circular hollow but this proved to have been dug only to the depth of about one metre and then abandoned.

Iron ore seems to be plentiful in the area and many nodules can be seen lying in the bed of the nearby stream. It is noticeable that hollows, presumably representing mine pits, lie thickest in the lower slopes of the wood near the stream, and become thinly scattered at higher levels. They cease altogether where presumably it became uneconomic to dig to the greater depth necessary to reach the level of the iron ore. The lower pits would not need to be so deep to reach the ore, but wet conditions might force the miners to go higher up the slope. The pit excavated by Mr Beeney lay towards the upper limit of pit occurrence but soon began to accumulate water after heavy rain. There is at least one open-cast pit in the wood.

Assuming that these pits were dug to win iron ore it seems likely that their form would not be regular, but would depend on what was found when the ore layer was reached. In many cases this consists of an intermittent rather than continuous layer of nodules, which would probably influence the shape of the pit at ore level. The name 'bell pit' does not seem to have been a local one but was adopted by Straker (Wealden Iron pp.101-106). It was possibly thought that these pits would resemble those dug in chalk in prehistoric times to extract flint. It does not appear in the contemporary sources quoted by Straker, or in any local place name as far as I am aware.

Batsford Furnace, Warbleton/Herstmonceux

C. F. Tebbutt

In July 1978 our member Dennis Beeney, after showing Field Group members the mine pit he had excavated, took them to Batsford Furnace site (TQ 632 153).¹ This had been acquired for development for trout breeding, and the former furnace pond was to be restored and stocked with fish.

We found the whole area, both in front of the bay and behind it, where the conjectural furnace must lie, being mechanically cleared of all trees and undergrowth and landscaped. No sign of the actual furnace site was apparent and there was only a scatter of glassy blast furnace slag. We learned later that the bulk of this had been carted away early this century.

With the clearance of the undergrowth the second bay¹ some 230m. higher up the stream was now clearly visible, but in spite of much disturbance by machinery, both on and around it, only a few pieces of cinder could be found. None looked in any way like that from a bloomery. This seems to confirm the view that this bay supported a pen pond only.

We learned that deeper excavation in the area behind the bay, to make fish-breeding tanks, was not expected to take place for some months. While we were considering what sort of rescue operation could be mounted here the developers decided to dig a ditch behind, and at right angles to, the bay at its extreme NE end to drain a marshy area. At the end of the ditch nearest to the bay at a depth of about one metre the machine began to bring up large pieces of blackened squared timbers from some now deeply buried structure. It was fortunate that Dennis Beeney was watching the operation as with the timbers came up pottery dating back to the 14th century.

Two days of emergency excavation by the Field Group, helped by payment for two hours of machine time, established that under a scatter of loose timber from a collapsed building lay some large horizontal timbers still in situ. Some of these were seen to be morticed together where they crossed, and to resemble the mill race and wheel pit supports excavated by David Crossley at Chingley in the Bewl Valley, likewise found to be medieval.²

At this point it was realised that, while WIRG had established the importance of the site, the proper excavation of these preserved mill fragments was beyond its capability and resources. Indeed there was no evidence that the mill had anything to do with the iron industry.

Fortunately the Sussex Archaeological Field Unit were able to add this excavation to Dr Owen Bedwin's 1978 programme, WIRG promising to do its best to find volunteers to help. Subsequently half the mill wheel was found in position and this has since been successfully removed for conservation.

Exploration trenches dug by machine finally discovered the 16th century furnace site at the extreme SW end of the bay. The ashlar stone had been robbed, but at the time of writing the general plan of the furnace has emerged and a number of WIRG members are helping in its excavation. The results will be published by Dr Bedwin in due course.

In all the above operations we are very grateful to the owner's agent Mr Harrison Smith, both for his willing permission for the excavation and for his help and advice in many other ways.

Footnotes:

1. E. Straker, Wealden Iron 360.

Wealden Iron Research Group Bulletin 7 (Winter 1974), 24-5.

2. David Crossley, The Bewl Valley Iron Works (Royal Archaeological Institute, 1975).

An Experimental Bloomery, 1978

D. Combes and R. J. Adams

By kind permission of Mr and Mrs C. F. Tebbutt a site has been provided for the construction of a shaft bloomery furnace on their land. The Group have been permitted to make use of any materials lying to hand.

