

FIG I.

# MILL SITES ON THE LONGHOPE - FLAXLEY - WESTBURY STREAMS

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### INTRODUCTION

From the high plateau of the Forest of Dean and nearby May Hill, a number of streams flow to the Severn and the Wye. These streams have through the centuries been used for water power. The number of mill sites used for powering machinery for corn milling, paper making, furnaces, forges and even cloth manufacture must number at least 100 in the area, and perhaps even approach twice that number. In 1969 David Jones wrote an extensive paper on the Corn Water Mills of England and Wales,<sup>1</sup> yet in that work there is a gap for this area. Other workers have written accounts of furnaces in the area. Recently, Mr. William Townley<sup>2</sup> surveyed the mill sites of the Flaxley Valley from St. Anthony's Well to the Severn. This valley includes the well-known site of Guns Mills, quoted as being the finest remains of a square hearth furnace dating from the early 17th century still to be found in Britain.<sup>43</sup>

Here, an attempt is made to cover comprehensively the history of the whole stream system which empties into the Severn at Westbury, bringing into focus the historical forces which have influenced this facet of industrial history. The first Map (1) illustrates the streams and the known, or presumed, sites.

### MEDIEVAL REFERENCES TO MILL SITES (to 1500)

The first reference to a mill in the area is Domesday 1087, when a water corn mill existed in the Manor of Longhope and was apparently the only mill for the Hundred of Westbury, which included Bulley, Minsterworth, Churcham, Westbury, Blaisdon, Longhope, Newnham and Dene (i.e. Mitcheldean and Littledean) and perhaps even Bicknor. It excluded Huntley. The mill was valued at 1s.5d., which compares with a mill in Dymock at 7s.6d. and at Upleadon at 4s.0d.<sup>3</sup> The location of this mill is conjecture, confused because Blaisdon is included in the Manor of Longhope. Westbury and the eastern area of the Hundred

were the most important farming areas with 50 plough teams, Longhope and Dene had perhaps 30, whilst the Newnham area had none. However, in spite of the larger area of farming being remote from the mill, the three most likely sites for this mill are at (2), (11) or (3) on the map. Site (11) at Brook Farm has an exceedingly ancient house in a very natural location to generate a head of water, whilst at (2) Court Farm, there are ancient earthworks looking very like an arrangement of mill pond and leat. This farmhouse was in 1717 called the Court House<sup>4</sup> and was the manor court of Longhope. Site (3) is occupied by a very old building, perhaps 15th century, by the stream.

The next reference to Longhope Mill is about 1200, when Gilbert of Monmouth and Berta his wife grant to the Abbey of Flaxley a sum of 5/- from the proceeds of the mill of Ope for the purchase of wine for the celebration of the sacrament. If any monies were left over these could be used for the repair of books.<sup>5</sup>

By the year 1200, it is nevertheless certain that a number of more mills had been built on this stream system. Roger de Bosco holds a mill from Geoffrey de Dene (Lord of Dene) in 1200. It seems very likely that this is at the time a relatively new mill, since Roger was in argument about the placing of his mill dam within 20 perches of the monks' bridge and causing it to be in danger of flooding.<sup>6</sup> An agreement was later arranged and Roger moved his dam and, moreover, granted 6 acres plus the field near his mill to the monks.<sup>7</sup> Where exactly this mill was is not clear. The wording of the grant suggests a more open area than the location of Flaxley Mill (20) and suggests mill (27) at Waldrons, which is still within the probable original lordship of Dene.

During the 13th century a considerable number of references to mills and forges appear:-

- 1224 "Richard Eston, Wm. de Dene and Richard de Westburie held forges in Flaxley of the King and should pay Wm. de Patot sheriff of Gloucestershire £20 out of them."<sup>8</sup> These forges are not in the Abbey precincts and may be sites (21) to (23). Such forges were not, of course, necessarily water powered.
- 1274 Gilbert Talbot died possessed of Longhope Mill worth 40/-.<sup>9</sup> The value of this mill is very great, when compared with others, being 7 times the value of Abenhall mill.
- 1281 The perambulation of the boundaries of the Forest of Dean<sup>10</sup> mentions a number of mills. "Veterem molendinum" (old mill) is definitely site (34), which is Littledean Old Mill and now a coal yard. That it

was old in 1281 suggests that we can put its building at at least 100 years earlier.

Later on we read of the "novo molendino" (new mill) which is possibly somewhere near Guns Mills (19) but all that is certain is that it is in the wood of Oures or Ovres in the Baileywick of Abenhall.

1292 In the Taxation of Flaxley Abbey " by Pope Nicholas, we have a very good idea of the extent of the Abbey's property. The Abbey apparently owned close to, or within the farm of the abbey, a "molendinum foler" (fulling mill) and a "molendino aquatico" (water mill). It was the custom of the Cistercian monks to enclose all necessary buildings such as a mill and water supply within the precinct wall. It was usual for the monks to use the stream to flush out the drains from the necessarium. Being conscious of hygiene, the monks are not likely to have used the sullied stream outflow for giving power to the mill wheel. It therefore seems likely that the water mill was located west of the abbey. The present Flaxley mill seems too far away to be the Abbey Mill and there is no indication of ecclesiastical architecture about it. A more likely site is next to a pool just by the main drive, which existed until the rebuilding of the house in 1777. This pool can be seen in Kips drawing of the house in Atkyns' History of Gloucestershire, Site (24).<sup>12</sup> Other Cistercian abbeys, as at Fountains, had a similar arrangement.

The fulling mill might well have been at Site (25) or (26) but a strong contender is Site (29). A close proximity to the abbey downstream would be even more unwelcome for a fulling mill than for a corn mill, as fulling generally needed clean water. Site (29) is close upon a field distinctly named Tuck Mill Field in 1717 or thereabouts.<sup>13</sup>

In 1534 Wake Mill in Borsley (Boseley?) was to revert to the abbey.<sup>14</sup> Fulling mills were variously known as Tuck Mills or Walk Mills. Wm. Townley<sup>2</sup> suggests that this site is likely as teasels are found growing here. It is possible that a teasel gig might have been used but such use was barred by law in 1552, soon after its invention.<sup>15</sup>

It is possible that after the dissolution (February 4th, 1536)<sup>16</sup> the new owner, Sir William Kingston, developed the mills but the lack of documentary evidence suggests to the contrary.

If the determination of the Sites (24) and (29) is correct, it leaves Sites (25) and (26) vague as to whether

these were operating in 1292. Henry II gave a grant of an iron forge to Flaxley and it seems most likely that the Cistercians would have used water power even indeed introduced the use of water power<sup>17</sup> to provide a blast for a forge or furnace. It seems strange that the Pope's Taxation omits to mention any forges.

The 14th century increases the number of mills mentioned. Abenhall is particularly interesting:-

- 1301 Abbenhale 1 Water mill worth 6/8 held by Ralph de Abbenhale
- 1317 Abbenhale 1 Water mill worth 13/4 held by John de Abbenhale
- 1341 Abbenhale 2 Water mills ruinous worth 20/- held by Reginald de Abbenhale
- 1347 Abbenhale 2 Water mills ruinous and fallen down worth nothing.<sup>18</sup>

The manor of Abenhall was probably instituted about 1250<sup>19</sup> and its curious boundary, including as it does some iron mining area south-west of Mitcheldean and part of the Mitcheldean brook, is significant. Site (7), still known as Abenhall Mill, is probably one of the above sites. It could be that both mills were in the same building,<sup>4</sup> if not, then the second site is obscure. Guns Mills (19) is a possible site, since it was long considered a detached part of the parish of Abenhall.

These two possible sites appear to be the subject of a record between 1485-1518, when "1 mill called Barenysmill was in the lady's hand worth 13/4 and also a mill called Barton Myll worth 40/- and a tenement called Horsmill worth 8d."<sup>20</sup> The document is dated by the mention of Thos. More rector of Mitcheldean. Horsmill is probably a horse driven mill (cider?). Barton Myll is Site (7) at Barton Corner. The lady is Alice Walwyn who held Abenhall between 1471 and 1518. Barenysmill (mill at the boundary end?) must be at Guns Mills or just conceivably a site at the stream bridge just north on the very boundary of the main parish of Abenhall.

In 1301 also Ralph de Abenhall held a mill at Blaisdon. This is very likely to have been Site (36). If it were Site (15), Blaisdon Mill today, it is strangely ignored by the perambulation of c.1340 which goes right through it. On the other hand, the same perambulation mentions Seymours Mill (Seignours?) which must have stood on the small tributary nearby.<sup>21</sup> A perambulation of the Forest of 1667 mentions the same mill but states "where anciently stood the mill called Seymours". The same mill seems to be the object of the inquisition

in 1364, which refers to the mill in Northwode and the vill of St. Briavels. This site stands across the perambulation boundary between the Forest, as at that time described and under the control of the Constable of St. Briavels, and the hamlet of Northwood in Westbury.

In 1319 there are two water mills in Mitcheldean worth 22/- held by Wm. de Dene. Again it is possible that these were in the same building (probably Site (4)).<sup>22</sup> Mill End Street in Mitcheldean still indicates its location. This is Site (4). Site (5), the location of Court Farm, might have been the site of a second mill but this is obliterated underneath the new factory of Rank/Xerox. References to a mill in use at Site (4) occur in 1382, 1548, 1582, 1621 and 1623, the successive occupiers at the later dates being Wm. Bridgeman, Thomas Bridgeman and Wm. Bennett with James Garway.<sup>23</sup> The Colchester maps of 1785 show a Tan Yard on the site occupied by John Aldridge.<sup>24</sup> The Tan Mill was ruinous in 1786.

In 1337 there is a water mill in Westbury worth 10/- a year. The site of this must surely be the present mill site (31). This was operating continuously down to about 1927, when the road was widened and caused the mill pond to be drained.

