

SITES OF CHARCOAL BLAST FURNACES AT SHIFNAL AND KEMBERTON, SHROPSHIRE, 1972

**Kemberton Furnace**

Location: Grid Ref SJ 744044 (*Kemberton Mills or Kemberton Paper Mills*)

On the Westley Brook, some two miles south of Shifnal furnace, and on the Kemberton side of the brook, the parish boundary between Shifnal and Kemberton running down the centre of the stream. Derelict paper mills used up to the beginning of this century stand on the site, which is in a valley only about 50 yards wide. The water supply is from a mill pond of almost three acres formed by damming the whole width of the valley. There is a substantial quantity of charcoal, siag and other debris under and in front of the paper mill buildings and extending downstream along the tail race and in the brook. A small quantity of widely scattered cold-blast coke slag appears to have drifted on to the site from the roughly surfaced lane leading from Kemberton village. There is place-name evidence for the adjacent part of Shifnal

parish and the site is clearly identifiable from 18/19 century maps. (Fig 2).

**History;** Schubert at p. 379 says simply 'Furnace mentioned in list of 1717; in 1728 it was in the possession of Edward Kendall'. Whilst these dates can be pushed both backward and forward for a few years there is no conclusive evidence, to my knowledge, for either a firm date for construction or for blowing out, although the paper mills on the site were in use not later than 1790. Much more research is needed here.

I am trying to compile a reasonably coherent account of the two phases, 1567–c1640 when a simple furnace/forges relationship seems to have existed, and post c1640 when a much more complex relationship of furnace, forges and rolling and slitting mills can be discerned, with the forges at the Lizard being the link in each case. A sketch map, diagrammatic but essentially to scale, is annexed. (Fig 3).

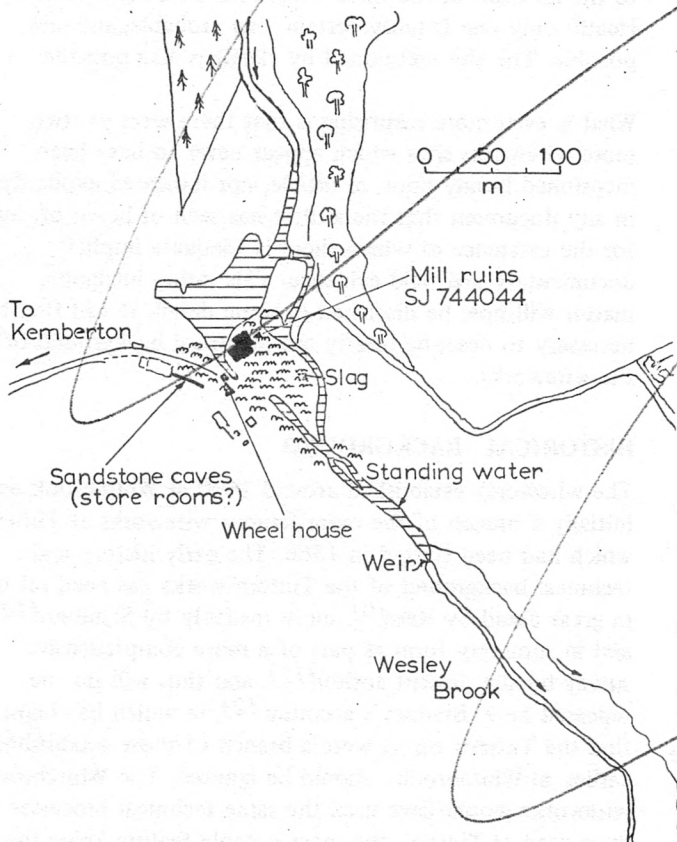


Fig. 2.

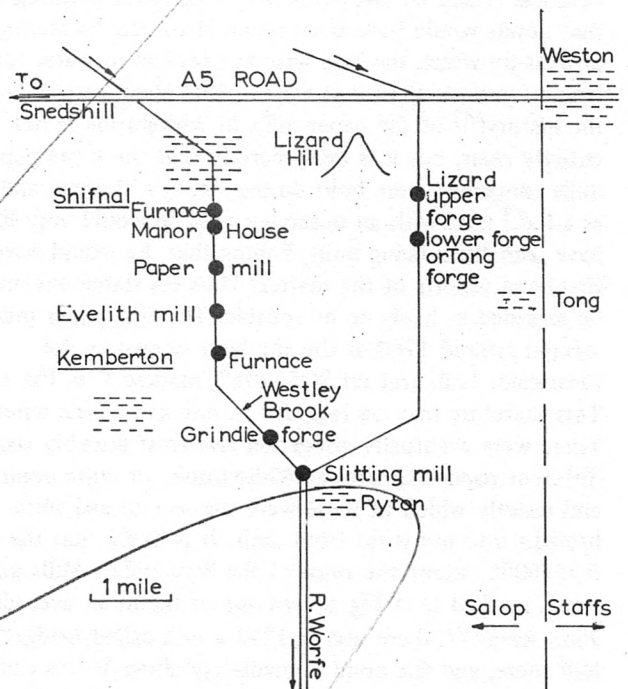


Fig. 3.

to be at an altitude of 461 ft – consistent with our estimate of about 460 ft at the wireworks end. (NB: A fall of a few feet would have been adequate to cause sufficient water to flow in such a wide leat). So we conclude that this part of the wireworks derived its power from the White Brook itself. There is no reason to suppose that the pond concerned existed at the time of the wireworks, however.