It should be said that an experiment was tried there in the autumn of 1977, and whilst a bloom did not form, ore was reduced and valuable lessons were learned. In that experiment twin bellows of simple conventional pattern were used, but it was considered that a single set would be adequate for subsequent attempts.

In 1978 it was decided to construct a new furnace, and to allow more time for it to dry out. The new furnace was to be built of blocks made from clay dug on the site. A wooden mould was made and moist clay straight from the ground rammed into it. The blocks were then stacked under cover and allowed to air dry. On a well-drained site a shelter was built and a foundation laid for the furnace and the bellows. The furnace was built with an internal diameter of 40cm. and a height of 120cm. The tuyere was 35cm. from the base.

Fallen beech was used for making the charcoal, which was produced in a pit 2m. long, 75cm. wide and 80cm. deep. A fire was started in the pit and wood added at a rate sufficient to ensure fierce burning for about four hours. The pit was then sealed and left until the following weekend. The charcoal was sieved to remove ash and dust, and then bagged. About 50kg. can be made on each occasion. The opportunity was also taken to roast the ore in this pit. Altogether, 50kg. of ore was roasted and 100kg. of charcoal made.

On 20 May 1978 pre-heating of the furnace began at 0715. The first charcoal was charged at 1015. The tapping hole was then sealed and blowing began, continuing at about 18 blows per minute throughout the smelt. The first ore was charged at 1115. A charge was added every 12 minutes at a ratio of 1.8kg. of charcoal to 1.375kg. of ore.

Slag started to run at 1215 and was usually tapped every second charge. The slag was similar in appearance to that found on bloomery sites throughout the Weald, although lighter in weight.

At 1530 it was noticed that the sound of the blowing had changed; however it was decided to continue, and blowing and charging finally ceased at 1900.

At 1405 on the following day the furnace was opened. Under the tuyere and extending to the base was a large mass attached to the furnace wall. This was removed with only minor damage to the furnace. The mass was heavy and when broken was found to contain a bloom weighing 3.5kg, consisting of an irregularly-shaped metallic lump remarkably free from cinder.

The bloom has now been cleaned and varnished; it is hoped that it will be possible for it to be displayed as part of the WIRG collection at Anne of Cleves House, Lewes.

John Collen: his hammer-forge in Burwash 1524-6

J. Pettitt

The present writer has previously noted¹ that the Lay Subsidy 1524-5 has an entry under Hundred of Hawkesbergh (section probably Burwash): "Also the seyd John (Cohen) hath in his service viij Frenchemen".² This, it was claimed, warranted the assumption that the John Cohen of the 1574 Lists or his father was operating a 'modern' hammer-forge in Burwash some 30 years after the introduction of the new (indirect) process, into Britain

from the Continent. A further assumption was made that there was probably a blast-furnace in the area supplying pig-iron for conversion at the forge; Socknersh was suggested.

Confirmation of the first assumption comes in an Ashburnham document³ with an entry dated 16 Henry VIII (1525-6). The crucial entry is "molendinum ferreum ibidem die de Johe Colyn ..." (the writer cannot decipher the actual rent). Certainly the crucial facts "iron-mill" and "John Colyn" are in association.

References.

1. J. Pettitt, "Aliens in Wealden Iron Districts 1524-5", WIRG Bulletin 4 (Summer 1972), p.13.
2. Julian Cornwall (ed.), The Lay Subsidy Rolls 1524-5 vol.57 (1956), Sussex Record Society, p.148.
3. East Sussex Record Office: Ashburnham Ms 200a. P. F. Brandon, in The Sussex Landscape (1974), p.148, notes this document but misdates it.

The Carrier's Account of Robert Knight

Edited by Jeremy Hodgkinson

Notes on the background to the accounts

Since writing the Introduction to the Accounts¹ several facts have come to light concerning the history of Warren Furnace. The central figure in all records dealing with the furnace is that of Edward Raby, about whom other records are elusive. He does seem to have lived at Raby's Farm, Newchapel, Surrey (TQ 367 425), though the connection is only nominal. The farm is about a quarter of a mile from Woodcock Forge.