In the above two instances previous inquiries did not mention any mills and it would seem likely that the Mitcheldean mill was built about 1300 and the Westbury one perhaps about 1330.

The following centuries have left few records of the mill sites and one must conjecture as to what changes had occurred. Below the history of the various mill sites is listed, as far as they are known:-

- (1) A furnace site, perhaps erected in about 1600. Ceased functioning about 1700. This site is very satisfactorily established by a map<sup>4</sup> of 1717, which shows Furnace Piece next to Longhope Church and has a little drawing of a furnace on it. The terrier list accompanying states "where formerly stood the furnace". This furnace site is in the orchard immediately north of Court Farm. Irregularities and a portion of wall mark the site. There seems not to have been any mill pond as such. Yet, the evidence suggests an overshot wheel several yards in diameter. Nourse Yate (who gave charities in Longhope) and later Richard Foley were owners. The furnace was about 21-24 ft in height. A description of its working is given by Hart.<sup>25</sup> The ore (or cinders) for this charcoal furnace must have come from Mitcheldean.

- (2) Court Farm site - if this was the ancient mill of Longhope - probably ceased functioning many years, perhaps centuries, earlier than 1700.
- (3) Probably an early site. Local reputé claims a pond on the other side of the road from the existing very ancient building, which may be 16th or 17th century. The house is called Tan House but there is no other evidence of it as a tannery by local reputé or documents. It has been, for the last 100 years, a butchers. Butchery and Tannery are inter-connected trades. The arrangement of the building strongly suggests a mill. In 1717 James Sansome held 3 mills in Longhope, "Birds Mill and 2 water corn mills with two parcells of land called upper and lower hill".<sup>4</sup> It is likely that these were mill sites (3), (10) and/or (11), unless they all refer to one site.
- (4) Mitcheldean Mill - probably ceased functioning before 1700. Not in existence in 1785.
- (5) Mitcheldean Court Farm site (?)
- (6) This is a site of a furnace which was never to be built. In 1747 the Lord of the Manor, Maynard Colchester, entered into an agreement with Daniels and Reynolds, Ironmasters of Bristol, to build a furnace at Barton Corner. Colchester was to have had delivered iron cinders @ 3/- per dozen (loads?) and wood @ 4/9 per cord. Braynes (charcoal) would be supplied @ 8/- load, which consisted of 12 sacks or horse loads. A note added to the agreement arguing for an annulment claimed that flaxley would pay 5/- dozen for cinders and that elsewhere cordwood can fetch 5/6.

The agreement was that the ironmasters were to deliver 500 tons of pig iron yearly to be delivered at Severne and Wye for £5/15/- ton. It is claimed that the going rate was in fact over £6/ton. The agreement was annulled in 1751.<sup>16</sup>

The Colchester family held in the manor considerable mounds of old iron cinders from pre-blast furnace days. Such a "cinderhill" was located near the brewery site in the town of Mitcheldean. The very close proximity of the stream suggests that there may have been a bloomery producing such cinders in earlier days, worked by the stream. These cinders went to the Flaxley Furnace (Site (25)).

- (7) Abenhall Mill. The records of this mill are more complete than for most others. This site was clearly important to the Manor of Abenhall and probably was

important in determining the manorial boundary which skirted it. Continuing from the medieval references we have:-

- 1548 Barton Mill leased to Wm. Brooke (late Robert Carpenter).<sup>27</sup>
- 1608 John Ayleway (Lord of Manor) died leaving Wyetts Mill with Lane Grove (wood adjacent).<sup>28</sup>
- 1714 Herberts Mill, alias Barton Mill, leased to Wm. Sergeant for 1 peppercorn by Mary Sansome. (Probably a sub-let).<sup>29</sup>
- 1729 Will of James Sansome. Left to his wife Herberts Mill with little Barton hill which he purchased of Nathaniel Pyrke.
- 1758 Here is a curious record suggesting 2 mills fairly close to each other - "A tenement formerly leased to Thos. Sergeant and formerly a grist mill £28 and also a dwelling house and water corn mill and mill meadow 3 acres tenanted by James Boseley £16".<sup>30</sup>

The main branch of the Sergeant family lived next to Barton (Abenhall) Mill at Hartsbarn, which they owned from the early Middle Ages.

- 1785 (Colchester Maps)<sup>24</sup> tenanted by Widow Baylis.
- 1821 Harpers Mill<sup>31</sup>

1840 Tithe apportionment Hannah Harper tenant to Maynard Colchester.

The mill ceased working about 1890-1900. It was not working in 1914.

- (8)& The Grist mills at Hartsbarn probably have a history of considerable interest, yet the records are obscure.
- (9) Hartsbarn was owned by the Sergeant family (taking its name from the ancient office of Sergeant-in-fee of the Forest of Dean) from soon after the Conquest down to the 1850s.<sup>32</sup> In 1702 a mill is mentioned<sup>33</sup> and two mills existed in 1782.<sup>34</sup> The tithe map of 1840 indicates two pools but only 1 mill. The 1878 map 6" O.S. suggests that neither mill existed. Traces to be seen today of stonework by the stream support the notion that two separate mills existed.
- (10) Parish Mill. Probably in existence in 1717<sup>4</sup> but at some time unknown was acquired by the Charity Trustees of Longhope and was in their hands in 1840, when it was occupied by James Parry. About 1921 it was sold by the Trustees and purchased by Mr. Bowkett, the father of the present owner Mr. Owen Bowkett. The present owner worked the mill until the Second World War and sporadically for a few years afterwards.



The mill machinery is still intact, except for the bolter and mill pond (see later for a description of this machinery).

- (11) Brook Farm - totally obscure - its appearance is of a mill. It is not difficult to see where pond and mill race could be. A millstone of quartz conglomerate lies in a path to the side. Local rumour has it that it was a mill. The building is of ancient construction.
- (12) The old saw mills. Possibly a grist mill in 1717<sup>4</sup> and owned by William Walsh. By 1840 it appears as owned by Hannah Harper (of Abenhall(7)that is) but occupied by James Parry (see also (10)). By 1878 it was a saw mills and appears to have worked until about the First World War.
- (13) Tan House Mill (the same name but distinct from Site (3)). This site offers one of the most intriguing subjects for documentary research. It appears clearly on the Longhope terrier map of 1717<sup>4</sup> as a corn mill, which was sold, as is indicated on the terrier in pencil, to Robert Daw who occupied it in 1717. A Daves had a mill in Longhope in 1662.<sup>35</sup> This document is a deed to the lease of the mill which was occupied by Elizabeth Daws relict of Maurice Daws to William Yeate from the Parish Trustees. At the end of the deed is written "And further whereas Mr. Thomas Weale for the more convenient supplying of his furnace or Bloome with water to keepe the same going hath digged and cut away part of the grounds of the said premises" (presumably the grist mill) "for the turning of water to the said furnace and soe enlarging the said furnace Pounds shall and will fill up said ditches, trenches, sluces, and pounds as formerly it was before the furnace was erected and the said mill hereby demised may be supplied with its accustomed watercourses as formerly it was and in the end of the said term so leave the same". This furnace appears to be a Bloomery. That is, it produced iron on an open hearth, formed by a blast from a bellows. It would have been quite small, producing only about 1 cwt of iron at a time (a 12 hour heat). In 1824 on Telford's Survey Map it appears as Furnace Mill and Tan Yard.<sup>31</sup> By 1840 both were occupied by Fred Coleman (Tithe map). The name Furnace Mill was used down to about 1914 but the mill ceased working before 1900. The furnace probably stood below the grist mill on the future tanyard site. It is interesting that in 1662 the mill was owned by the Parish (see (10) above).

There is a slight possibility that the 1662 document

refers to Site (10).

(14) The Probyn Terrier 1717<sup>4</sup> mentions clearly Cowmans Mill as a field opposite the existing Sewage Works. The name appears twice and is not a mistake for Hill. This field shows considerable signs of activity. There is a diversion of the stream so that the field is an island between a ditch and the stream and it is very bumpy. The mill had disappeared by 1717.

(15) Apparently an ancient site but the documentary evidence suggests it is not so and is, at most, a late medieval site and maybe later. In 1840 it was owned and occupied by James Parry (also occupier of Sites (10) and (12)). A little north of this mill stood a Tanyard in 1830 (O.S.).

(16), (17), (18), (19)

These are the complex known as Guns Mills. The buildings of the four sites are described below. The history and ownership of the sites still need some clarification. We can be certain that in 1775 mill (18) did not exist and that mill (17) was a corn mill. Mill (19) was the paper mill.<sup>36</sup>

In 1701 three mills (two corn and a fulling mill) were mortgaged to Thomas Foley for £100.<sup>37</sup> "Joseph Halsey of Fenn Stanton in Huntingdon Grocer and Rebecca Brayne Spinster daughter of Wm. Brayne of Littledean Gentleman ... grant and convey unto the said Thomas ffoley and his heires one Meese place whereupon was heretofore one Messuage Two Grist Mills and a fulling mill called Guns Mills and five acres of Meadow or pasture ground situate and being in the parish of Abenhall". (16) was presumably the fulling mill and (17) the corn mills. It seems unlikely that mill (19) was a corn mill, since only 20 years before it was an iron furnace and was so again in 1705. Circumstantial evidence of the name suggests that mill (19) was in use in 1629 and that there was cast 610 guns ordered by the Government for the States General of Holland. Nicholls states that a gun was later found at the site.<sup>38</sup> In 1635 it was held by Sir John Wintour. During the Civil War, it was handed over to Captain Brayne of Littledean but was destroyed in about 1650 by order of the Government. It is generally claimed that the furnace was rebuilt in 1682-1683, as there are strengthening sows of iron with these numbers on them in the walls of the furnace. Certainly the furnace was in ruins in 1680, as the 4th Order of the Mine Law Court of 27th April, 1680 states.<sup>39</sup>

The furnace was apparently acquired by the Foley Partnership of Ironmasters and under that management was providing iron as follows:-

1705-06	- 779 tons,	1710-11	- 562 tons,
1711-12	- 153 tons,	1717	- 200 tons,
1717-18	- 620 tons 6 cwt,	1730-31	- 467 tons,
1731-32	- 401 tons. 40		

The Foleys and associates had acquired furnaces in Wales and the Forest from 1646 onwards.