A vertical section or profile of the streams and watercourses is shown, purely diagrammatically, in Fig 4, so that the vertical relationships may be easily visualized.

Why were these works not at the bottom of the valley of the Manor Brook, using the power of this brook which presumably was sufficient for the corn mill there? Why place them in such an awkward position, high up on a hillside with no easy access? Transport of material to and from the works must have been difficult and expensive. There can presumably be no other answer than that the Manor Brook was considered too small a stream and too unreliable, and that it was desired to use the water of the White Brook itself.

#### The remains of the site and buildings (Site A)

The author, assisted by his wife, has made a rough survey of the site which is shown in Fig 5. The physical remains comprise a large number of stone walls and level areas created by means of retaining walls on the very steep valley side. Only two ranges of buildings can now be identified as such – these are marked as 1 and 2 on the drawing – and they are only small buildings. They could have been stores, or other outbuildings forming part of the wireworks, or they could be more recent. The fact that half of a cider-mill base-stone (*or "chase"*) lies near building 1 suggests a later agricultural use of the site, and indeed the Tithe Map<sup>(20)</sup> shows the site as occupied by a cottage 120 years after the abandonment of the wireworks. The large amount of retaining wall providing perhaps 2000 sq ft of flat ground is not likely to have been built especially for agricultural purposes on a barren and rocky hillside suitable only for forestry. The fact that these artificially-created flat areas lie just below the end of the leat makes it almost certain that this was an industrial site, and therefore the site of the wireworks. Presumably there were buildings on these flat areas, probably of two or three storeys; and there must have been at least one water-wheel, but no sign of its location could be found.

All the walls are made of roughly-dressed stone blocks without mortar, except where the natural rock of the hillside has been used in situ.

The walled path up to the old leat is interesting. It has stone steps in it, and presumably was the main means of access to the site from the elevated village of The Narth, which was certainly a well populated village in the 18th century, as indicated by Aram's survey.

#### Site B

There is a local tradition that the wireworks were on the hillside about a hundred yards south of Wye Valley Mill, and careful examination of the 25-in OS map<sup>(21)</sup> shows what might be a leat running from a spring, eastwards towards a point just above this site. It runs almost exactly along the 300 ft contour, and its existence is vouched for by an elderly local inhabitant who remembers it as having running water in it when she was very young. Its route can be verified even now by careful field search. Although much of it has disappeared, especially where it ran alongside a lane, there are places where its stone construction is clearly visible. It was between 2 and 3 ft wide, with stone walls.

Below the eastern end of this leat, shown as LEAT 2 in Figs 1, 4 and 6, is a steep path to the site marked B. Just to the left of this path is a patch of sloping ground covered quite deeply with small hard cinders. Just below this, on both sides of the still-steep path, is a levelled area, only about 15 ft wide but giving a total usable area of perhaps 1500 sq ft. Below this again is another levelled area, on which now stand the ruins of a cottage. That this may have been a works site is supported by the fact that there are traces of a gently-sloping road from it down the hillside to the valley road near Tump Farm. This road was clearly shown on the Tithe Map.

The conjunction of the leat, the cinder patch, the levelled areas and the road does give some justification for regarding this as a probable wireworks site. It must have been quite a small unit, for apart from the limited area of the site, the leat was only a small one. Although the OS map shows the leat as fed by a spring, it is of some relevance that there is on the Manor Brook, at an altitude of just over 300 ft, an old dam. There must have been a storage pond here, and perhaps the leat really ran from this. As the pond at the corn mill on the Manor Brook was a very tiny one, this storage pond may have been merely to conserve water for the corn mill, but it is tempting to think it was really for the wireworks. The vertical relationships may be seen clearly in Fig 4.

#### Further aspects of the history

The existence of a leat or a watercourse cannot in itself be

# The seventeenth century wireworks sites at Whitebrook, Monmouthshire

by D G Tucker

## INTRODUCTION

While the existence of wireworks at Whitebrook, between Tintern and Monmouth, in the 17th century is beyond doubt, there is nevertheless a marked uncertainty about their exact location. As they ceased operation around 250 years ago, this is not altogether surprising. The late Mr P G Harris of Monmouth told the author in 1969 that he thought the site was near the mouth of the White Brook (ie near where it joins the River Wye), where on its northern bank he had found traces of iron slag or cinder which might have been waste from the wireworks. This seems a very reasonable theory, as supplies for the works would have had to come by the River Wye, and there was undoubtedly a mill of some sort here (just opposite the present Tump Farm, at grid reference SO 537067) well before 1772 because in a map<sup>(1)</sup> of that date there is a reference to the "New Ingen"; there are ruins of a mill still standing there now. This site is marked F in Fig 1.

