WASC 2369

Sweaters Papers
ca. Pete Huggins
via WAHS

**Report of visit to RGF Archives, 27 Sept 2013, by PJH**

To see documents relevant to excavations of Smeaton's Mill in 1973, by K.N.Bascombe, and drawn by R.T.A.Burton; and to area of Newton's Pool. Notes taken in pencil, so barely legible. Photos of documens on CD112, nos.229 to 240. This note is broadened in an attempt to record the evidence relating to Smeaton's Mill.

**Smeaton's Mill. Documents WASC 729, 1234, 1480 and 1646**

**1646.** There are 2 large faint pencil drawings and 2 A3 photocopies. Photos 233, 234. There are trench faces and a corner of a building, but there is nothing useful.

**729.** Photo only, no. 229, with ranging rod, and some horizontal timbers. Mentions a Commentary in WASC1060, not yet seen.

**1234.** Only photos, 9, showing curved brick walls. Photos 240 and less good 230 and 231. Probably walls as can be seen today of the wheel pit and the curving exit into the Back Ditch.

**1480.** Buff folder headed Smeaton's Mill. Note that Mr Evans phoned to say building 197 was built before 1783 and partly demolished c.1906-7. Drawing 232 may be relevant. There are 6 photocopies of maps with numbered buildings and the following names clearly written; photo 235 with blue coloured streams:

15 Head Mills on the east side of the Millhead Sream
14 Charging House
13 The Lamp House
12 Smeaton's Mill
11 Queens Mead Mills
10 A Charging House
9 Handcrank Corning House
16 Head Mills and on the west side
17 A Charging House
18 Hoppit Mill
19 The New Mills
20 A Charging House

This is a copy WAHS has "A plan of the Powder Mills eetc at Waltham Abbey and the Fishery on the River Lea the Property of -- Walton Esq. Surveyed 1783." I have previously used the 1901 copy, it is coded 900/1, which employs the same numbers on the copy map and which are listed separately in a key; for reference the full list is as follows (my copy is Fig.4 of MP 20)

1 A Stove
2 Engine House
3 Tumbling Room
4 A Stove
5 An Old Stove
6 The Running House
7 The Old Running House
8 The Magazine
9 Hand Crank Corning House
10 A Charging House
11 Queens Mead Mills

12 Smeatons Mills
13 The Lamp House
14 A Charging House
15 Head Mills all of 1 to15 are on the east side of the Millhead Stream
16 Head Mills
17 A Charging House
18 Hoppit Mill
19 The New Mills
20 A Charging House 16 to 20 are on the west side of the Stream
21 Dwelling House the following are to the south eas
22 Millwrights Shop, Coal House etc
23 Stables
24 Store Room
25 Carpenters Shop
26 Not named
27 Lime and Deal House
28 Old Engine House
29 Saw Pit Shade
30 Old Mills
31 Not named but reasoned to be Walton family home for a while
32 Not named but probably an appurtenance to 31. The relevant map is on p.25 of MP No.20.

There is also a 1902 copy of a map of 1801 (coded 58 of the ERDE map catalogue), my Fig. 11 of MP 20. I t shows many of the same items but with a different numbering system; they too are listed for completeness:

1 Upper Stove
2 Traverse
3 Scite of corning house, burnt
4 Lower stove
5 Traverse
6 Traverse
7 New stove
8 Traverse
9 Scite of corning house, blown up
10 Dusting House
11 Cooperage
12 New magazine
13 Old magazine
14 --
15 Upper mill
16 Lambs mills
17 Hoppet mill
18 Queens Mead mill
19 Smeatons mill
20 Head mills
21 Master Workers house
22 Office
23 Stables
24 Grand watch house
25 Mixin ouse
26 Salt petre mill
27 Charcoal mill
28 Brimstone salt petre mill
29 Coal yard

Also in 1480 there is a small part of Sheet 2 of the 1865 map of the gunpowder factory (WASC 900/41), surveyed in 1863, corrected to 1888. The eastern Head Mill is shown as Incorporating Mill No.1. It is good to see it in use in 1865 and presumably in 1888. The old Smeaton's Mills is now a Charcoal Mill on the southern half and a Mixing House No.1 on the northern half.

There is still WASC document 1060 to see being a commentary on the photograph in 729.

**Excavations at Smeaton's Mill.**

There are two published references in Post-Medieval Archaeology to the excavation at the so-called Smeaton's Mill. In Vol 8 of 1974, p.132, edited by J.Cherry:

Essex; Waltham Abbey (TL 376010). K.N.Bascombe and W.A.W.Smith excavated near the mill head of the stream that provided power for the Powder Mills. The bank of alluvium, ash, clinker, clay and brick and tile fragments was made in the late 17th century. The leat was enclosed by planks backed by clay. The bank was extended into the stream by a brick wall, probably in the late 18th century.

Then in Vol 9 of 1975' p.256-7, there followed:

Essex: Waltham Abbey (TL 376010). K.N.Bascombe and W.A.W.Smith continued excavations at the now filled-in mill stream which provided power for the Powder Mills (cf. *Post-Med. Archaeol., 8 (1974), 132)*. The walls of a mill referred to as Smeaton's in a plan of 1783 consisted of at least 4 courses of red bricks founded on clay laid directly on the bank created c.1700.

On a separate typescript paper, which we possess, it is clear that only the first few lines of the original were used in the above published summary. The original continued: Subsequently the ground around the mill was raised 0.2m; a brick wall to the leat was built in front of the earlier post-and-plank revetment of the bank. The machinery was carried on elm posts, typically o.18m by 0.14m cross-section, and extending 2m below the brickwork, which was built around them. The floor of the mill was of stone slabs, and the superstructure no doubt of light weatherboarded costruction. In the mid-19th century the building was taken down to the extant brickwork and the posts cut off to the same level; the new superstructure, with some yellow brickwork superimposed on the earlier work, had a clay floor and a slate roof. Later alterations included the insertion of a wooden floor, and the rebuilding of the upper part of the leat wall. The building was demolished c. 1950. There was added below: Drawings for a powder mill at Waltham Abbey, signed "J. Smeaton", dated 1771, and preserved in the library of the Royal Society (and indexed in Newcomen Soc. Extra Publ. No 5, (1950)) do not apparantly refer to this mill as built. What a shame it is that Bascombe and Smith do not tell us on which side of the Millhead Stream they excavated; but it has to be assumed that it was on the east side. This is later realised to be so (see page 5).