By 1743 Guns Mills had become a paper mill when "The ancient Ironwork called Gunsmills (now lately converted into a paper mill) is surrounded on every side by the fforest ... but is not withstanding taxed with and reported as part of the parish of Abinghall".<sup>41</sup> The following history as a paper mill is described by Mr. Harris in his paper in this journal. The paper mill ceased operation about 1879. Sir Thomas Crawley Boevey, at about that time, complains of the destruction of trout in the stream by the noxious chemicals from the paper mills (Flax. Cart. p.34).

The Lloyd family (see Sites (27)-(28), who ran the paper mills, must have built the house and converted mill no. (17), which by 1838 (Tithe Map) is referred to as "washing mills".

The Foleys remained in ownership of Guns Mills for some time after its conversion to paper. Joseph Lloyd was the tenant in 1775<sup>36</sup> but it was owned by Joseph Lloyd in 1838 (Tithe apportionment).

Mill (18) was built between 1824 and 1838 (Greenwoods Map and Tithe Map).

- (20) Flaxley Mill house certainly dates from before 1633, as it contains a fireback with the inscription:-

N  
I K  
GN  
1633

The Kingstons owned the Flaxley estate at this time. The fireback was no doubt either cast at Flaxley or at Guns Mills. The Mill may have existed during the early years of the Abbey's existence, but more likely is of later origin. The mill building seems to be of mid-late 18th century construction.

- (21) A small forge about 20 foot square. The wheel chamber is clear and much of the hearth remains.
- (22) Similar - no present remains, except traces.

(23) Similar.

(21)-(22)-(23) are marked on the Crawley Boevey estate maps of 1795 as forges and presumably were the three forges referred to by Atkyns in 1712 as belonging to Mrs. Boevey.<sup>42</sup>

It is possible that two of these forges were run by John Typper in 1634.<sup>43</sup>

- (24) Just north of this site stood until recently (1969) a pond fed by a lade from up the valley. This water-course existed in 1795.<sup>44</sup> At least one ornamental fountain was provided with a head from this and this may have been the reason for its construction. The monastic corn mill was probably, however, just south.

- (25) Flaxley Furnace. It was working in 1680 and held by Richard Knight in 1695 and 1710.<sup>47</sup> Knight joined the Foley Partnership in 1707. However, in 1712 Atkyns claims that Mrs. Boevey owned it. Knight was presumably the operator for the Boeveys.

Blast furnaces were apparently introduced to the Forest late and probably not before about 1600. It is therefore likely that this furnace was built about 1670. It functioned until 1812 and used charcoal till its end.

- (26) The drawing in Atkyns History shows a mill wheel and building below the furnace. Its site is recognisable today. It is likely to have been a forge.

- (27)& In 1715 Anthony Kemp (papist) had "Those mills and  
(28) fforge and meadow ... lying in the said parish of fflaxley now possessed by Phillipp Hampton and Mrs. Lloyd ... held by lease 1st May 1693".<sup>45</sup> The grant in 1693 states "those two water mills or corne mills which premises are called by the name of Wood mill ... and ... that parcell ... called Millcroft on what parcell there is now standing a large house or iron forge".<sup>46</sup>

A map<sup>48</sup> of the 18th century shows clearly two mill symbols side by side at Sites (27) and (28). We may assume that here were probably two pairs of mill-stones under one roof, and a forge.

- (29) The possible site of the Abbey Fulling Mill.

- (30) Boseley Mill, or Cutt Mill. In operation in 1717 or thereabouts and ceased operating about 1928.<sup>2</sup> The position of its pool and lade is still apparent, though dry.

- (31) Westbury Mill. Working until about 1928. The Breast wheel was changed for a turbine about 1900.<sup>2</sup>
- (32) Severn Mill. Maps of 1785<sup>24</sup> and 1830 (O.S.) suggest that the mill was built between these dates. It was a tide mill and apparently worked until the end of the 19th century. It had a turbine drive at that time. The fall in the tides is often about 20 ft. The water was held back in the brook and let fall at low tide. It is possible that the Littledean Stream was diverted to help supply water to this mill.
- (33) These two mills, the second of which is the Old Mill & of Littledean and was presumably in operation into
- (34) the 19th century, are on an exceedingly narrow stream, now only 18" wide and very close to the head-springs. The Colchester Maps<sup>24</sup> 1785 show 2 mills here close to Littledean.
- (35) The general nature of watercourses around Elton Farm is strongly suggestive of a mill site. Nothing more is known.
- (36) Seymours Mill. An ancient medieval site (see above).
- (37) The Colchester Maps<sup>24</sup> have a building and pond suggesting a mill here in 1785.

## DESCRIPTION AND INTERPRETATION OF THE INDUSTRIAL REMAINS

### A. Corn Mills

Identifiable remains are only to be found at a few of the mills:-

#### (1) Machinery Layout

We know that Flaxley (20), Westbury (31), Severn (32) and Longhope Parish (10) all had 2 pairs of mill-stones. Diagrams of the system at Longhope are shown. Flaxley was very similar.

Abenhall Mill (7) is unusual in that it had 3 pairs of stones. These, moreover, were not in the usual direct drive from spur wheel, wallower, pit wheel to the water wheel (see diagrams). An intermediate cog was included. The water wheel at Abenhall was also very large (about 21 feet) and this, coupled with a small water flow, would perhaps have created a need for a gearing up, as is suggested in the sketch.

The cogs that remain at Flaxley are wooden, whilst those at Longhope are mostly of iron. Mr. Bowkett, the owner of Parish Mill, assures me that some wheels have wooden cogs and new ones used to be cut from

fruit wood. The machinery at Longhope is intact but difficult to see because the whole area is used for storage. The sack hoist systems seem to be uniform. At Longhope the hoist pulley is held in tension against the belt drive by a weight but can be slackened and, therefore, stopped by hauling on a rope which lifts the weight and lowers the lever attached to the sack hoist pulley (see diagram).

Abenhall mill has 4 storeys. This is again exceptional. The others appear to have three.

The iron water wheel at Longhope was about 12' x 5' (rusting and decayed) overshot. Flaxley 15' x 3' overshot.

A Lucam (gabled sack hoist) only definitely exists at Blaisdon (15) but Brook Farm's portico (11) suggests another.

## 2. Millstones

The following are known:-

- Mill (7) Abenhall - Broken up French Burrs and a broken quartz conglomerate.
- Mill (10) Longhope Parish - 2 pairs of French Burrs.
- Mill (11) Brook Farm - 1 quartz conglomerate.
- Mill (20) Flaxley - 2 pairs of French Burrs with plates on "Gloucester Millstone Manufactory" and a detached quartz conglomerate.
- Mill (30) Cutt Mill - a fragment of a French Burr.
- Mill (31) Westbury - 5 French Burrs and 1 granite (found by Mr. Ayland, the owner, under the floor of the old mill).
- Mill (32) Severn - 3 French Burrs and 1 conglomerate.

D.G. Tucker has written on the subject of these stones.<sup>47</sup> It is clear that the French Burrs were very popular. An account for a pair exists "March 10 1783 For an exceeding good pair of French Millstones etc. £20.0.0." from Thomas Chinn of Tewkesbury to Colchester Esq.<sup>51</sup>

The implication is that the conglomerate stones, which may have been made locally, (the rock outcrops massively in Mitcheldean) were replaced by the better French stones.

(For illustrations opposite see page 26. )

## B. Fulling Mills

The only remains which might basically be a fulling mill is Site (16). Wm. Townley<sup>2</sup> has given a good descriptive account of this. The most curious features are the ventilated upper storey and the lead lined water troughs bringing spring water through the thickness of the walls (see photo). The upper storey was apparently known to Mr. Townley as the Grass House and a nearby building is claimed to be a Bleaching House.

The water courses above this mill deserve attention. A little stream called the Trow ditch leads naturally to Green Bottom to join the Flaxley stream just below Guns Mills and above Flaxley Corn Mill. This was diverted by a contour ditch at some time to add water to Mill (16). This stream further up, still in its natural course, has a bed laid with finely cut and dressed stones (the "Trow" one assumes). It passes close by iron workings, quarries in Drybrook sandstone and in limestone and close to a pair of lime kilns. It is assumed that the stream was troughed to avoid these various workings.

## C. The Furnaces & Paper Mills

Flaxley Furnace leaves no remains, except perhaps the debris noticed by Wm. Townley.<sup>2</sup> The drawing reproduced here from Kip (Atkyns Gloucestershire 1712) is remarkable for showing a large chimney. Schubert<sup>17</sup> says (p.206) in 1700 even in the tallest furnaces, about 26 feet high, the top aperture was not more than 1'10" and later they never exceeded 3 feet. The drawing does not conform to any furnace described in Schubert or in Rees.<sup>48</sup> It is difficult to see how ore and charcoal could have been loaded into the top of this structure. One's conclusion is that Kip's drawing is either an artist's suggestion of a furnace, without knowledge, or that it was of a design foreign to others.

Guns Mill Furnace can, with reasonable certainty, be re-imagined from the existing remains. The interpretation is complicated because of the conversion of the group of buildings to a paper mill in 1742, a possible re-conversion to steam power in the 19th century and conversion to farm buildings today.

Today the site consists of an ivy covered ruin, converted partly into a deep litter loft over the top of the furnace, and with cattle stalls and customary miscellaneous farm spares occupying the bellows and water wheel sheds.