Charles Heath<sup>(2)</sup>, writing in 1803, stated that three paper mills were erected on the ruins of the wireworks. This proposition has been repeated by Bradney<sup>(3)</sup> (whose industrial history is, however, very inaccurate), by Peacock<sup>(4)</sup> and by Grey-Davies<sup>(5)</sup>, the latter pointing out that ponds would have been required for the "watering" process by which the iron wire was soaked in water for lengthy periods at various stages of its manufacture. Now the history<sup>(6)</sup> of the paper mills in Whitebrook is not entirely clear, but it is fairly certain that the three paper mills concerned were built during Heath's lifetime, and, as a local man with an observant eye, he would very likely have seen them being built. Failing that, he would have had first-hand reports of the matter. Thus his statement must be regarded as likely to be reliable. The first paper mill was erected around 1760 at the site later known as the Clearwater Mill, grid ref SO532067, marked C in Fig 1. This therefore may be regarded as one site of the wireworks. There were eventually altogether five (just possibly six) different paper-mill sites at Whitebrook, all quite separate, and exactly which of these were the second and third to be brought into use is far from clear. It is likely that the site at SO535066, where the ruins of the Wye Valley Mills now stand, marked D in Fig 1, was one of them, as, according to John Aram<sup>(7)</sup>, there was in 1772 a mill called Bridget's Mill there, and the pond immediately above it was called the Paper Mill Pound; there was also a smithy associated with it. One thing is clear; if Heath is correct, there were several different and well-separated wireworks sites.

A possibility for the third wireworks site is suggested by a curious feature in another of Aram's maps<sup>(8)</sup>, shown in



Fig 2. Aram was recording the estates in the Manor of Trelech and was therefore concerned only with the land forming part of that estate. He consequently left a blank in the White Brook where a portion of the "Lands belonging to the Old Wireworks" made an excursion northwards across the Brook, as can be seen in the figure. While it is a pity that he did not show what was in this blank, it was almost certainly the embanked pond at SO521071, which still exists in good condition, and which may therefore have been part of another wireworks site, marked E in Fig 1. The pond which now exists immediately above this, at SO519071, was probably not built until required for the paper mills. In between these two ponds is the site of the paper mill known in the second half of the 19th century as Lower Fernside Mill (the house beside it being later known as Sunnyside and now Traligael); but this site was in 1772 associated by Aram only with the "ruins of a cott", and is unlikely therefore to have been the site of part of the wireworks.

It can now be seen that there is still considerable doubt as to the location of the three wireworks sites mentioned by Heath; only one is fairly certain, one probable, and one possible. The site mentioned by Harris is also possible.

What is even more surprising is that there were yet two more wireworks sites which appear never to have been mentioned in any book or article, nor indicated explicitly in any document that the author has seen or heard of, but for the existence of which there is adequate implicit documentary and field evidence. This rather intriguing matter will now be discussed in some detail. It will first be necessary to describe briefly the historical background of the wireworks.

## HISTORICAL BACKGROUND

The wireworks established around 1600 at Whitebrook were initially a branch of the more famous wireworks at Tintern, which had been started in 1566. The early history and technical background of the Tintern works has been set out in great detail by Rees<sup>(9)</sup>, more readably by Schubert<sup>(10)</sup>, and in summary form as part of a more comprehensive survey by the present author<sup>(11)</sup>, and thus will not be repeated here. Bradney's account<sup>(12)</sup>, in which he claims that the Tintern works were a branch of those established earlier at Whitebrook, should be ignored. The Whitebrook wireworks would have used the same technical processes as were used at Tintern, the most notable feature being the use of water power for the actual wire-drawing process. Water power would also have been required for blowing the forges, for hammering, and for other miscellaneous purposes. Thus

THE SEVENTEENTH-CENTURY WIREWORKS SITES AT WHITEBROOK, MONMOUTHSHIRE

ways which runs between Whitebrook and The Narth (*and also to Pen-y-fan*) was built by the Company. Certainly this system of paths is fascinating and unusual, and its origin nowhere recorded as far as the author is aware.

Although account books for the period 1672–1687 have survived<sup>(29)</sup>, they treat Tintern and Whitebrook as one unit since both were then under the control of Thomas Foley; they do not therefore help to indicate the scale of operations at Whitebrook, nor do they give any clues as to sites. However, a solitary schedule of material in stock<sup>(30)</sup> does have separate columns for Tintern and Whitebrook, and from these it is clear that stock held at Whitebrook was roughly the same as at Tintern. This suggests that the scale of operation was about the same at the two places.

That there was more than one site at Whitebrook even in 1609 is suggested by the wording in a note<sup>(31)</sup> relating to a lease of that date from “Mr Catchmay and Sr Richard Catchmay” granting to the Company “The Mill-close whereupon some of the new works for the making of Wyer are standing”.