We have two drawings by John Smeaton. There is a photograph, labelled on the back "WANBD 6/7" and 51/7", and "Upright for Mr Waltons Powder Mill at Waltham Abbey". It shows the side view of a two-runner mill dish turned from below by a large gear as might have been connected directly to a water wheel shaft, which mated with a bevel gear at the bottom of the vertical shaft driving the mill dish. All was enclosed in a great amount of brickwork sitting on wooden piles. It was signed "J. Smeaton 1771".
We also have a photocopy, similarly signed, of the "Plan of the Building for Mr Waltons Powder Mill at Waltham Abbey 1771, on the west side of the Mill Pond". It shows two

different views between a central water wheel, and clearly exiting into a western Back Ditch. One view is of the mill dish in plan, whereas the other side shows equipment apparantly at a lower level which is not at present understood.

The first drawing shows that the Back Ditches were dug in Walton's time, as was clear from the 1787 map. It is interesting here to note the earliest references to these ditches. They occur in the "Centenary Memorial of the Royal Gunpowder Factory, compiled from original sources", by W. Winters, of 1887, on page 120; they are amongst 'New buildings and improvements between 1787 and 1789'. There, one reads 'back ditch behind New Hoppit and Head mills deepened £7 1s; back ditch from corning house to Horse mill ground deepened, £46 10s'. So the principle of the use of the back ditches was understood, as used on each side of the Millhead Stream allowing water to flow from it to the east and to the west, rather than just to the south, and so to able to power many additional mills.

While considering this publication by Winters it is interesting, also between 1787 and 1789, mention of two Smeatons Mills within a longer quotation, as follows; remember this is of 'new buildings and improvements'. 'Queen's Mead, No.1, £72 3s 2d; ditto, No.2, £71 11s 6d; Smeaton's Mill, No.1, £15 16s 2d; ditto, No.2, with brick charge magazine, £73 16s 8d; No.15, new head mill, £106 8s; ditto, No.16, £141 19s 4d; etc. We will not understand the detail but probably see here works to both halves of Smeaton's Mill.

At this point in typing these notes an extraordiary discovery was made. It is a typed page of more Smeaton work in the Newcomen Society records. It is typed here in full.

"Newcome Society Extra Publication No.5. A catalogue of the civil and mechanical engineerig designs 1741-1792 of John Smeaton, F.R.S. preserved in the Library of the Royal Society. Printed for the Newcomen Society by the Courier Press, London, 1950, pp.31 -32.

Folio No.

33v For Mr. [Bourchier] Walton's double stack of [edge runner] powder mills at Waltham Abbey. Elevation and plan of gearing, 1:36. Ink wash. [1771]

34 .Mr Smeaton's Nos. [of wheel teeth] for the Fore Mills. One leaf MS. Ink. [1771].

34v For Mr Walton's double stack of Powder Mills at Waltham Abbey. Elevation of water wheel, 1:12. Ink. [1771].

35 Elevation of [water] wheel and conduit of the new powder mills at Waltham Abbey. 1:12. [1771]. This should have added the words 'The Side Mill', see my photo 252.

36v Plan of the building for Mr Walton's powder mill at Waltham Abbey on the west side of the mill pond. Ground plan, 1:48. Ink wash. Signed J Smeaton 1771.

37 Plan of Mr Walton's powder mill at Wattham Abbey. Plan 1:24. Ink wash. Signed J Smeaton 1771.

38v Upright for Mr Walton's powder mill at Waltham Abbey. Sectional elevation showing edge-runners, 1:24. Ink wash. Signed J Smeaton 1771.

39 Water wheel for Mr Walton's new powder mill at Waltham Abbey on the west side of the mill pond. Sectional elevation, 1:12. Ink wash. Signed J Smeaton , 1771.

39v Design for connecting the water wheel axis with the tumbling shaft for Mr Walton's powder mill at Watlham Abbey. Plan and profile of the cross gudgeon and hoop for the water wheel axis; section and plan of the cast iron box for the tumbling axis. 1:12. Ink wash. Signed J Smeaton,1771."

So we happen to have copies of 36v and 38v.

From the English Heritage book 'Dangerous Energy' there is the illustration of the 38v on page 25. On page 26 there is mention and Fig.1.23 of another arrangement for Waltham Abbey. There is too a reference to Wilson P.N., 1957, 'The watermills of John Smeaton', in the Transactions of the Newcomen Society, Vol. 30, 25 to 48 (this is not available on the internet).

Also from the Internet I have ordered the Royal Society Newcomen Society Extra Publication No.5. which hopefully includes illustrations of all nine drawings of John Smeaton for Waltham Abbey.

William Winters in his 'Centenary Memorial of the Royal Gunpowder Factory', of 1887, records when Smeaton's Mill was first set up, this was on 10 December 1787. Money was laid out on 26 July, 1789: on Smeaton's Mill No.1 £15.16. 2, and on No.2 with a brick charge magazine £73. 16. 8. On 7 oclock on 6 May 1793 the Lower Smeaton's Mill blew up, it was set to work again on 13 May.

**Visit to RGF 4 Oct 2013**

At the time of writing I have just realised that what Bascombe and Smith excavated in 1953 was definitely the so-called Smeaton's Mill which was on the east side of the Millhead Stream and was numbered either 12 or 19 on the maps discussed on pages 1 and 2 above. This was recorded on page 4 of the report by the Cotswold Archaeological Trust of 1995, in para 5.9.

I showed the list of 9 Smeaton's drawings and the RCHME reference to WASC 900/01A referring to Smeaton's Mills 3 and 4. This drawing could not be found in the map drawers. However a collection of Smeaton's envelopes were produced and wonderfully related to the 9 drawings as below. It seems pssible that the 9 documents relate to 3 different mills; we will for the moment call these:

No. 1 A side-driven mill. Possibly at the position of the eastern Head Mill.
No. 2 An eastern mill. At the position variously known as mill 12 and 19.
No. 3 A western mill. Possibly Smeaton's Mill 3 and 4 (until drawing 900/1A is found)

WASC 51/1 My photo 249 . Drg 33v. "For Mr Walton's double stack of Powder Mills at Waltham Abbey." Intended for a side-driven mill. The numbers given for wheels are 73, 43, 66 and 90. So a No. 1 mill drawing.