The architectural drawings by Mr. Parsons and others show

the present layout. A reconstruction from these drawings back to the original in 1705 or so is illustrated in Figs. 3 & 4. The reasoning is based on the contemporaneous inventories in 1635 of the Royal Ironworks in the Forest of Dean.<sup>49</sup> These inventories, which do not include Guns Mills (this site is in Abenhall not the Forest), imply that there was no superstructure over the furnace. This apparently was not unusual. The Charging floor was then probably only protected by a low wall and was open to the sky. Layers of Ore, Cinders (old slag from the bloomery hearths which existed in great piles in many places nearby, e.g. Cinderhill in Mitcheldean) and charcoal were shovelled into the "mouth". The raw materials were stored partly in the Bridge House and also possibly in other detached stores nearby.

The base of the furnace would originally have had a hearth structure. On the S.E. side would have stood a casting or furnace house. Beds of sand and clay would have been prepared for receiving the metal. Special moulds for guns, if made here, would be fashioned with an inner kernel for the barrel cavity. Other moulds for iron fire backs could also be made.

To the N.W. would have stood the bellows chamber. This would have held two bellows of wood and leather, worked by cams off the water wheel axle. Each bellows released in turn would have been raised by counterpoised beams. Other machinery may have been geared into the wheel, as for example gougers to smooth out the inside of the gun barrels. The pigs, or sows, of cast iron would have been taken to forges for conversion to wrought iron for production of other non-cast iron goods.

When the mills were converted to paper in 1742, it would seem that the furnace itself was turned into a stair well. Doorways were driven through the eight foot thick walls. The Bridge House was continued over the charging floor and probably was used as a drying loft. The arrangement of windows, which may have been slatted, or even open, suggests this. At this time, the bellows room must have become a stamping room, where rags and old paper(?) were beaten into fibres. Another room beyond was converted, or constructed, to be a vat house. A large fresh water pipe, which originally had a three way end, leads into this room and presumably to at least three vats. There was nearby, one assumes, a press room. A possible layout for these rooms is seen in Figs. 3 & 4. It can be seen how conveniently these rooms could have been arranged, with access via the stairs.

In the mid 19th century, it seems very likely that newly developed steam machinery was located in buildings to the east (now demolished). The location of the flue



on the nearby hill, away from the buildings, is immediately sensible, if one considers the location of the drying loft closeby. It would have been disastrous to allow smuts to fall on the paper.

During the time when Guns Mills was used for paper, the upper mills also were used for washing and sorting the rags.

An isolated reference<sup>50</sup> of 1821 refers to a paper mill in Longhope, worked or owned by Benjamin Constance. In 1840 Benjamin Constance owned some small fields in Veldt House Lane, Longhope. The site of the mill is a mystery. The name Veldt House (Felt Mill?) seems somehow significant. The building now known as Veldt House (a cottage) is in Blaisdon. The name existed in 1777 (Isaac Taylor's Map).

#### FINAL COMMENTS

There are a large number of historical gaps in this account, which further research may uncover. We, today, are left with vestiges of an industrial past, in which water power played the most important role. Some of these vestiges are worthy of preservation. Guns Mills, in particular, is in danger of collapse. It has a preservation order on it but this will not save it. Longhope Mill is probably safe for the lifetime of the present owner, but its machinery is almost intact and little would need to be spent to preserve it as a museum of a small water grist mill.

Acknowledgements are due to the assistants of the Gloucestershire Records Office for their help, and also to the many owners who have generously allowed me to wander around their property and grounds. It must be pointed out that some owners of the properties have been too much blessed by interest shown by students and visitors. I must urge readers to temper their eagerness to see with a consideration for the inhabitants and for fellow students who may later wish to carry out in-depth studies.

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B.V.Cave. 1975

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- (2) Wm. Townley and R.J. Mansfield, Industrial Sites in the Vale of Castiard, Glos. Community Council, 1973.
- (3) An Analysis of the Domesday Survey of Gloucestershire by Chas. Taylor, B.G.A.S. 1887.

- (4) Probyn Terrier, G.R.O. D.1297.
- (5) Flaxley Cartulary, p.61 (date of Gilbert B.G.A.S. Vol.XII, p.258).
- (6) Flaxley Cartulary, p.136.
- (7) Flaxley Cartulary, p.156.
- (8) 11 Henry III Close Rolls m 5 (Vol.ii, p.196 printed series) see Flax. Cart., p.51.
- (9) Inq. P.M. 2 Ed. I, No.36 (p.90 Index Library Part IV).
- (10) B.G.A.S. Vol.XIV, p.360.
- (11) Flax. Cart., p.46.
- (12) David Luckhurst, Monastic Watermills, S.P.A.B. No.8.
- (13) G.R.O. D.36P4.
- (14) Flax Cart., p.96.
- (15) P.A. Pelham, Fulling Mills, S.P.A.B. No.5.
- (16) Flax. Cart., p.88.
- (17) Schubert, History of the British Iron and Steel Industry.
- (18) Inq. P.M. Index Library, various for dates mentioned.
- (19) B.G.A.S. Vol.VI, p.140
- (20) G.R.O., Colchester Journals (4) 29v.
- (21) B.G.A.S. XV, p.304.
- (22) Inq. P.M. 12 Ed. II, No.31 (Index Library Part V, p.172).
- (23) G.R.O. D36E651 and 52, and Colchester Journals (4).
- (24) G.R.O. D2123 and D36T49.
- (25) Cyril Hart, Industrial Archaeology in Dean.
- (26) G.R.O. D36E16.
- (27) G.R.O. D36E1 29v.
- (28) G.R.O. D36E1.
- (29) G.R.O. D36T1.
- (30) G.R.O. D36T59.
- (31) G.R.O. Q/Rum 981-5 Telford's Roads Survey
- (32) B.G.A.S. Vol. 78, p.114, 1959.
- (33) G.R.O. D149/T1155.
- (34) G.R.O. D1202.

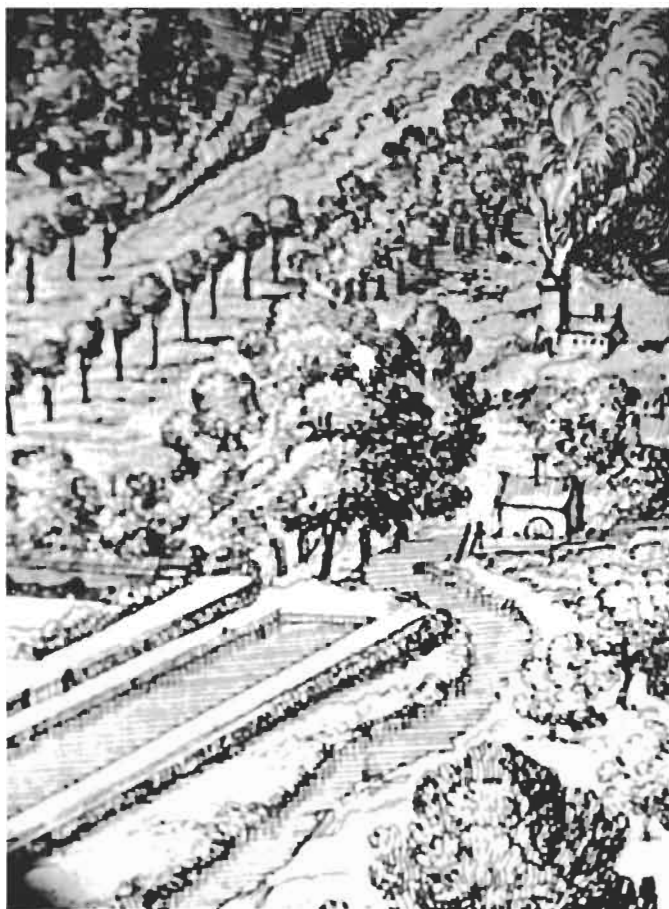
- (35) G.R.O. D23T19.
- (36) G.R.O. D2528 Foley Estate Survey 1774-5 Plan G.
- (37) G.R.O. 2957/1/1.
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- (39) Nicholls, Iron Making in the Forest of Dean, p.49.
- (40) Cyril Hart, Industrial History of Dean, p.70.
- (41) G.R.O. D36E50, 27th May, 1743.
- (42) Atkyns, History of Gloucestershire.
- (43) Cyril Hart in Bulletin of the Historical Metallurgy Group, Vol.2, No.1, 1968.
- (44) G.R.O. MF285.
- (45) G.R.O. Registry of Anthony Kemp's estate.
- (46) G.R.O. D2557T1.
- (47) G.S.I.A. Journal 1973, p.6.
- (48) Rees, Industry before the Industrial Revolution.
- (49) Schubert, History of the British Iron and Steel Industry, p.408, Ap. XII.
- (50) B.G.A.S. Vol.71, p.160, 1952.
- (51) G.R.O. D36F16 Folio 43.

#### List of Abbreviations

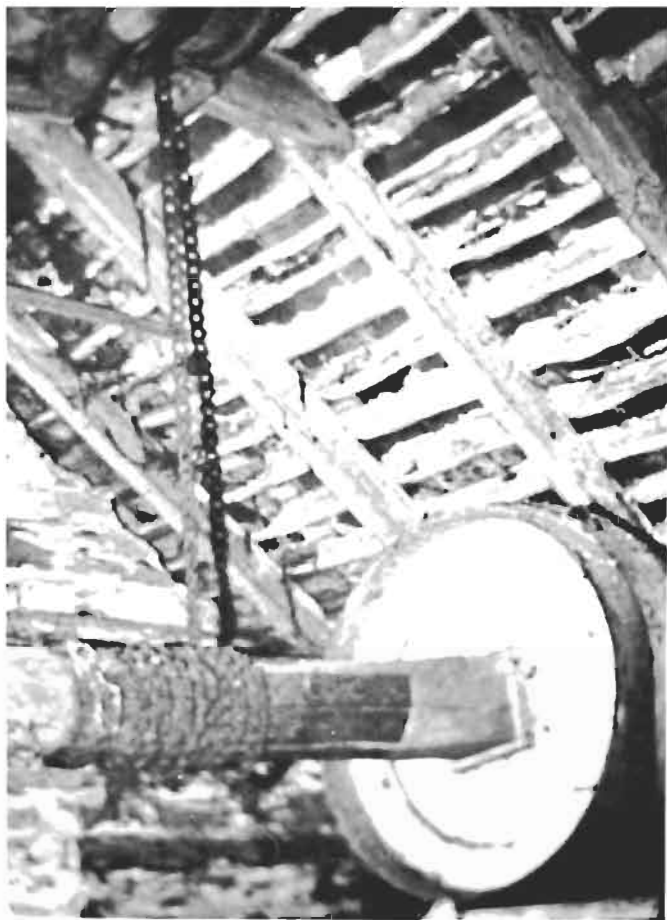
B.G.A.S.	Bristol and Gloucestershire Archaeological Society
G.R.O.	Gloucestershire Records Office (Shire Hall, Gloucester)
G.S.I.A.	Gloucestershire Society for Industrial Archaeology
Inq. P.M.	Inquisitions Post Mortem
S.P.A.B.	Society for the Protection of Ancient Buildings.