In July 1758² the Board of Ordnance ordered payment to Edward Raby of £575.15.3d for 14,500 feet of iron bars, plate and staves of various gauges as well as German and Blister steel. This entry in the Bill Book is the earliest encountered for the furnace so far, and takes the known working life of the Warren Furnace back by four years from the earliest date in the Accounts. Later in the same year³ Raby put forward a tender and an order was duly placed for 200 tons each of iron ordnance and shot. The shot varied from 32 pdr. to 6 pdr. and amounted to 27,000 rounds cast from ore, an order valued at over £2500. In the following year⁴ there are other entries particularly for nails, bands and other components required for the construction of gun carriages at Woolwich and at the Tower of London. There is a curious entry⁵ which records the difficulty

that Raby was having in completing a contract because contrary winds were preventing a convoy carrying shot from Bristol from arriving at Woolwich. Inquiries have, so far, shed no light on this source but it does question assumption that the Warren Furnace and, possibly, the Woodcock Forge were the sole bases for Raby's operations. There is a further reference to guns being 'landed', presumably at Woolwich.⁶

As well as supplying guns for Land and Sea Service to the Ordnance Board, there are references concerning the supply of same to the East India Company and other buyers, which were sent for proving at Woolwich.⁷ These, however, together with the contracts from the Board, frequently failed to arrive by the closing dates of the Warrants, but where they were directly concerned the Board invariably issued a further Warrant of⁸ Justification to cover the late arrivals. On one occasion bad weather and distemper among the horses are given as reasons for the late arrival of the order.

Late in 1770⁹ the Board minuted that Raby 'has lately had a good success in casting Brass¹⁰ guns for the East India Company and that he has every conveniency of Boring and Turning by water, a furnace large enough for any size gun or mortar and would be glad to cast for the Board at the price they give to other founders.'

The Board accepted the offer and ordered some 10-inch and 13-inch mortars for Sea Service, sending Raby 50 tons of brass metal with which to do the job.¹¹ Raby continued to cast brass mortars, though not without some difficulty, his pieces sometimes failing to fit the dimensions required.¹² An example of these mortars has been traced to the Museo de Artilleria in Spain. This particular piece, an 8-inch Land-Service mortar, had found its way to Tetuan in Spanish Morocco before being removed to the museum.¹³

In 1774 the Board received a letter from Alexander Raby, Edward's son,¹⁴ who seemed to be winding up his father's affairs, possibly on account of his death. In the same letter he reports that he is giving up the foundry business. Alexander Raby is probably the same person as the Allick Raby referred to in 1764¹⁵ and may well be the same as was connected with ironworks at Cobham in Surrey.¹⁶

1774, therefore, would seem to mark the closing of the Warren Furnace; this, on present reckoning, gives it a working life, in its second period, of sixteen years.

References

1. W.I.R.G. Bulletin **13** (1978) pp.24-5.
2. Public Record Office. Ordnance Board (P.R.O.) Bill Books W.O.51:202 p.247 July 7 1758.
3. P.R.O. Surveyor General's Minutes. W.O.47:52 p.216 Sept. 7 1758.
4. P.R.O. W.O.52:211 p.411 June 22 1759 p.95 December 6 1759.
Treasurer's Ledgers. W.O.48:101 p.122 December 18 1759.
5. P.R.O. W.O.47:54 p.507 December 15 1759.
6. P.R.O. W.O.47:55 p.320 April 19 1760.
7. P.R.O. W.O.48:103 p.7 July 14 1761; W.O.47:58 p.444 Dec. 22 1761;
W.O.47:71 p.49 February 2 1768; 47:73 p.11 January 20 1769 and
p.313 June 20 1769; 47:74 p.88 August 18 1769.
8. P.R.O. W.O.47:71 p.17 January 15 1768.
9. P.R.O. W.O.47:76 p.187 October 26 1770.
10. The Brass guns constantly referred to are, in modern parlance,
bronze, being an alloy of copper and tin in proportions of 9:1.
11. P.R.O. W.O.47:76 p.192 October 31 1770.
12. P.R.O. W.O.47:78 p.249 November 29 and 30 1771; 47:79 p.173 March
20 1772 and p.184 March 24 1772.
13. Catalogo del Museo de Artilleria, Madrid, p.138, No.3660.
14. P.R.O. W.O.47:83 p.163 March 29 1774.
15. Carrier's Accounts of Robert Knight p.1 April 2 1764.
16. T. E. C. Walker, 'Cobham Manorial History', Surrey Arch. Colls.,
LVIII (1961), 62-3.