WASC 51/2 My photo 250. Drg 34. "Mr Smeaton's Nos. for the Fore Mills." These are just lists of teeth numbers for the wheels;

| | | |
|---|---|---|
| Pitt wheel | 73 | |
| Half head therein | 43 | |
| Crown wheel | 66 | |
| Stones wheel | 90 | So the same as above for 34v. So for a No. 1 mill. |

| | | |
|---|---|---|
| Present Nos | | |
| Pitt and wheel therein | 84 each | |
| Swimming wheel over | 84 | gives 424 turns |
| Nutt therein | 38 | |
| Crown wheel on Nutt's shaft | 34 | |
| Stone wheel | 96 | |

One gets a feeling these latter nos are for an earlier mill, possibly built by Nutt, of which we have no other mention. One can appreciate that the use of Fore Mills can be equated with

one of the Head Mills.

WASC 51/3. My photo 251. Drg 34v. "For Mr Walton's double stack of Powder Mills at Waltham Abbey." It is the elevation of the water wheel, so for the side driven mill. From the use of 'double stack', probably for a No.1 mill, as for WASC 51/1.

WASC 51/4. My photo 252. Drg 35. "Elevation of wheel and conduit of the new powder mills of Waltham Abbey, the side mill." Teeth given are 60 for the Pltt wheel, 35 for the wheel therein upon the upright shaft, 53 for the upper wheel upon the upright shaft, and 90 for the wheel upon the stone shaft. This is for a new side mill, not a side-driven mill, so surely meaning for the new mill on the east side of the pool. So for a No.2.

WASC 51/5. My photo 253. Drg 36v. "Plan of the building for Mr Walton's Powder Mill at Waltham Abbey on the west side of the mill pond." So definitely for a No.3 mill.

WASC 51/6. My photo 254. Drg 37. "Plan for Mr Walton's Powder Mill at Waltham Abbey." From the curvature of the leat definitely for a west side mill, a No.3 mill as last.

WASC 51/7. My photo 255. Drg 38v. "Upright for Mr Walton's Powder Mill at Waltham Abbey."
Written in roof space:
Water wheel diameter 14 ft
" " width 6 ft
" " No. of floats 42
Pitt wheel diam 9 ft 6 1/2 in No. 72 At 5 in pitch
Spurs wheel 8 ft 7 1/2 in No. 65". "
This drawing, like one described as "Upright for the Powder Mill of Worcester", in Surrey, also of 1771, by J. Smeaton, seems to be of a different type, with even the walls built on deep brick foundations; it needs special thought.

WASC 51/8. My photo 256. Drg 39. "Water Wheel for Mr Walton's new Powder Mill at Waltham Abbey. 1771." Shows detail of wheel of diameter 14 ft and with 42 floats. So definitely for No.3 mill on the west side of the mill pond.

WASC 51/9. My photo 257. Drg 39v. "Design for connecting the Water Wheel Axis with the Tumbling Shaft for Mr Walton's Powder Mill at Waltham Abbey."
Two sketches, one headed: 'Plan and Profile of the Cross Gudgeon and Hoops for the Water Wheel --' The other headed: 'Section and Plan of the Cast Iron Box for the Tumbling Axis.' Not understood. This is the last of the 9 Smeaton folios.

WASC 51/10. What follows in this coding system is the printed 'Catalogue of the Civil and Mechanical Engineering Designs, 1742-1792' of 'John Smeaton, F.R.S.' as preserved in the library of the Royal Society: as Printed for the Newcomen Society by the Courier Press, Leamington Spa; London, 1950. On pages 31 and 32 are listed the 9 descriptions under the heading 'Water Mill, Waltham Abbey, Essex', as listed on page 4 above, namely of drawings 33v to 39v (my photos 249 to 257), with the same additions as in square brackets, which are therefore an editor's contribution.

**SMEATON'S MILLS 3 and 4**

The only reference to these mills is on one of a series of ruled sheets headed 'The Royal Gunpowder Factory - Waltham Abbey'. Some of the sheets seem to include images of 35 mm films taken by the Cotswold Archaeological Trust, but some are annotated in ink as "RCHME 1993'. Two sample sheets are included in 'Section 4: Professional Papers' of the orange-covered 'The Royal Gunpowder Factory, Waltham Abbey, Essex: an RCHME

Survey, 1993', of 196 pages. One of these sheets which I have (in D 102), under a sub-heading 'Cartographic Depiction' refers to a 1783 map with 'WASC 900/1A': Smeaton's Mills 3 & 4'. This is the only known reference to such mills, and unfortunately the map, which ought to be in the RGF Mills archive, is missing; WASC here means Waltham Abbey Special Collection. One might expect to see some mention of this reference in the text of the RCHME report, but detailed examination can find none. This report by the Royal Commission on the Historical Monuments of England has much useful content but contains some terrible howlers, such as that the Incorporating Mill 211a "was driven by water being culverted from Millhead Stream beneath the building and turning either a wheel or possibly a turbine"; in other words water was thought to be flowing in the underfloor passages of the transmission shafts which drove the runners in the mill dishes. Also it is noticed that on the illustrations, on Figs. 9 and 10, the Millhead Stream seems to be labelled Horsemill Stream, so that, although it also has useful content the whole work must be treated with caution. There seems to be no mention of Smeaton's Mills 3 and 4 therein

## NOW TO SOME RESEARCH AT NEWTON'S POOL

### Licensed Victuallers Returns

Date and code, Licensee, name of premises, Surety

| | | | |
|---|---|---|---|
| 1767 Q/RLv.24 | George Curlews | Turnpike | Samuel Gratorax |
| 1776 | George Curlewis | Turnpike & Chequer | William Lewis |
| 1782 Q/RLv.39 | Sarah Curlewis | Chequer | Robert Weeland |
| 1786 My 19, p.75 | Sarah Curlewis | Chequer | -- |
| 1788 | Sarah Curlewis | Chequer | -- |
| 1789 | Sarah Curlewis | Chequer | -- |
| 1790 | Valentine Williams | Chequer | John Gregory etc |
| 1791 | Robert V Williams | Chequer | John Gregory etc |
| 1792 | Valentine R Williams | Chequer | John Gregory etc |
| 1793 | Valentine R Williams | Chequer | James Want ec |
| 1794 | Robert V Williams | Chequer | James Want |
| 1795 | Robert V Williams | Turnpike House | George Want |

Last entry of publicans there.

We learn next, from Winters (1887, 51), that James Ridpath, a puntman, lived at Newton's Pool, and he died in 1804. On the 1806 map (Fig 36 of MP 20) the only building at Newton's Pool is labelled 'Master Worker's House'; so Newton would have moved there between 1804 and 1806. Then in about 1815 the Master Worker's House was no. 96 at the southern end of Horse Mill Island; so he would only have lived there for some 10 years or so.