#### Illustrations opposite page 26.

1. Flaxley Furace (25) from Kip's drawing 1717.
2. Longhope Parish Mill (10) The sack hoist.
3. Gunns Mills (19) The casting house site, note the apertures cut for doorways into the furnace, when a paper mill.
4. Abenhall Mill (7) A four storey building. The water wheel which was on this side was about 20ft across.



1



2

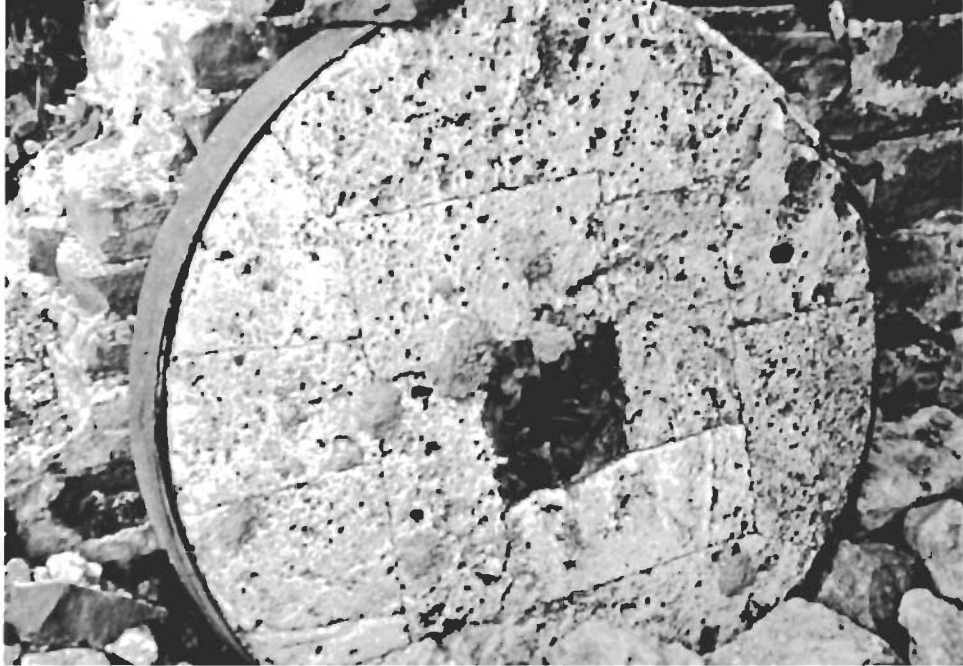


3



4

**FRENCH BURR STONE  
FROM FURNACE MILL  
LONGHOPE (13a)**



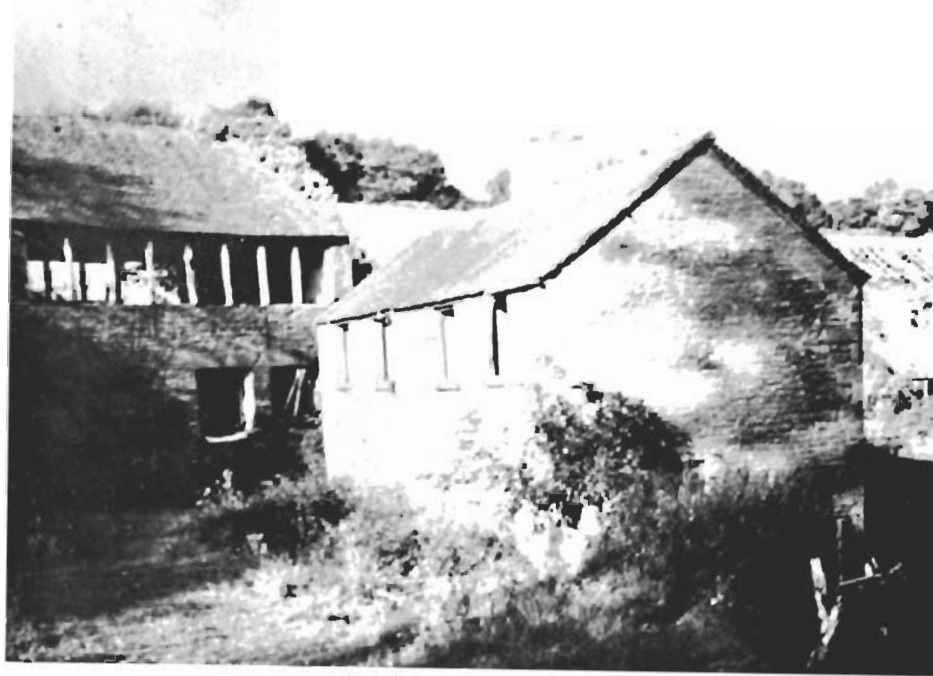
**WESTBURY MILL (31)  
ABOUT 1920**



**SEVERN MILL (32)  
A TIDE MILL AT  
HIGH TIDE**



**MILL 16 GUNS MILL  
THE FULLING MILL  
(NOTE:  
THE VENTILATED  
UPPER FLOOR)**



**GUNS MILLS (19)  
THE WINDOWS WERE  
VENTILATING A  
PAPER DRYING ROOM  
IN THE 18TH CENTURY.  
PREVIOUSLY THIS WAS  
THE TOP OF THE  
FURNACE – THE  
CHARGING FLOOR**



**GUNS MILLS (19)  
THE FURNACE FROM  
THE BELLOWS ROOM.  
AN APERTURE WAS  
CUT FOR A DOORWAY  
WHEN A PAPER MILL**







**GUNS MILLS (19)  
THE INSIDE OF THE  
FURNACE SHOWING  
THE REMAINS OF  
THE CONVERSION  
TO A STAIRCASE**



**FLAXLEY MILL (20)  
THE MILL BUILDING TO  
THE RIGHT; IN THE  
FOREGROUND IS A  
CIDER TROUGH**



**FLAXLEY MILL (20)  
THE HOLE FOR THE  
WATER WHEEL AXLE  
AND THE LEFT HAND  
STONE NUT**

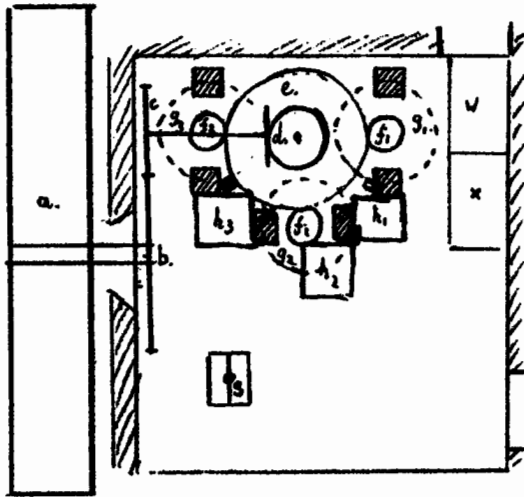
PAST or  
PRESENT NAME

# POSSIBLE DATES OF WORKING

	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950
1 Longhope Furnace																			
2 " Court farm																			
3 " Ten House																			
4 Mitchelton Tusculum																			
5 " Court farm																			
6 Barton Corner																			
7 Abenhill Mill																			
8 Horthorn																			
9 "																			
10 Longhope Parish mill																			
11 Brook farm																			
12 Saw Mills																			
13 Furnace Mill																			
14 Cowmans Mill																			
15 Blaisdon Mill																			
16 Goss Mills																			
17 " "																			
18 " "																			
19 " " furnace																			
20 Flaxley Mill																			
21 Upper Stream Cottages																			
22 " forge site																			
23 " forge site																			
24 Flaxley Abbey farm																			
25 " " furnace																			
26 " "																			
27 Walldons																			
28 " "																			
29 Tuck Mill																			
30 Baxley Mill																			
31 Warbury Mill																			
32 Osborn Mill																			
33 " site																			
34 Littledean Old Mill																			
35 Elton farm																			
36 Symmonds Mill																			
37 " site																			

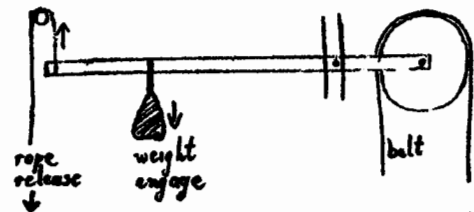
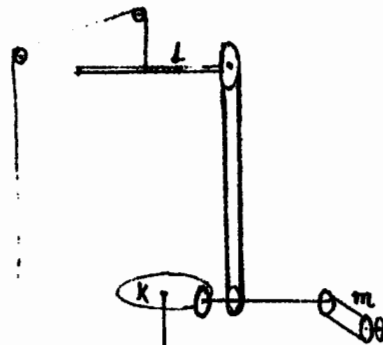
CORN MILLS	CERTAIN 4, 7, 8, 10, 12, 13, 15, 17, 20, 30, 31, 32, 34	PROBABLE 9, 11, 14, 24, 28, 33 35 36	? 2 3 5 37
FURNACES	1, 13, 19, 25, 6 (proposed)		
FORGES	21 22 23 27	26	
FULLING MILLS		16 29	
TANNERIES	4 13	3	
PAPER MILLS	16-19 (a paper also existed in Longhope in 1821 - location unknown)		
SAW MILLS	12		