It would also be wrong to think no development took place between around 1607 and the main removal in 1631, for<sup>(32)</sup>

*“in 1625, Lord Herbert, son of the Earl, questioned the right of the Society to construct watercourses leading to the cutting-house and demanded an increased rent”.*

All in all, the supposition that there were at least five sites in use by the wireworks does not seem very unreasonable.

**ACKNOWLEDGEMENTS**

Thanks are due to the staff at the National Library of Wales, the British Museum, the Public Record Office, the Monmouthshire County Record Office, the Herefordshire County Record Office, and the National Register of Archives, where searches have been made by the author. Acknowledgement is due also to the **Duke of Beaufort** for permission to use material from the Badminton papers. The advice of, and discussion with, **Mr H W Paar** and **Mrs Joan Day** have been most helpful.

**REFERENCES**

1 John Aram, **Map No 6 of the Trelleg section of the Survey of the Manors of Usk and Trelleg, 1772.** National Library of Wales, Badminton Papers.

2 Charles Heath, **“Historical and Descriptive Accounts of .....Tintern Abbey.....”**, Monmouth, 1803.

3 Sir Joseph Bradney, **“A History of Monmouthshire”**, Vol 2, Part 2, **“The Hundred of Trelech”**, London, 1913, p.222.

4 T B Peacock, **“Railways to Tintern and Coleford”**, London, 1952, p.16.

5 T G Grey-Davies, **“A metallurgical history of the valley of the Wye”**, *Metallurgia*, 72, 1965, pp 153-8

6 D G Tucker, **“The paper mills of Whitebrook, Monmouthshire”**, *Archaeologia Cambrensis*, 121 (for 1972), in press.

7 Aram, see ref 1.

8 Aram Map No.10, loc. cit.

9 William Rees, **“Industry before the Industrial Revolution”**, Cardiff, 1968.

10 H R Schubert, **“History of the British Iron and Steel Industry”**, London, 1957

11 D G Tucker, **“The Wireworks at Tintern and Whitebrook”**, Historical Metallurgy Group, pre-printed paper for 8th Annual Conference, Cardiff, September 1972

12 Bradney, see ref 3

13 Rees, p.643, see ref 9

14 British Museum, Loan 16

15 Y R H Probert, **“The Parish of Penallt”**, 1966, pamphlet obtainable at Penallt Vicarage.

16 Aram, Map No 7, loc. cit.

17 25-inch Ordnance Survey map, 1879/1921, Sheets Mon XV 13 and XXI 1 and 2

18 Aram, Map No.5, loc. cit.

19 Tithe Map for parish of Penallt, 1848; in Nat. Lib. Wales, Aberystwyth

20 Tithe Map for parish of Llandogo, *ibid.*

21 25-inch OS map, Sheet Mon XXI 1 and 2. Mr H W Paar first drew my attention to this feature.

22 Badminton Papers, Group II, 11,496, Nat. Lib. Wales.

23 Foley Papers, F/VI/Af/18, Herefordshire County Record Office.

24 Rees, as ref 9, p.628

the choice of sites for the works would have been greatly influenced by the need for adequate water power.

While a branch of the Tintern works, the Whitebrook works were owned by the Company of Mineral and Battery Works, and the Company retained their interest in Whitebrook long after they gave up their control of the Tintern works in 1631. The land on which the works were built at Whitebrook was owned by the Earls of Pembroke, whereas that at Tintern was owned by the Earls of Worcester, later the Dukes of Beaufort. It is believed that the Whitebrook wireworks ceased operation around 1720, whereas the Tintern works carried on until the end of the nineteenth century. The Whitebrook works appear to have had 62 working places or "seats" in 1677(13). The buildings must therefore have been fairly substantial.

The Whitebrook wireworks appear to be much less well documented than those at Tintern. For the latter, the large collections of the papers of the Dukes of Beaufort (the Badminton Papers) at the National Library of Wales provide a magnificent source of information. For Whitebrook there is nothing comparable known to the author. The Court Books (*or minute books*) of the Company of Mineral and Battery Works exist in part(14), and are very valuable historically; unfortunately they give no information on the layout or location of the works. The only really useful documentary information comes rather fortuitously from the maps of the Manor of Trelech (referred to earlier) surveyed and drawn by John Aram in 1772. Aram had previously surveyed and mapped parts of the estates of the Duke of Beaufort, such as the Manor of Portcasseg a few miles to the south, and the maps of the Manor of Trelech (Trelleg, as it was spelt then) may well have been prepared because of the impending purchase (stated by Probert (15) to have been in 1774) of the manor by the Duke of Beaufort. The owner, Robert Clive, had purchased the manor from the Windsors, who had obtained it by marriage from the Earls of Pembroke in 1699. Aram's maps are drawn to a large scale (some 5, some 4 chains to an inch) and are reasonably accurate, at any rate by the standards of the time.