The use of the word Chequer is explained on the Internet. The wild service tree, sorbus torminalis, wa known as the chequer or checker tree, a native tree of Europe. The fruit called chequers are edible, they were a herbal remedy for colic. Before the introduction of hops they were used to flavour beer, which may be related to the ancient symbol of a pub being a chequer board. The name cheques may derive from the spotted pattern of the fruit or of the bark of the tree.

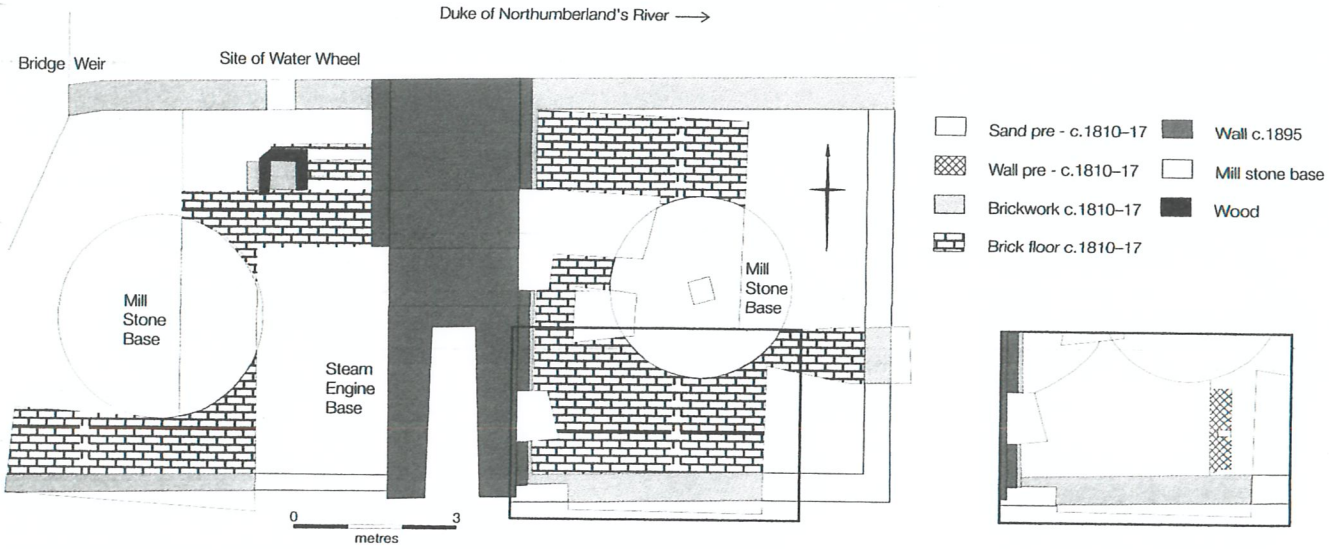



*Figure 1.22 Lower Mills, Bedfont, Greater London, plan of the excavated incorporating mill (after Philo and Mills 1985).*

The restored Chart mill at Faversham (Figs 2.9–2.11) corresponds with the evidence from contemporary manuscript illustrations[125] and gives some idea of the appearance of one of these mills. This mill is additionally important as it retains overhead gearing, which was normally removed for scrap while the timber element was fired or left to rot.

Excavation of the Lower Mills at Bedfont[126] demonstrated the complexity of phasing which may be encountered within a single mill building (Fig 1.22). Continued renewal of the mill's foundations also showed how the evidence of the earlier phases was swept away by each later rebuilding. The mills were originally a free-standing pair, each mill building measuring approximately 26ft 3in × 23ft (8 × 7m); a similar pair lay to their north on the opposite side of the mill race known as the 'Duke of Northumberland's River'. The mills sat at the head of the weir, and each pair was powered by a breast-shot water-wheel approximately 16ft (5m) in diameter and 8ft (2.5m) wide, supported by a central pier in the middle of the stream while the other end entered the mill to drive the machinery. The arrangement of the mill gearing was probably similar to that shown in a design drawing for Bedfont, prepared for Mr Walton at Waltham Abbey by John Smeaton around 1770 (Fig 1.23).