The Carrier's Account of Robert Knight Part 2: Text

(Front page of original)

1762 176

Mrss Masters & Raby Bill Dr to Rob Knight

May	ye 19	Brought back from Woolwich 2 Chaldon of Coles to the Furnis			
May	ye 22	Brought back from Woolwich 2 Chaldon of Coles			
June	ye 2	Brought back from Woolwich 2 Chaldon of Coles	£	s	d
June	ye 13	Recevd of John Lavender on account	1	1	0
	ye 14	Receved of John Lavender on account	2	2	0
		Reconed & paid			

September	ye 1	(1 Days work to Venplase For 2 Trees of Beach - - - to the Furnis)	£	s	d
			1	1	0
	ye 2	1 Tree			51
		1 Tree			28
		1 Tree			48
		1 Tree			<u>32</u>
		From Willdewick	2	9	0
Sept	ye 6	4 Tree			150
		From Willdewick to the Furnis			
		Reconed paid	3	10	0

1762

Des	ye 9	2 - 24 Pounder Guns/cared/ From the Warren Furnis to Woolwich			
	ye 11	Brought back from Woolwich 1 Charldon of Coles			
	ye 13	(2-24 Pounder Guns)Brought back from Woolwich			
	ye 14	(1 Charldon of Coles ye 15 (2 - 24 Pounder Guns)Brought back from Woolwich			
	ye 17	(1 Charidon and 2 Sacks of Coles (3 Long 9 Pounders Guns			
	ye 20)Brought back from Woolwich (16 sacks of Coles			
	ye 26	Receved of Dr Burn in part for the (?) for the (?) Mrss Masters & Raby by Draft	5	5	6

1763

Des	ye 9	3 - 9 Pounder Guns) & I - 4 Pounder Guns) Coles	C	Q	L
			66	0	(?)
	12	1 - 18 Pounder Gun) 1 - 9 Pounder Gun short) Brought back from (?) Coles	58	0	(?)

15	1 - 18 Pounder Gun		56	0	0
	1 - 9 Pounder Gun	(?)		(?)	

(?) - illegible

(Page 1)

	Mrss Masters and Raby		1763		
Des ^{er}	ye 29	Caried up from the Warren Furnis to London Ballis.....	C	Q	L
		Brought Back/Caridge/Steall	61	0	0
		Received in Cash £2.2.0	35	3	8
	ye 28	2 - 12 Pounder Guns	66	0	0
	ye	Brought back 1/2 Chaldond Coles			
	ye 31	1 - 24 Pounder Gun	}	61	0
		2 - 3 Pounder Guns			

1764

Jan ^{ry}	ye 4	1/18 Pounder Gun) 1/12 Pounder Gun) 1/4 Pounder Gun)		60	0	0
	ye 7	1/18 Pounder Gun) 1/ Long 9 Pounder)		61	0	0
		1 Chaldon of Coles				
Aperil	ye 2	Recevd of Allick Raby £3.0.0				
	ye 6	Brought from London) 2 Chaldon of Coles)				
Aperil	ye 25	Cared from the Warren furnis to London 4 Ponders		Tons	cwt	lb
		8 Guns.....		3	12	16
	ye 26	(Brought back 1 Chaldon of Coles) (and 1 Sack				
May	ye 2	Cared from the Warren Furnis (8 Guns		3	14	16
)Brought Back 1 Chaldon of Cole) (and 7 Sacks				
	6	Brought down to the Forge 1 Chaldon of Coles				
						Firnis
Sept	ye 27	Cared up to London from Warren				

(Page 3)

1761

		Brought back from Woolwich for Mr Clutton			
Sept	ye 26	2/12 Pounder Guns			
Oct	ye 14	2/12 Pounder Guns	£	s	d
		Brought from Deptford Timber & 1 grindstone	2	0	0

1762

March ye 2 Went to Gravety with my teame to Worke
14 days the first time
the second time 15 Days work
the thurde time 6 days work

(Page 4)