Apart from the small pieces of information used in our introductory discussion, there is in one of the maps(16) an interesting item, namely "The watercourse to the old wire works"; this is a leat running at an altitude of about 460ft in a situation totally unrelated to the other possible wireworks sites. It therefore raises the possibility – indeed, almost a certainty – that there were yet other wireworks sites outside the main valley. This particular watercourse, shown as LEAT 1 in Fig 1, leads to what we shall call Site A.

#### Site A

The data from Aram's map has been incorporated in the author's composite map, Fig 3. The area concerned is above the Manor Brook, a tributary of the White Brook. The high altitude of the leat makes it very unlikely that the works would be 200 ft or so below, in the bottom of the valley of the Manor Brook, and even more unlikely that they would be lower still in the main valley.

Field investigation led to a straightforward identification of the leat, which for about 1200 yards (ie for most of its length) is readily traceable, much of it having been used as a footpath in the past. It is marked as such on the large-scale OS maps(17). It was evidently a substantial leat, perhaps 6ft wide, although it is hard to be sure of the width as the walls are derelict. Where it crosses the walled footpath from Holy Trinity Church up to The Narth it turns southwards and then appears to descend the valley side, but there is little trace of this part of it now. About 70–80 ft below are some very old remnants of stone walls forming a complex of buildings, with comparatively large levelled areas on the steep hillside. There can be little doubt that this was the site of the wireworks. There is a small discrepancy in relating this to Aram's map, for he shows the leat continuing for another 100 yards before turning downwards. However, the lie of the land makes it quite improbable that he could be right in this detail; in any case he was not in any way concerned with the wireworks as such. Thus this amount of error was perhaps possible. So the wireworks site was in this unlikely place, nearly 350 ft above the level of the River Wye – grid reference SO 531066.

The author was unable to trace the leat up to its source, as there seem to be no signs of it above the grid reference SO 521070. Confirmation that the extension of the line of the leat shown in Fig 3 to the north-west as shown in Fig 1 is a correct interpretation of the field evidence is obtained from a clue given in yet another map(18) of Aram's; in a small inset, unrelated to other maps, he shows a small field bounded by "The Watercourse to the Old Wire Works" and showing the watercourse meeting "The Road to White Brook", the field being "An Orchard opposite Pwoolth Blythan". The Tithe Map(19) shows a field called "Pull Blethin" (NB: the word is undoubtedly the Welsh "*pwll*") starting about 150 yards below the mill pond of the paper mill at grid ref SO519071. There is thus little doubt that our interpretation is correct. If then we extend the line of the leat further as shown in dots in the map of Fig 3, we find it still lying nicely between the 400 and 500 ft contours and joining (or rather leaving) the White Brook at the mill pond shown, which the 6 inch OS map shows