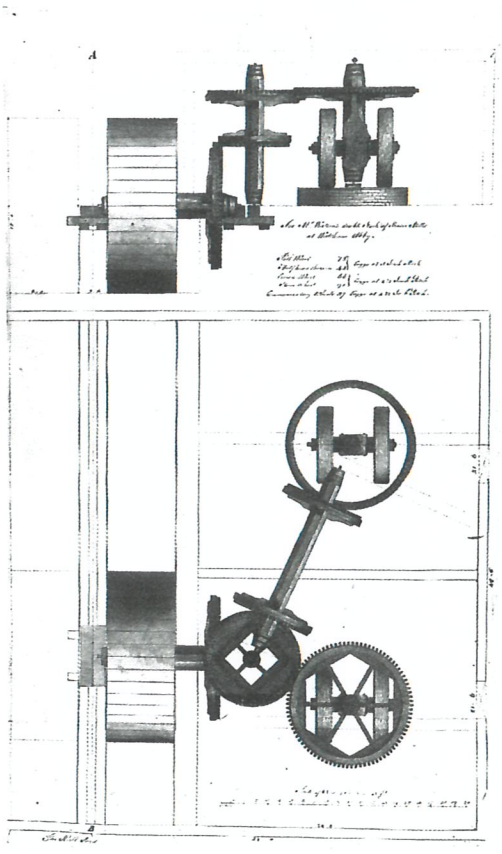
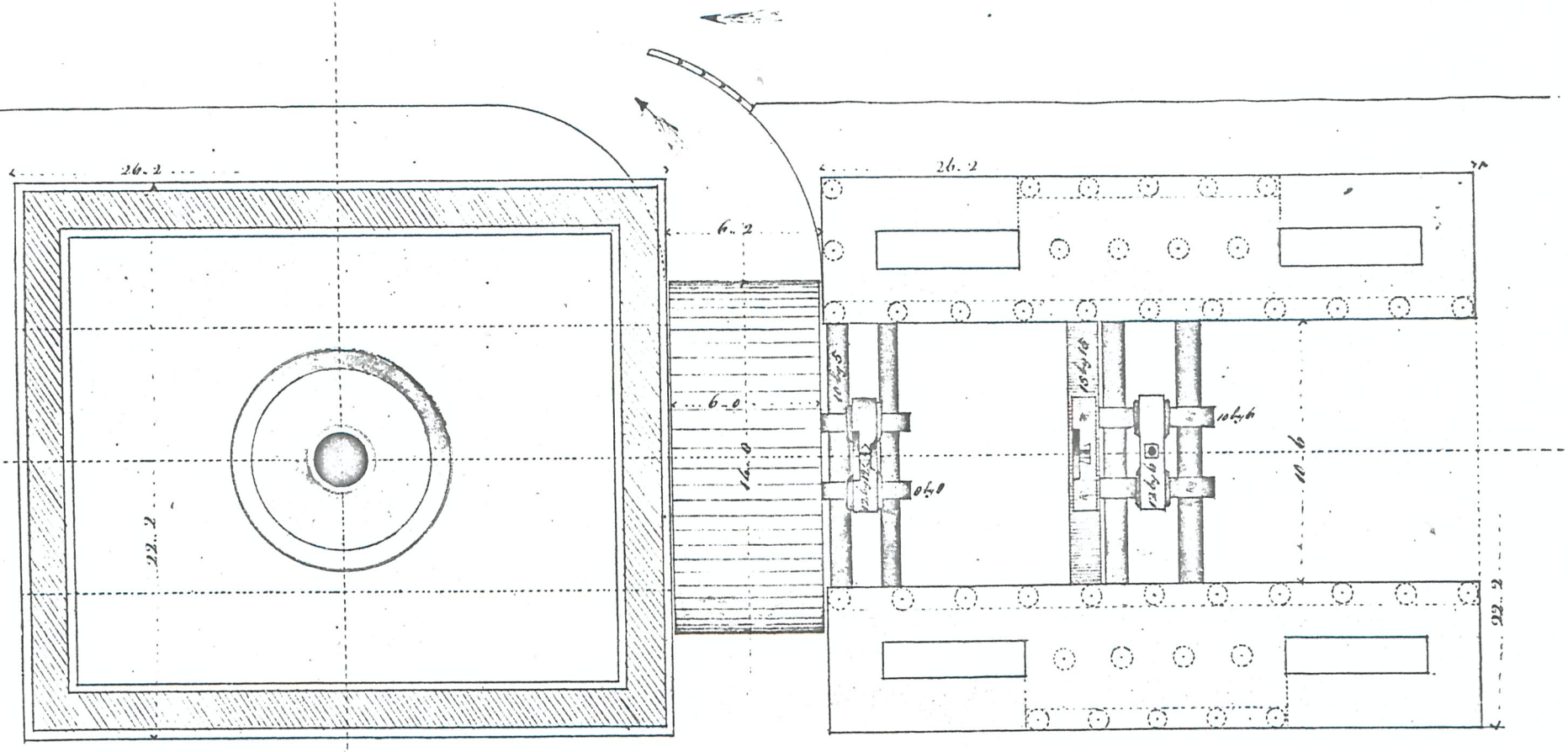


*Figure 1.23 Design drawing by John Smeaton for Mr Walton at Waltham Abbey c 1770, showing the possible configuration of the mills at Bedfont. (© Royal Society).*

Indeed, the prosperity of some of the powder mills close to London in the late eighteenth century is illustrated by their owners' ability to employ the great civil engineer and mill improver, John Smeaton, to provide designs for powder mills.[127] Designs were executed at Waltham Abbey in Essex, Hounslow in Middlesex, and at Worcester Park (Tolworth) in Surrey, where Smeaton also drew up a design for a steam drying house.[128] Drawings also survive for

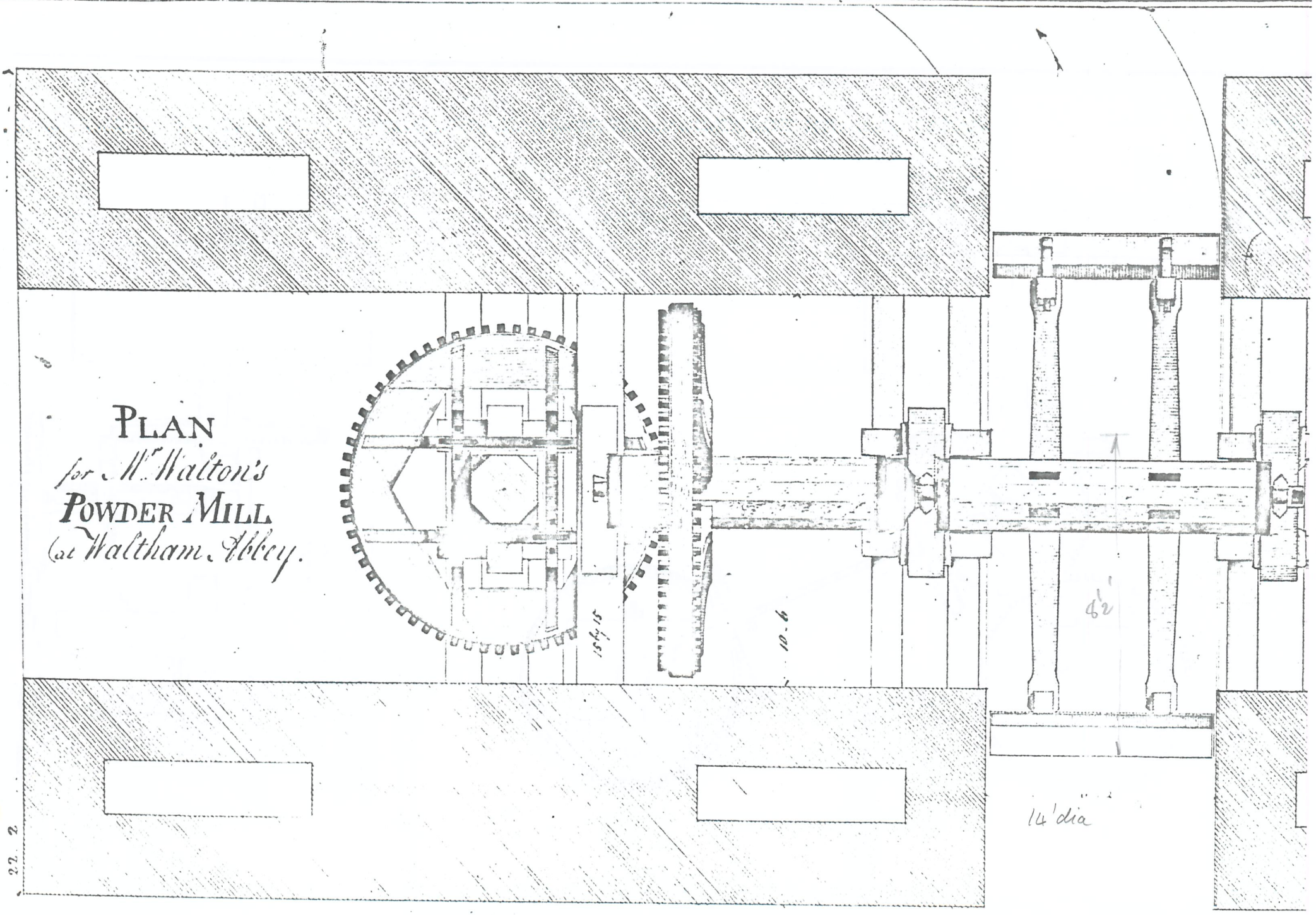
# Plan of the BUILDING for Mr Walton's Powder Mill at Waltham Abbey 1771
## on the East side of the Mill Pond.