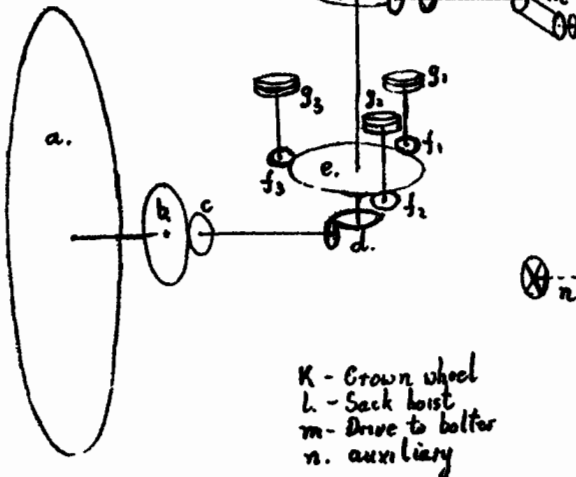
ABENHALL MILL (7)  
Ground floor plan scale  $\frac{1}{8}$ " = 1'

- a. Water Wheel  
b. Pit Wheel geared to c.  
c. geared to d.  
d. Wallower - drive to:  
e. Spur wheel - drive to:  
f<sub>1,2,3</sub>, Stone wheels  
drive to millstones above g.g.g.  
h, h<sub>1,2,3</sub> meal bns.  
s. sack trap above  
u. position of buller  
x hole in first floor.
- } sizes assumed



Sack hoist mechanism

LONGHOPE (10) DIAGRAMS



- K - Crown wheel  
L - Sack hoist  
m - Drive to bolter  
n. auxiliary

ABENHALL (7) DIAGRAM

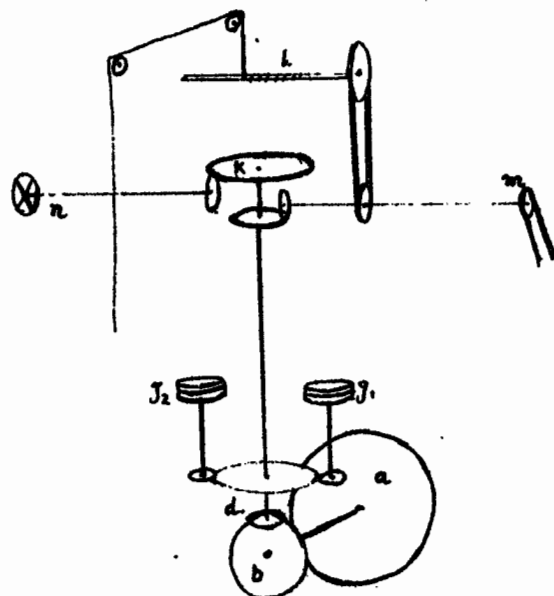


FIG 2

# GUNS MILLS

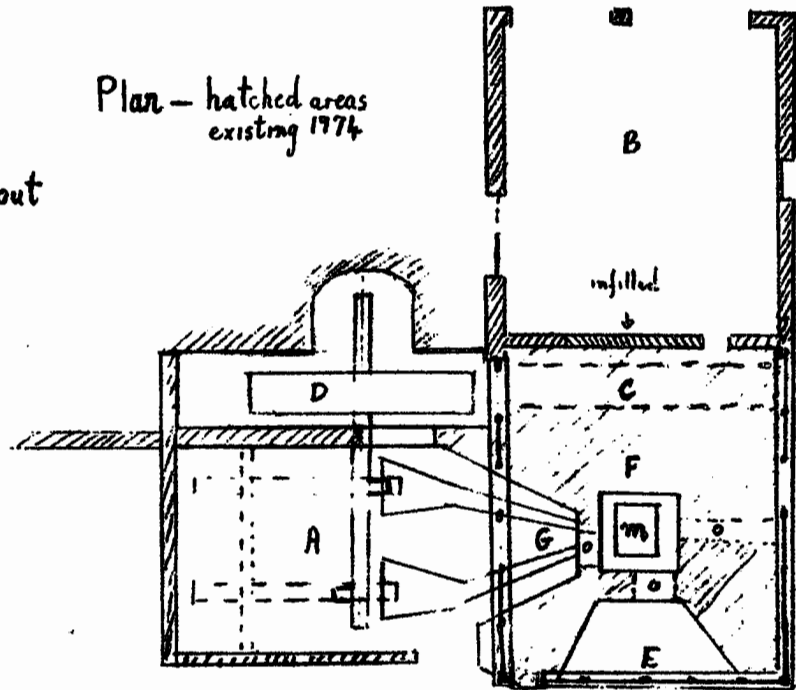
metres



Plan - hatched areas  
existing 1774

## Probable Furnace Layout

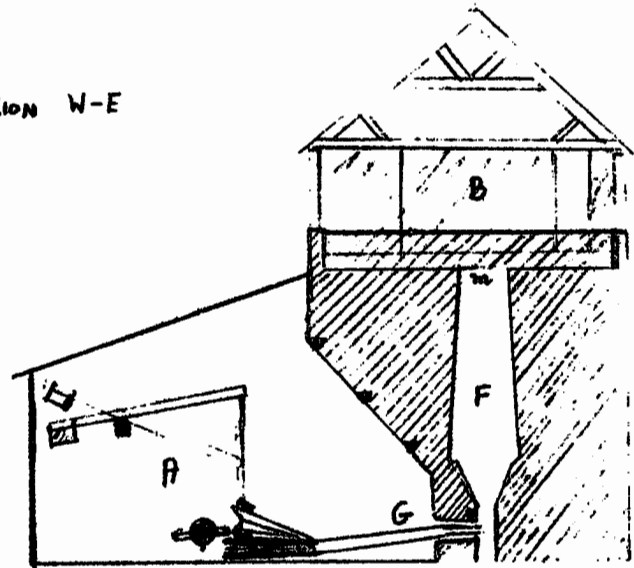
- A Bellows and levers
- B Bridge House
- C Possible culvert
- D Wheel 21ft.
- E Fore Hearth
- F Furnace
- G Tuyeres
- m mouth of furnace
- o later apertures