THE SEVENTEENTH-CENTURY WIREWORKS SITES AT WHITEBROOK, MONMOUTHSHIRE

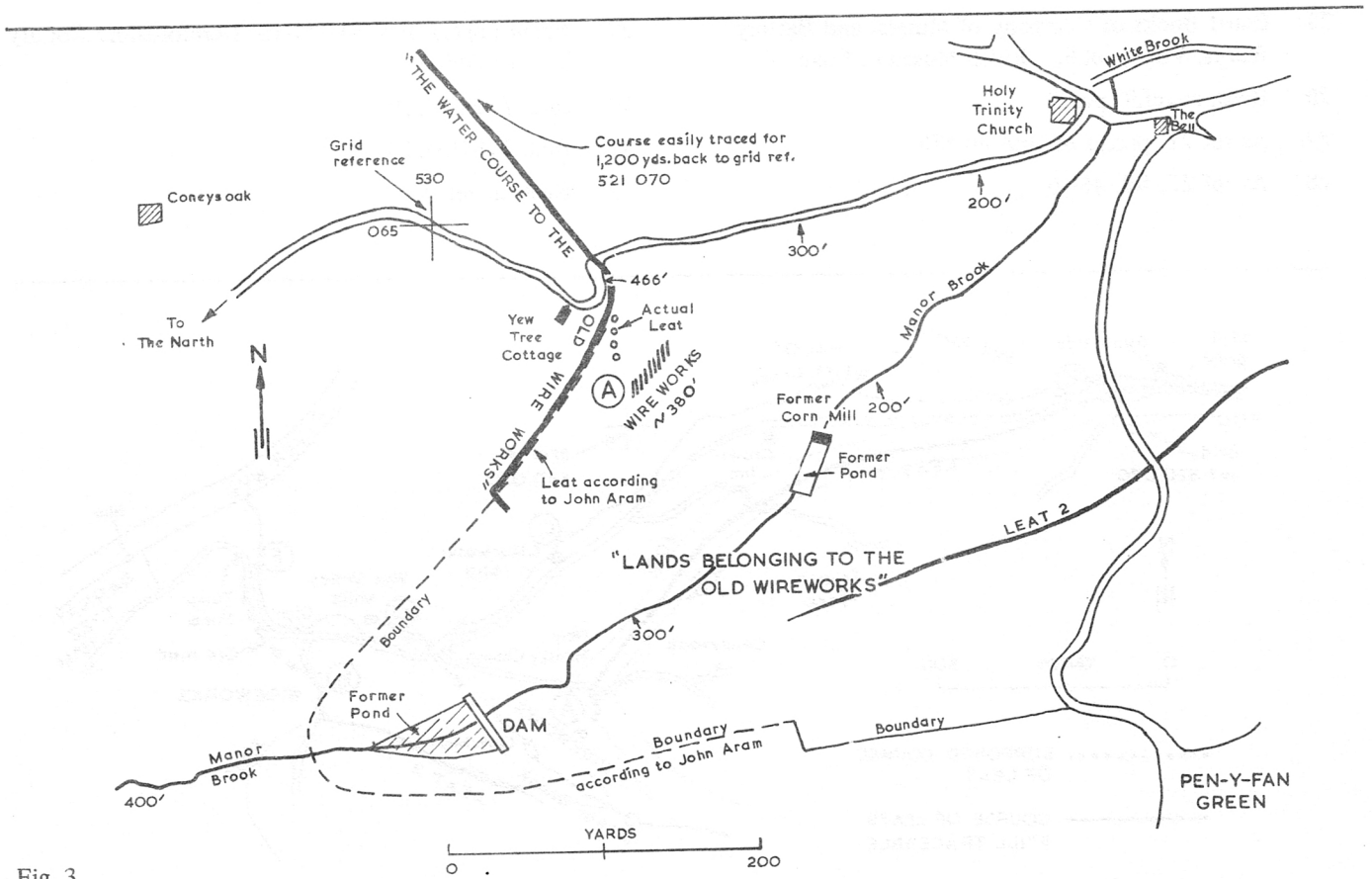


Fig. 3.

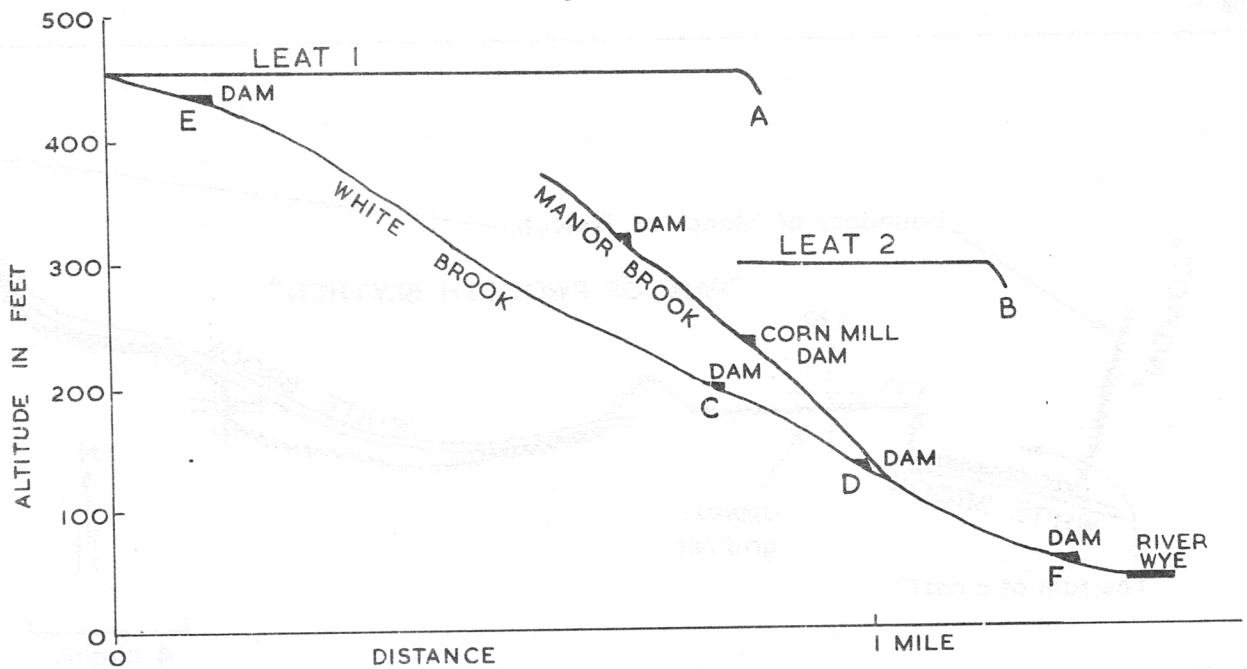


Fig. 4.