Scale of Feet. ½ Inch to a Foot.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 feet.

Smeaton 1771




Smeaton 1771

occurred in other industries, such as clay grinding, pulverising bark for dyeing, metal ore crushing, and cider making, but its early transfer to gunpowder production proved to be one of the defining characteristics of the British industry, in contrast to that in France and its derivatives like the American mills. Its benefits included the efficiency of rotary motion and improved safety. Though most commonly associated with incorporation, this type of mill with a central wheel-pit was used to power other kinds of process machinery, which in a powder works generally needed a low level of power but one which could be reliably sustained for many hours. Its use persisted throughout the nineteenth century and until the end of production on most sites.

The evolution of this distinctive mill type is a question which archaeological excavation should be well placed to answer. The sites of these process buildings are easy to recognise in the field in comparison with other structures that were built of timber, since the mill foundations are very substantial. This factor, coupled with the symbolic nature of the water-powered edge-runner mill for the industry as a whole, has indeed resulted in its being the principal monument type within gunpowder works to have been subject to excavation. But none of the excavations has yet produced independent dating evidence for the phasing within the structures, and perhaps it is unlikely that finds made on mill sites would produce refined chronologies. Furthermore, excavations at Bedfont, Dartford, and the Chart mills in Faversham (see Fig 2.9) were conducted with a view to leaving remains visible for public display, which constrained the complete dismantling of the mill structures.[123]

Mills required very substantial footings, as they were often built on man-made ground at the side of a mill race or dam. Such foundations had to support the edge-runner mill as it turned, and such mills generally comprised a bedstone and two edge runners which could weigh up to around ten tons (10.16 tonnes). A design drawing of 1771 for the mill at Waltham Abbey shows brick foundations extending down for 14ft (4.3m) below the mill floor, with the brickwork resting on timber piles

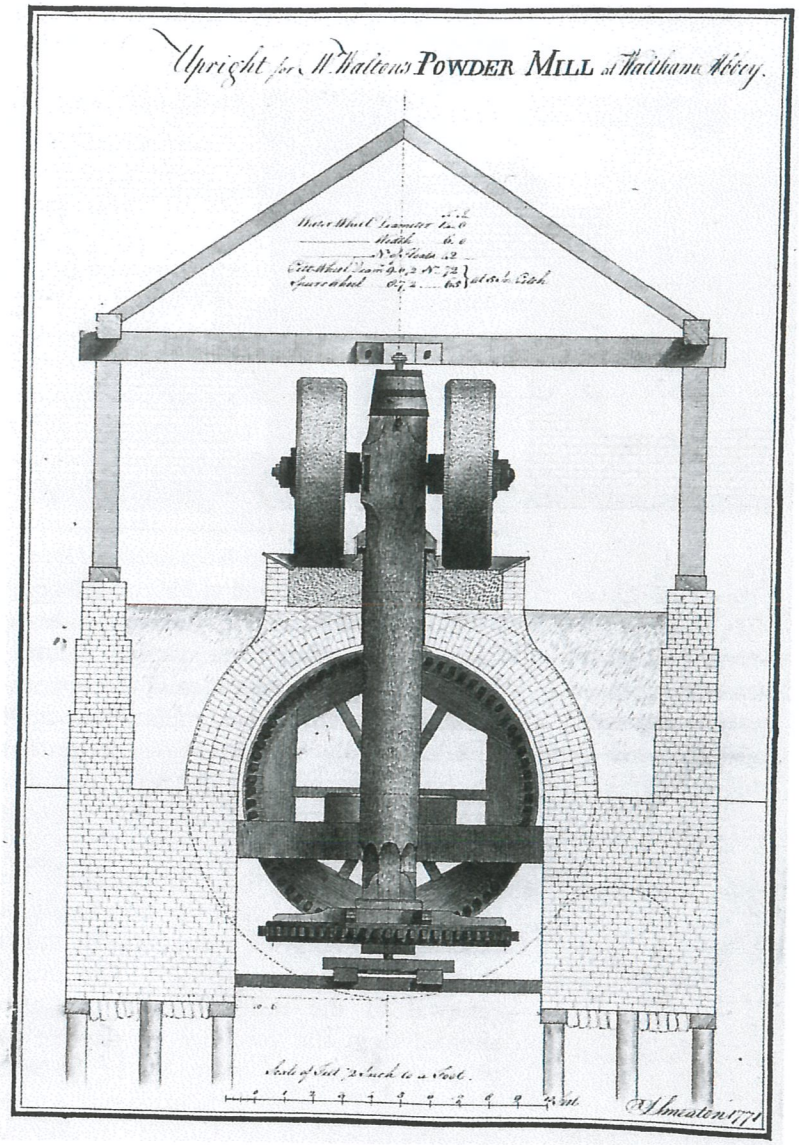
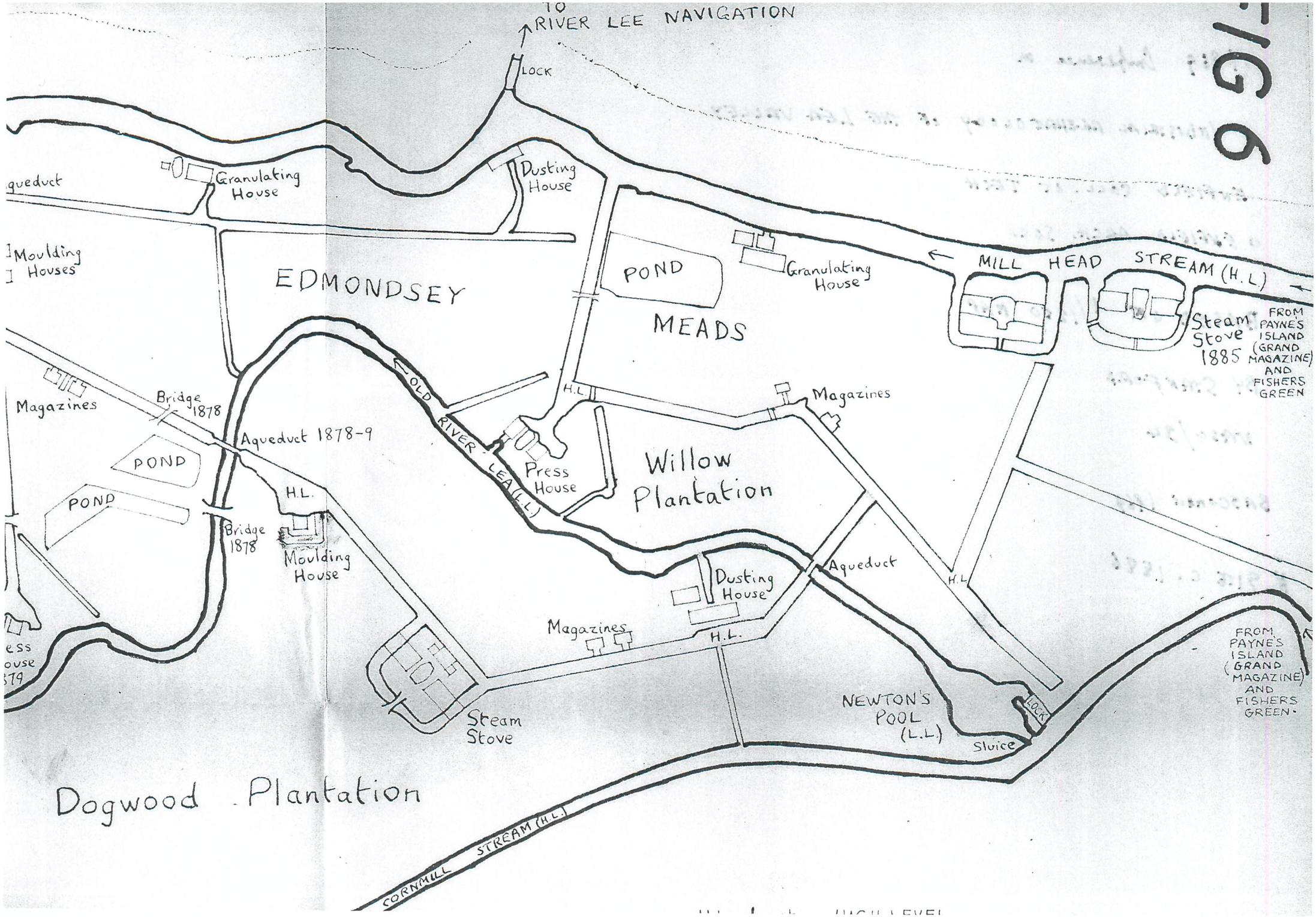