Messrs Clutton & Co.at Gravety
1761

Cared Guns from Gravety up to Woolwich

Aperil ye 23 2/12 Pounder Guns

may ye 1 2/12 Pounder Guns

ye 14 2/12 Pounder Guns

June ye 1 2 - 12 Pounder Guns

ye 4 2 - 12 Pounder Guns

ye 8 2 - 12 Pounder Guns

ye 11 3 - 12 Pounder Guns

ye 15 3 - 12 Pounder Guns

ye 17 3 - 12 Pounder Guns

ye 22 2 - 12 Pounder Guns

July ye 16 (Cared from Boyles to Gravety)
(2 Huches of mine. 28 bushell a Huch)

Sept ye 7 Cared up to London

9 Guns

C Q L
59 3

ye 21 2 - 12 Pounder Guns

ye 24 1 - 18 Pounder Guns

1 - 12 Pounder Guns

Brought from London 2 Darrell 0f powder

Oct ye 1 2 - 12 Pounder Guns

ye 5 3 - 9 Pounders Guns

ye 8 3 - 9 Pounder Guns

ye 12 1 - 18 Pounder Gun)

1 - 12 Pounder Gun)

Brought back from Lewsom Halfe a Chalidon of Coles

ye 19 2 - 18 Pounder Guns

ye 22 2 - 18 Pounder Guns

ye 26 2 - 9 Pounder Guns

1 - 18 Pounder Gun

ye 29 2 - 18 Pounder Guns

Brought back from Lewson 1 Chaldon of Col

8 guns cared up to London

Nov ye 2 2 - 18 Pounder Guns

ye 16 1 - 18 Pounder Guns)

1 - 9 Pounder Guns

ye 23 3 - 9 Pounder Guns

ye 26 1 - 18 Pounder Guns)

4 - 9 Pounder Guns)

ye 30 1 - 18 Pounder Guns

1 - 9 Pounder Guns

Des ye 3 1 - 18 Pounder Guns

1 - 9 Pounder Guns

ye 7 2 - 18 Pounder Guns

ye 10 1 - 18 Pounder Guns
 1 - 9 Pounder Guns)
 ye 14 1 - 18 Pounder Guns
 1 - 9 Pounder Guns
 ye 17 2 - 18 Pounder Guns
 ye 22 1 - 18 Pounder Guns
 1 - 9 Pounder Guns
 ye 28 2 - 18 Pounder Guns

1762

Jan ye 12 3 - 9 Pounder Guns
 ye 21 3 - 9 Pounder Guns
 Feb ye 1 1 - 32 Pounder Guns
 ye 4 1 - 32 Pounder Guns

(Page 5)

1762 Mrss Clutton & Co at Gravety
 Cared Guns from Gravety up to Woolwich

			C	Q	L
Feb	ye 10	6 - 4 Pounder Guns			
	ye 15	6 - 4 Pounder Guns			
		1 - 3 Pounder Guns			
March	ye 22	3 - 9 Pounders Guns			
Aperil	ye 13	Cared up to London			
		Guns			
		Brought back from London	72	1	19
		2 Chaldon & 4 sacks of Coles			
		& 2 sacks Kenn Had			
		of Cole			
	ye 26	3 - 9 Pounders Guns	71	1	23
		2 - 3 Pounders Guns			
		Cared up to London			
	ye 29	12 - 3 Pounders Guns			
May	ye 3	Cared up to London			
		4 - 6 Pounders Guns	79	3	15
		4 - 3 Pounder Guns			
	ye 17	Cared up to Woolwich			
		1 - 32 Pounder Gun)			
	ye 20	Cared up to Woolwich			
		1 - 32 Pounder Gun)			
	ye 31	1 - 32 Pounder Guns			
June	ye 3	1 - 2 Pounder Gun			
	ye 7	1 - 32 Pounder Gun			
	ye 14	2 - 18 Pounder Guns			
July	ye 5	2 - 32 Pounder Guns			
	ye 8	1 - 32 Pounder Guns			
	ye 12	1 - 32 Pounder Guns			
	ye 15	6 - 4 Pounder Guns			
		1 - 3 Pounder Gun & 1 - 3 Pounder has			
		(?) pound			
		been Reconed			
		for London			
	ye 19	1 - 32 Pounder Guns			
	ye 23	1 - 32 Pounder Gun			
Aug	ye 2	1 - 32 Pounder Guns			
	ye 4	1 - 32 Pounder Guns			
		1 - 9 Pounder Guns			

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Cared up to London from Gravety Furnis