THE SEVENTEENTH-CENTURY WIREWORKS SITES AT WHITEBROOK, MONMOUTHSHIRE

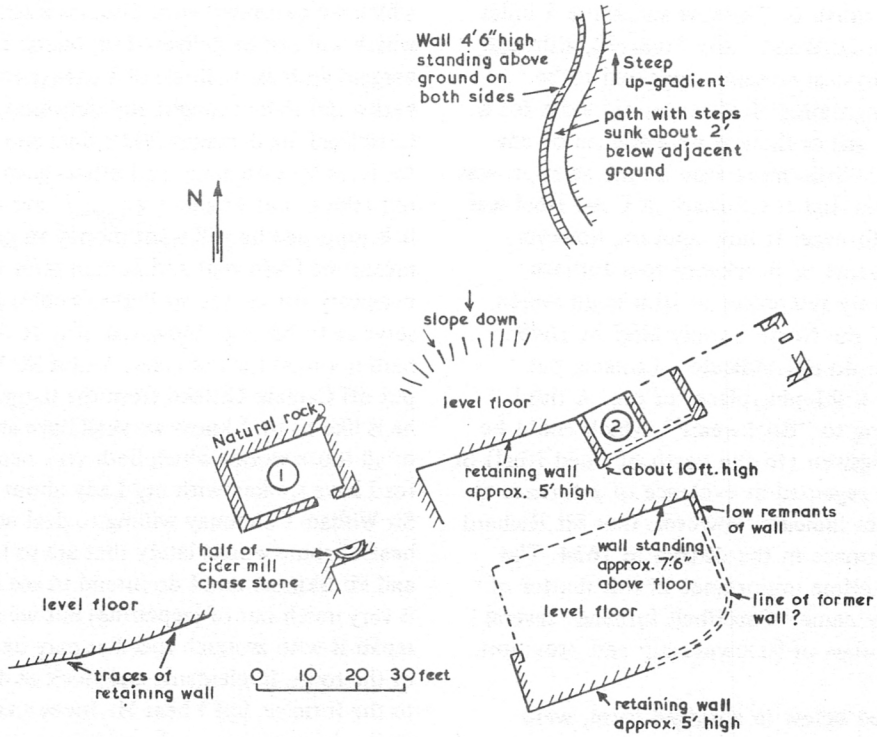


Fig. 5.

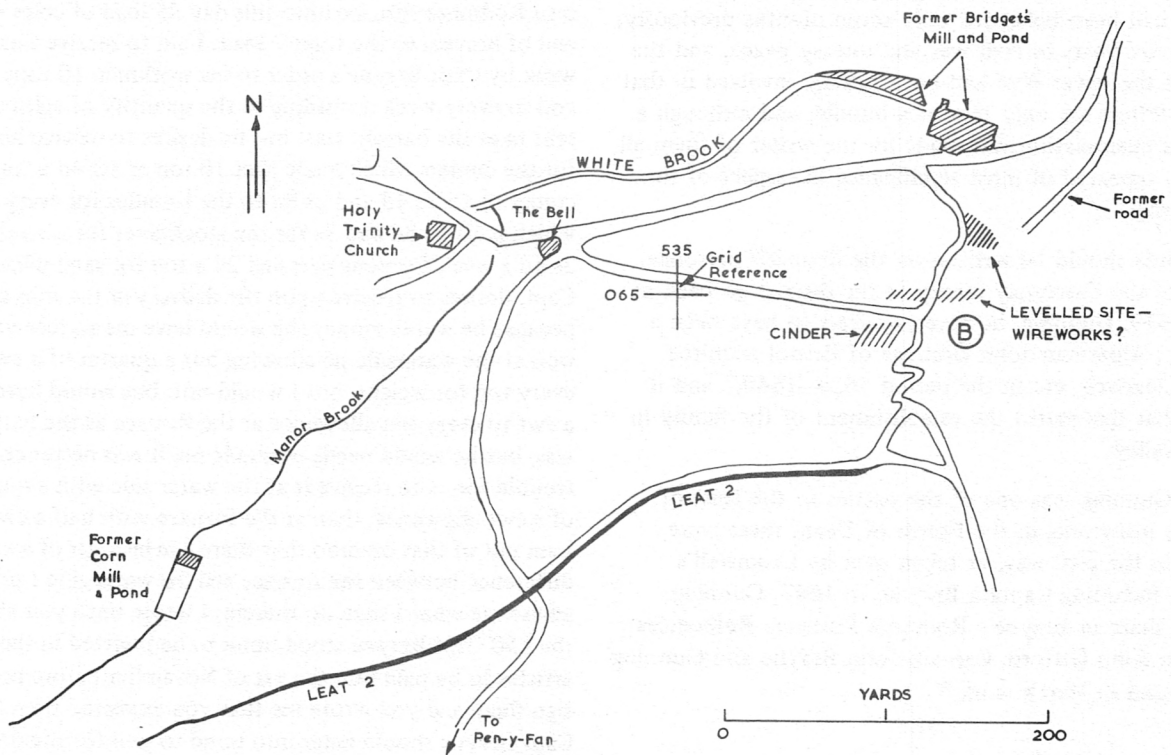


Fig. 6.