*Figure 1.21 (Design drawing for an underdriven powder mill for Mr Walton's Waltham Abbey powder mill. (© Royal Society).*

(Fig 1.21). In some of the later buildings, the mill beds themselves rested on deep brickwork foundations, while in the one mill excavated at Waltham Abbey elm posts, with a cross-section of 7 × 5fiin and 6ft 5in in length (0.18m × 0.14m and 2m in length), were found beneath a machinery base.[124] Given the waterlogged nature of most powder mill sites, dendrochronological analysis has great potential for refining the dating of individual mill structures and for providing an independent date for the introduction of timber piling employed beneath mill bases.

The superstructure of a typical powder mill consisted of a timber-framed building clad in loosely fixed boards that could easily blow away in the event of an explosion.


TO RIVER LEE NAVIGATION
LOCK
Granulating House
Dusting House
queduct
Moulding Houses
EDMONDSEY
POND
MEADS
Granulating House
MILL HEAD STREAM (H.L.)
Steam Stove 1885
FROM PAYNE'S ISLAND (GRAND MAGAZINE) AND FISHERS GREEN
Magazines
Bridge 1878
Aqueduct 1878-9
OLD RIVER LEA (L.L.)
H.L.
Press House
Magazines
Willow Plantation
POND
POND
Bridge 1878
Moulding House
Dusting House
Aqueduct
Magazines
H.L.
Steam Stove
NEWTON'S POOL (L.L.)
LOCK
Sluice
FROM PAYNE'S ISLAND (GRAND MAGAZINE) AND FISHERS GREEN
Dogwood Plantation
CORNMILL STREAM (H.L.)

local opposition (see p.96 and Fig.34), and nothing came of it (ERO D/DJg O16).

Something of the friendship and respect that the senior staff of the establishment had for each other, can be gauged from the use of the surname of one family as a Christian name of another family. Second to William Drayson in the lists of the employees of the Engineer's Department, occurs the name of Thomas Austen. He began service as a millwright, the elite of the engineering tradesmen, in 1804. He became the Superintendent of the Corn Mill in 1818 (WO 54/558); the Corn Mill had been bought by the Ordnamce in 1809 so as to better control the waters of the Lea. When Thomas and Mary Austen had their son baptised on 14 October 1818, he was named James Drayton (*sic*) Austen. Similarly William and Ann Maria Drayson had their son baptised Alfred Wilks Drayson. Charles Wilks was appointed Storekeeper at Waltham in 1825 after an illustrious career beginning in 1780 at Chatham, and continuing at Faversham and Ballincollig; he is last listed in post in October 1831, then aged 71 with 51 years service (WO 54/575). There is also the instance of William Drayson being godfather to Henry Wright. The father of Henry, who would have asked William to be godfather, was James Wright; he was a Junior Clerk at Faversham in 1801 and moved to Waltham in the same post in the same year, he was First Clerk at Waltham in 1805, Clerk of Cheque in 1812, and finally Deputy Storekeeper in 1822. The gunpowder business must have been a close-knit community of dependable citizens, amongst which the young Frederick would, no doubt, have received help and encouragement in the production of his Treatise.