## c1705 FURNACE

Key as above

Section W-E



## c1743 PAPER MILL

- A Stamping of Rags
- B Drying loft
- C Vats
- D Press room?
- E Staircase

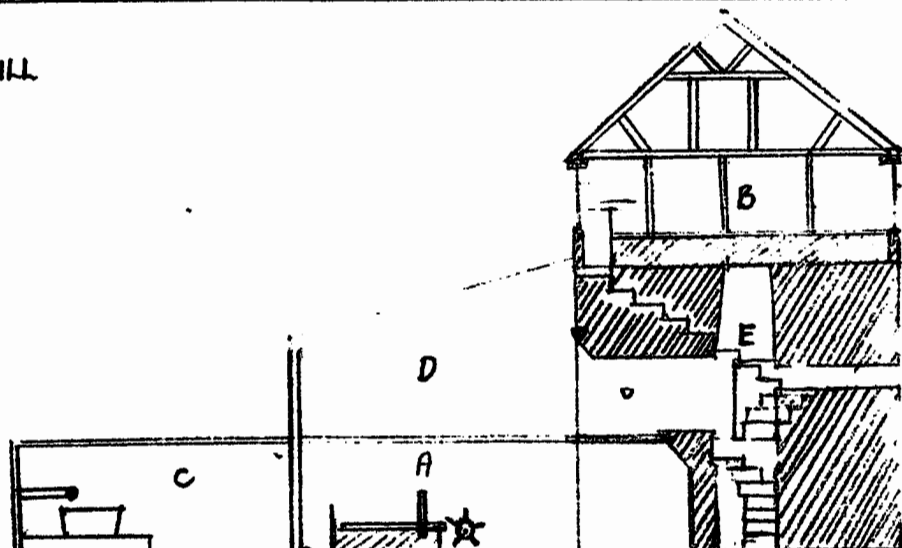


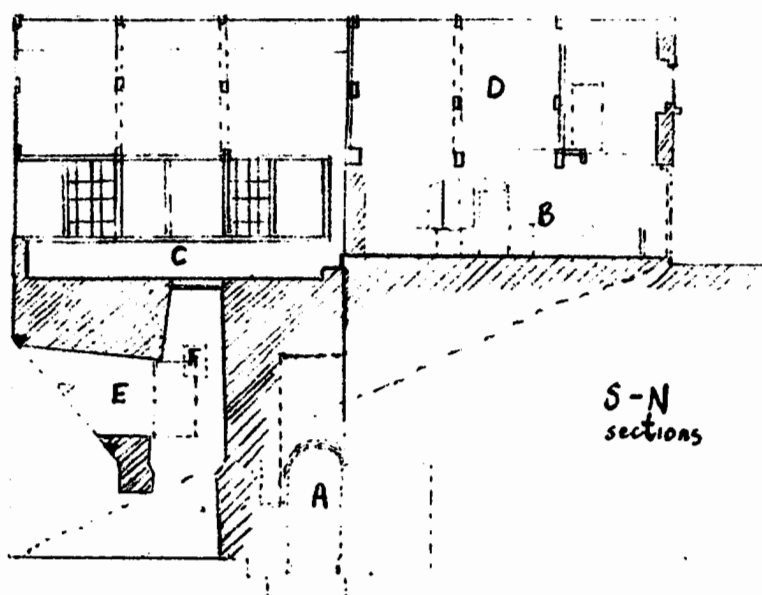
FIG 3

# GUNS MILLS

metres

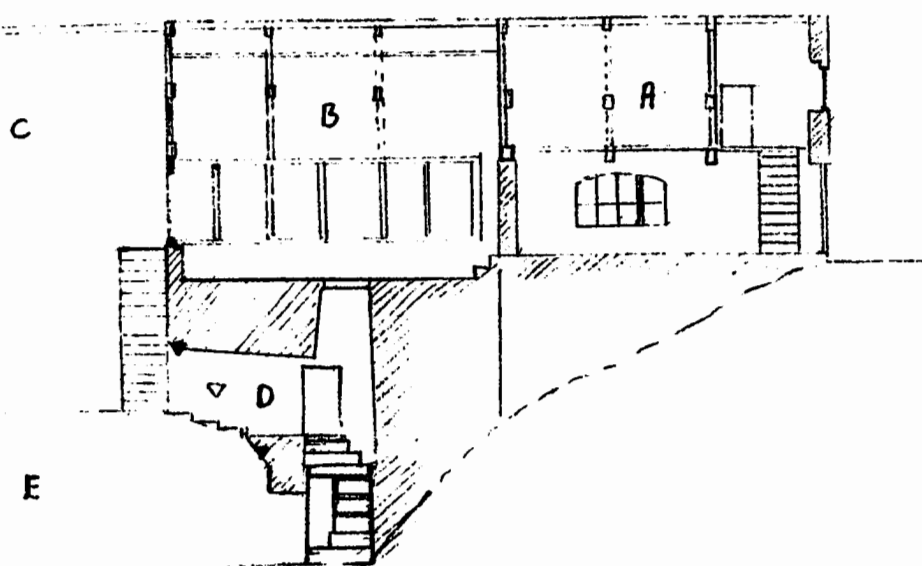
- A Position of Wheel Pit beyond
- B Cattle pens
- C Deep Litter House
- D Decayed rooms
- E Decayed furnace
- F Irregular opening to East

1974 FARM



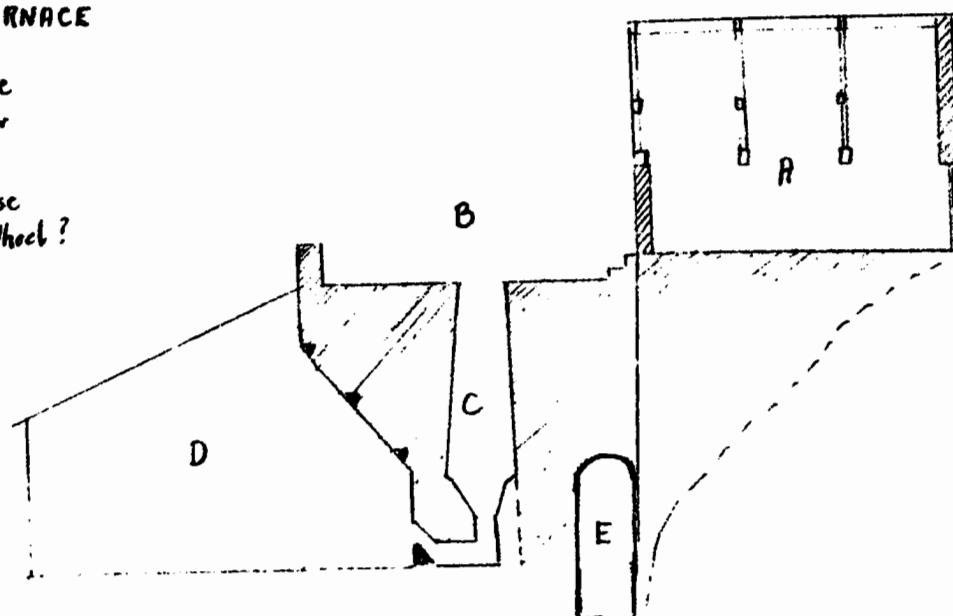
c.1743 PAPER MILL

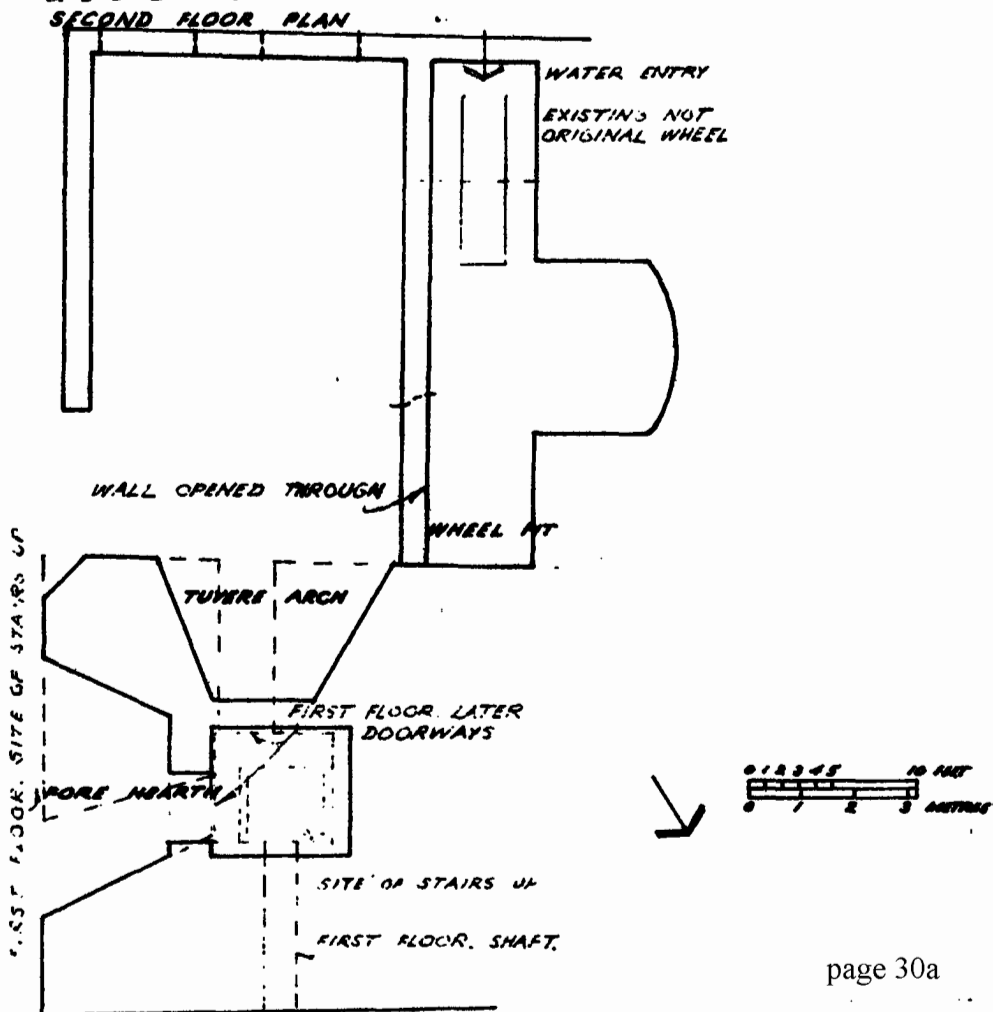
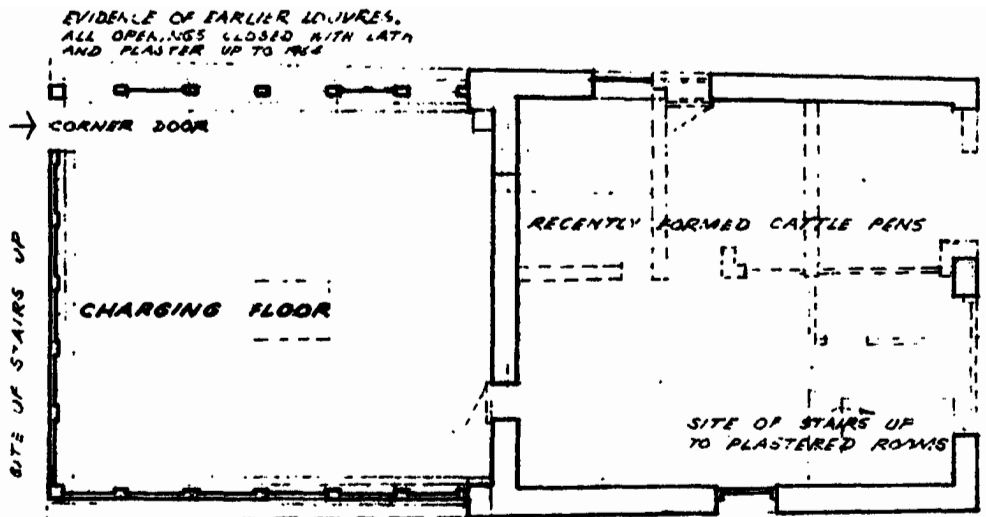
- A Living area
- B Drying loft
- C " " ?
- D Staircase
- E Reception area?