# The furnaces at Coed Ithel and Trellech

by H W Paar

Two blast furnace sites in eastern Monmouthshire, at Coed Ithel (about 1½ miles north of Tintern) and some 3 miles to the west (in Woolpitch Wood, near Trellech), although presenting generous physical remains, appeared to be totally without documentation. References did exist for a furnace at Brockweir, and as there is no evidence of one there, and Coed Ithel is little more than a mile away, it was a reasonable hypothesis that the furnace at Coed Ithel was known as Brockweir furnace. It now appears, however, that in assigning the name of Brockweir to a furnace. Schubert<sup>1</sup> was misled by references to Brockweir which occur in Hart<sup>2</sup> and in the North Family MSS of 1649, which on examination do not indicate a furnace, but (by implication) only a shipping-place for ore. A third reference<sup>3</sup>, by referring to "Brickweare", which could be construed as either Bigsweir (to the north of Coed Ithel) or Brockweir, cannot be regarded as evidence of a furnace at the latter place; it does indicate, however, that Sir Richard Catchmay owned a furnace in the district in 1634. The North letters<sup>4</sup> are of prime importance in this matter of location, because they name "Cordithell furnace" several times, and give particulars of its ownership and provision.

The letters, reproduced below in abridged form, were written to John Gunning, a Bristol merchant, by his agent in the Wye Valley, William Seargent, in September 1649: Charles I had been beheaded only seven months previously, after over six years of civil war and uneasy peace, and the district of the lower Wye had been heavily involved in that war. The letters are only two of a bundle, and although a superficial examination was made by the writer of them all, these two appeared of most significance in respect of the iron industry.

A few words should be written on the dramatis personae. Records of the Catchmay family in the district go back at least to 1339. Gunning, however, appears to have been a newcomer; Alderman John Goninge of Bristol acquired lands in Clearwell, etc in the period 1624–1640,<sup>5</sup> and it is likely that this marks the establishment of the family in the Wye valley.

In 1636, Gunning was one of the parties to the lease of the King's ironworks in the Forest of Dean; these were damaged in the civil war, or taken over by Cromwell's followers, including Captain Brayne. In 1647, Gunning secured a share in Brayne's Rodmore Furnace. References to Captain John Gifford, Captain John Brayne and Gunning will be found in Hart's work.<sup>6</sup>

## [Letter sent to John Gunning]

Worthy Sir, Mr Skinner told me he hath written to you what

we did in Wales about those woods and 200 load of charcoles which we bargained with Thomas Evans for, at 29s a load which will not be delivered till March next, and I am now in bargain with Mr Callowe of Landogoe for 6 or 800 doz of barkwood to be brought and delivered at the furnace head at Cordithall; he demands 20d a doz; and I offered 19d a dozen for it, as Mr Catchmay and others gave last for it, but he will not take it, but I believe we shall have it so at michlemas, for it is supposed he will want money to pay his rent; and in the meantime I will wait and harken after it, for it will be very necessary for us, for Mr Perkin's coles and that wood will serve us to begin to blow, and if it be 800 doz it will make us hard upon 50 load of coles. And if Sir William Catchmay can put off Captain Gifford from the bargain of his woods which he is like to to, I know we shall have an offer and the refusal of all those woods which lieth very necessary for Cordithall, for I have spoken with my Lady about it and I find her and Sir William Catchmay willing to deal with you for it; I do hear of some woods lately that are to be sold about Trellegge and Mr Skinner and I do intend to see it this week, the furnace is very much out of [repairing] but we are now setting on to repair it with as much speed as may be; I have taken an acct. of the tools, implements and stock as doth remain and belong to the furnace, but I hear Mr Jones and Captain Harbert do make claim to part of the said furnace but Mr [xposer] Catchmay saith they have no right at all in it; There is sent into Rodmore furnace unto this day 25 load of coles 4 sacks and of brayzes to the forge 2 load. I am to receive this next week by Capt Brayne's order to his workmen 10 tons of iron and so every week according to the quantity of coles to be sent in as the bargain was: but he desires to receive his money for the cinders which made that 10 ton at 10/4d a ton which comes to £5 3s 4d and 2s 8d to the founder for every ton which is £1 6s 8d and 7s for the stocktaker for 2 weeks at 3s 6d a week for your part and 2d a ton for sand which the Capt. desires to receive upon the delivery of the iron always because he wants money; he would have me to receive the iron at the waterside he allowing but a quarter of a cwt to every ton for weight, but I would not, but would have half a cwt to every ton allowance at the furnace as the bargain was, but he would needs persuade me it was better and less trouble for us to receive it at the water side with a quarter of a cwt allowance, than at the furnace with half a cwt but I am not of that opinion that there can be a qtr of a cwt difference between the furnace and the water side I pray advise me what I shall do therein; I wrote unto you about the £50 Capt Brayne stood upon to be inserted in the new articles to be paid him the 1st of November before he would sign them and you wrote me that you expected then that Capt Brayne should enter into bond to you for the delivery of the iron according to the bargain he is loath to enter into bond but in respect he stands at present in want of money if