1762

for Eade and Willton

			C	Q	L	£	s	d
Sept	ye 3	7 - 4 Pounders Guns	65	3	17	4	19	1 ^{1/2}
	ye 9	1 - 32 Founder Gun	56	0	0	4	4	0
		1 - 9 pounder Guns long	25	2	0	1	18	3
	ye 14	1 - 9 pounder Gun	28	2	0	4	5	6
		1 - 9 pounder Guns	28	2	0			
		1 - 9 pounder Guns	25	2	0	1	18	3
			<u>82</u>	<u>2</u>	<u>0</u>			
		this Gravety team brought up to Fellbridge						
	ye 17	3 - 9 pounders Guns	76	2	0	4	18	9
	ye 20	1 - 9 pounder Gun	28	2	0	4	8	6
		1 - 9 pounder Guns	28	2	0			
		1 - 9 pounder Guns	25	2	0	1	18	3
			<u>82</u>	<u>2</u>	<u>0</u>			
		(?) 3 Journys Gravety Brought up						
	ye 23	1 - 9 pounder Gun	25	2	0	3	5	6
		1 - 9 pounder Gun	25	2	0			
		1 - 9 pounder Gun	25	2	0			
			<u>76</u>	<u>2</u>	<u>0</u>			
	ye 27	1 - 9 pounder Gun	25	2	0			
		1 - 9 pounder Gun	25	2	0			
		1 - 9 pounder Gun	28	0	0			
			<u>79</u>	<u>2</u>	<u>0</u>			
		(?)						
	ye 30	1 - 12 pounder Gun	36	0	0			
		1 - 9 pounder Gun	25	2	0			
		1 - 9 pounder Gun	23	0	0			
Oct	ye 2	2 - 12 pounder Guns	72	0	0	5	8	0
		2 - 12 pounder Guns						
		Reconed & peaid				<u>56</u>	<u>11</u>	<u>10</u>
	ye 11	2 - 18 pounder Guns						
		pead						
	ye 18	2 - 18 pounder Gun						
Nov	ye 11	2 - 18 Poundr Guns						
		1 - 32 Pound Guns						
	ye 18	1 - 18 pound Guns						
		4 - 4 pound Guns	37	1	14			
Des	ye 6	1 - 32 pounder Gun						
	ye 28	2 - 12 pounder Guns						

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Messrs Ralfe Clutton Dorront as in my bill

1763

			T	C	Q	L
Feb	ye 7	Cared from Mill Place up to London to Seemans Warfe				
		50 Sevils Guns		52	3	12
	ye 28	Swevil Guns cared from Mill Place to London in all	5	6	3	23
May	ye 12	Cared from Gravetye to Woolwich				
		2 - 12 pounders Guns				
	ye 10	2 - 12 punder Guns				
		from Gravetye to Woolwich				
	ye 19	2 - 12 pounder Guns				

from Gravetye Furnis to Woolwich
ye 23 2 - 12 pounder Guns

Recev^d the above
Brass

Cared up to London 8 Guns

(Page 17)

1764 Henry Rivers Bill

1 days work for fetching of slabs from
Red Hall to Felbridge

1765 for carring of iron from your shop
down to the Furnis & fetched it up
with the cart.

		£	s	d
May 24	Had 3 Sacks of Coles	0	9	0
	" 3 " " "	0	9	0
	" 1 " " "	0	3	0
	" 2 Chaldon of Doles			

(etc.)

Feb 10 1769 Paid to Mr Raby for Mas Rivers 12.0.0

(Page 53)

1762 Received a Draft of Mrss Eade & Wilton) £ s d
to pay thear workmen 12 0 0

(Page 58) [inter alia on a page devoted to the collection of]
gravel for the Turnpike)

1763

Aperil ye 22 Cared 4 loade of syn^ders from the furnis
to Mr Staples Laine for Duty

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1767

	Mr. Raby	Bill of Coles from
		the Brail Lewis to Woodcock Forge
Aperil ye 9	3 Loade & 2 Sacks of Coles	
ye 18	3 Loade & 1 Sack of Coles	
ye 21	3 Loade of Coles all but 2 Sacks	
ye 25	3 Loade of Coles & 3 Sacks	
May ye 4	3 Loade of Coles & 3 Sacks	

	ye 12	3 Loade of Coles			
	ye 16	1 Loade & 21 Sacks of Coles			
		Setled accounts with Mr Raby			
			Due to me		£0.3.0
Des	ye 1	Brought Timber from Wakehurst to the Furnis for Mr Raby			
1768					
Jan	ye 11	1 Days work to Wakehurst with my Teame for Timber) to the furnis for Mr Raby)			