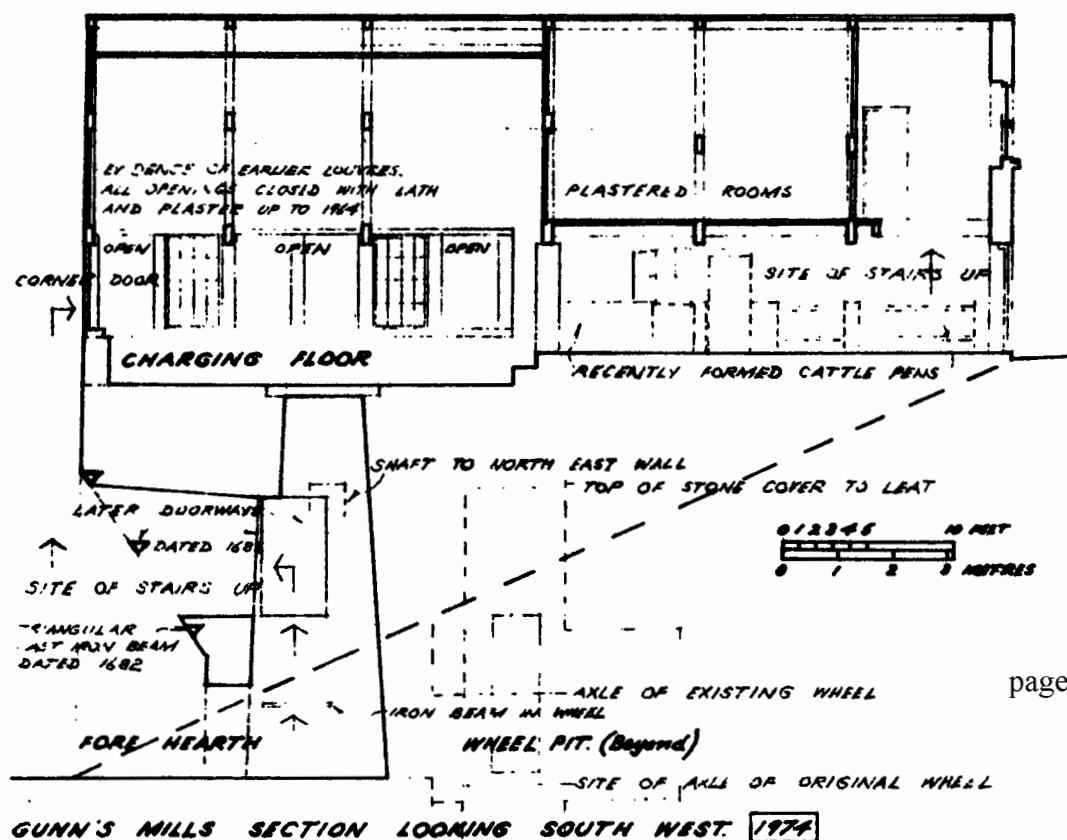
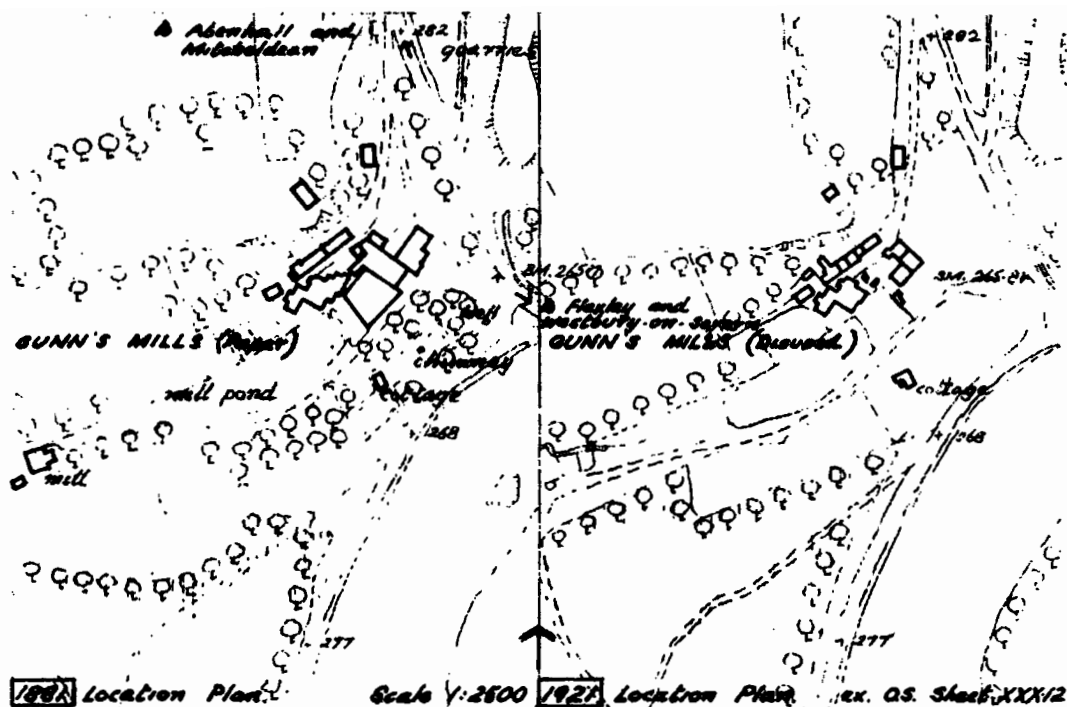


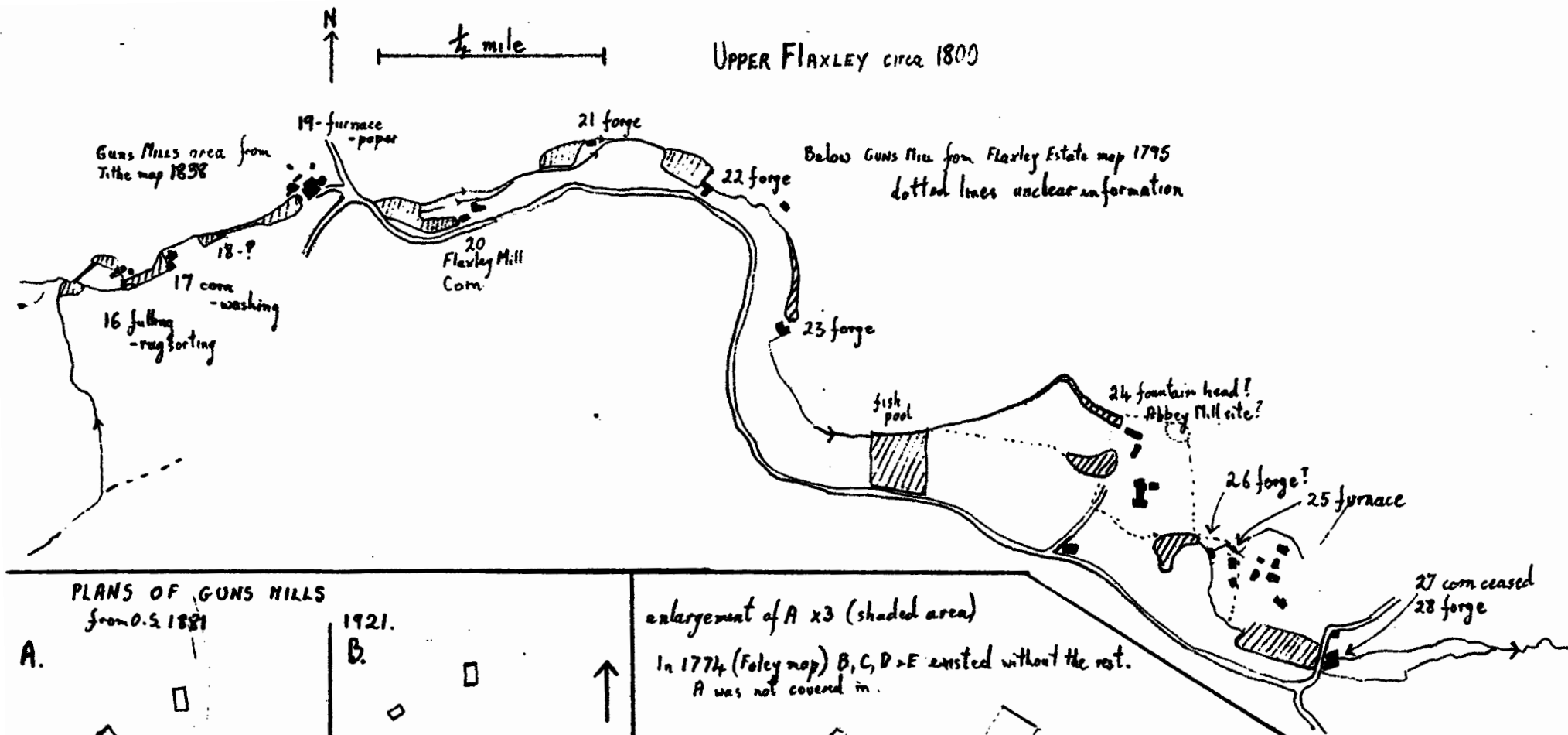
c.1705 FURNACE

- A Bridge House
- B Charging Floor
- C Furnace
- D Casting House
- E Culvert to Wheel?



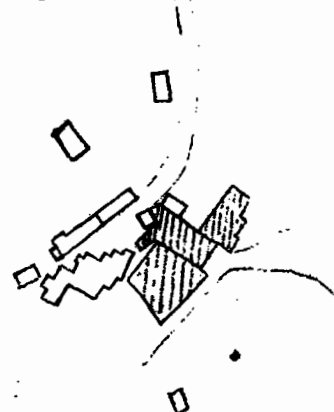






PLANS OF GUNS MILLS  
from O.S. 1881

A.



1921.

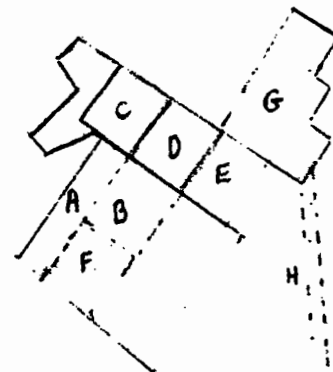
B.



Scale 1:2500

enlargement of A x3 (shaded area)

In 1774 (Foley map) B, C, D & E existed without the rest.  
A was not covered in.



- A WHEEL PIT
- B ORIGINAL BELLOWS ROOM
- C " BRIDGE HOUSE
- D " FURNACE, LATER STAIRS  
WITH DRYING LOFT OVER
- E " CASTING HOUSE
- F PAPER VAT ROOM 18<sup>th</sup> CENTURY
- G 19<sup>th</sup> CENTURY STEAM MACHINERY HOUSE
- H- FLUE.