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1768	Mrss Raby & Rogers	Do Rd	£0.10.6		
			2 24)		
Des	ye 5	(Of 1 Journey of Carraige of Guns from) (the Warren furnis to Woolwich)	£ 6	s 0	d 0
	ye 19	(& Back Carraige of Coles) 1 Days work for Timber from) Crowleys Down to the Furnis)			
	ye 23	Carraige of Bum Shells from) Gravetye furnis to London) 13 Pounders - 27 Peases 10 Pounders - 38 Peases Brought back from London to Gravetye 2 Choldon of Coles			
	ye 27	13 Pounders - 34 Peases 10 Pounders - 21 Peases Shott - 21 Peases			
	ye 29	13 Inch Shells 44 Peases 10 Inch Shalls 2 Peases Brought from London to the Forge 40cwt.0qr.0lb. of Iron Pigs & 1 plate of Iron & 1 mould to) Gravetye from London)		C 40	Q 0
				L 0	0
				3	0 0
1769					
Jan	ye 2	13 Inch Shells - 34 Peases 10 Inch Shells - 6 Peases 32 Pounders Shot - 22 Peases Brought back from London to the Forge 1 Chalton & Halfe of Coles			
	ye 5	13 Inch Shells - 40 Peases 10 Inch Shells - 10 Peases Brought back from London to the forg Steall 40.0.0 4 Bundles of Iron			
	ye 8	13 Inch Shell - 38 Peases 10 Inch Shell - 15 Peases			
	ye 14	1 days work to Frenck Telleys for Timber			
	ye 16	Shells & 1 Mould & Shoat & 1 Mould left at Fellbridge		80	0 0
	ye 18	2 - 12 Pounders Guns from the Warren furnis Brought from London 1 Gun, Oate			

ye 23	3 Short Pounder Guns from the Warren furnis	84	0	0
ye 27	1 Days Work for Timber to the furnis from Rovant			

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1768

			£	s	d
	To Cash Receved of Mr Raby		0	10	6
Des	ye 30 Recevd of Mr Heard by Tho		2	2	0

1769

Jan	ye 4	Receved in Cash	1	1	0
	ye 9	Receved in Cash	19	19	0
	ye 23	Receved in Cash of Mr Hurd	10	10	0
	ye 27	Receved of Mr Hurd by Tho in Cash	6	16	6
			40	19	0
		Receved in Bank Note	10	0	0

1769

Feb	ye 17	Receved by Ann of Mr Hurd	5	5	0
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1769

March	ye 15	Receved of Mr Raby	12	12	0
	ye 20	Receved of Mr Raby	2	2	0
		D ^o Mr Gates you paid for Ots	3	0	0
Aperil	ye 4	Reced of Mr Outridge	7	17	6

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1769

	ye 25	Mr Raby & Co Bill Brought back from London to the Warren furnis 1 Chaldon of Coles			
	ye 27	1 Days work to Rovant for Timber to the) furnis)			
	ye 28	1 Days work with Iron from the Warren Furnis to Gravetye			
	ye 30	3 Long 9 Pounders Guns 1 Chaldon of Coles			
Bill Delerved					
Feb	ye 4	1 Days work from the Warren furnis to Gravetye of Carrying of Iron			
	ye	Cared up London	cwt	qr	lb
	ye 7	Cared up from the Warren Furnis			
		1 Long 9 Pounder Gun	28	0	0
		3 - 6 Pounder Guns	42	0	0
			70	0	0
	8	Brought back from London to forge 2 Chaldon of Coles			

ye 13 2 - 12 Pounder Guns
 Brought back from London to forge
 1 Chaldon & Halfe of Coles
 ye 16 Brought from Gravetye Furnis
 to the Warren Furnis
 5 - 3 Pounder Guns With the Heads on
 1 - 2 Pounder Gun
 ye 17 5 - 3 Pounder Gun
 I - 2 Pounder Gun
 With the Heads on
 ye 18 6 - 2 Pounder Guns with the Head on
 ye 20 4 - 3 Pounder Guns
 2 of Heads on & 2 want
 1 - 2 Pounder with the Head of
 ye 21 3 - 4 Pounder with the Head
 one
 ye 22 2 - 4 Pounder Guns
 2 - 3 Pounder Guns
 with the Heads off
 24 ye 23 Cared from the Warren Furnis to Gravetye
 Large Parsel of Iron

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1769

Mr Raby & Rogers Bill
 ye 24 3 - 4 Pounder Guns
 1 - 1 Pounder Gun
 With the Heads off
 ye 27 2 - 9 Pounder Guns
 With the Heads off
 ye 28 2 - 9 Pounder Guns
 With the Heads off
 March ye 2 3 - 4 Pounder Guns
 3 - 1 Pounder Guns
 with the Heads off
 ye 3 1 - 9 Pounder Gun
 1 - 4 Pounder Gun
 1 - 1 Pounder Gun
 with the Heads off
 ye 4 2 - 9 Pounder Guns
 with the Heads off
 ye 6 1 Longe 6 Pounder Gun
 2 - 1 Pounder Gun
 ye 7 1 Long 9 Pounder Gun
 1 - 2 Pounder Gun
 ye 8 1 Long 6 Pounder Gun
 2 - 2 Pounder Guns
 2 - 4 Pounder Guns
 ye 9 1 Long 9 Pounder Gun
 2 - 2 Pounder Guns
 1 - 4 Pounder Gun
 ye 10 2 - 9 Pounder Guns
 1 - 4 Pounder Gun
 4 - Halfe Ponders

Deliverd

ye 13	3 - 4 Pounder Guns 1 with the Head on	
	2 - 3 Pounder Guns 1 with the Head on	
	2 - 1 Pounder Guns with the Heads on	
ye 14	1 - 4 Pounder Gun	
	3 - 3 Pounder Guns	
ye 15	1 - 3 Pounder Gun	
	1 - 2 Pounder Gun	
	1 - 1 Pounder Gun	
	1 - 9 Pounder Gun	
		Short and Large
ye 17	1 - 12 Pounder Gun	35 0 0

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1769	Mr Raby & Rogers	From Gravetye	
March ye 18	1 - 12 Pounder Gun		
ye 20	1 Iron Roll,		
	1 - 1 Pounder Gun		
	2 half pounder gun 1 Iron Plate		2.0.0
ye 21	Cared up from the Warren Furnis		
	to London		
	2 - 12 Pounder Guns		
	2 - 4 Pounder Guns		

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1769	Mrss Rogers & Finch account			
Jan ye	Cared at Severell times Back Carraige	Furnis		
	From the Warren to Gravetye		£	s d
	Paid for Halfe a Hund of faggots		2	0 0
	to Mr Hounsom			
	paid for Halfe a Hund of faggots		0	5 0
	to Ab ^{ram} Huggett			
	Paid a man for 5 days work			
	at 14d pr day for mened the Rode		0	5 10

1772

Mar 26

Gazeteer of Place Names in the Accounts

Boyles	Boyles/Boyleys Farm. 1½ miles S of E. Grinstead. TQ 396 365
Crowleys Down	Crawley Down. 3 miles W of E. Grinstead. A common in the 1760s. TQ 34 37
Felbridge	2 miles NW of E. Grinstead. TQ 36 39
Frenck Telleys	? Frank Tulley's/Tilley's.
Gravetye	Furnace. 1 mile of W. Hoathly. TQ 366 342
Lewsom	Lewisham.
Mill Place	Furnace. 3 miles SW of E. Grinstead. TQ 373 348
Red Hall	Rede Hall, Burstow, Surrey. TQ 319 414
Rovant	Rowfant. Between Crawley Down and Three Bridges. TQ 325 372
Seeman's Warfe	?
Venplase	Fen Place. Between Turners Hill and E. Grinstead. TQ 353 360
Wakehurst	Wakehurst Place. 1½ miles N of Ardingly. TQ 339 315
Warren Furnace	2 miles W of Felbridge. TQ 347 393
Willdewick	Wilderwick. 2 miles NE of E. Grinstead. TQ 408 403
Woodcock Forge	2 miles N of Felbridge. TQ 368 419
Woolwich	The Royal Arsenal and site of the Royal Brass Foundry. TQ 429 783