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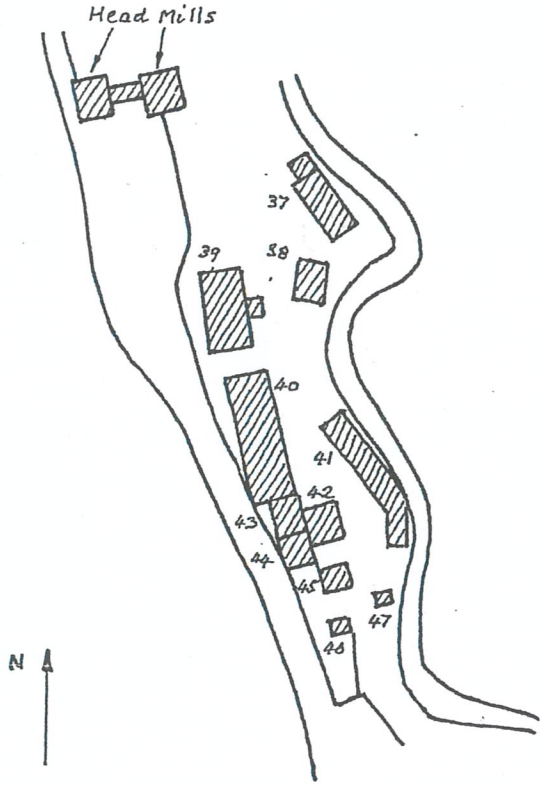



The selected details shown here, are from proposals by Capt Mulcaster concerning the extension of the Royal Gunpowder Factory

37 Master Mixer's House
38 Public office
39 Mixing house
40 Saltpetre and charcoal mills
41 Old stables
42 Grand watch house
43 Sulphur mill
44 Saltpetre mill
45 Proof house
46 Engine house
47 Carbine shed

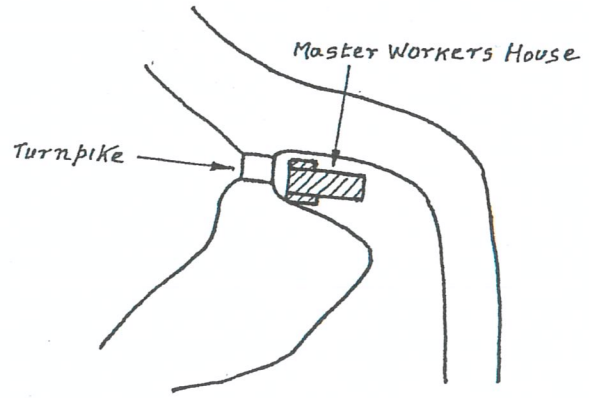



FIG.36 WALTHAM ABBEY, ESSEX, 1806
Plan of Royal Gunpowder Works
Drawn from sketches by K.N.Bascombe
of PRO MR 580

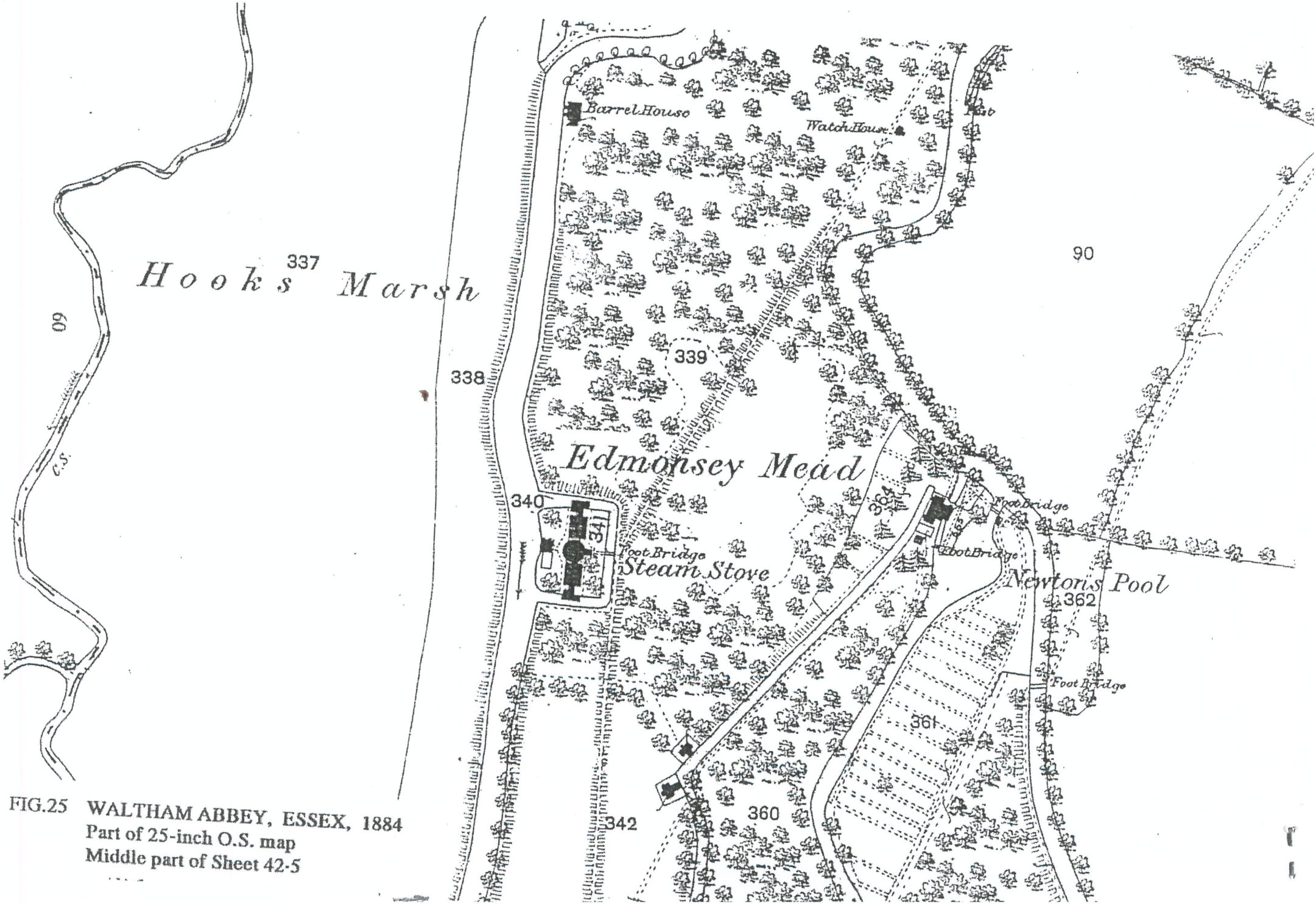
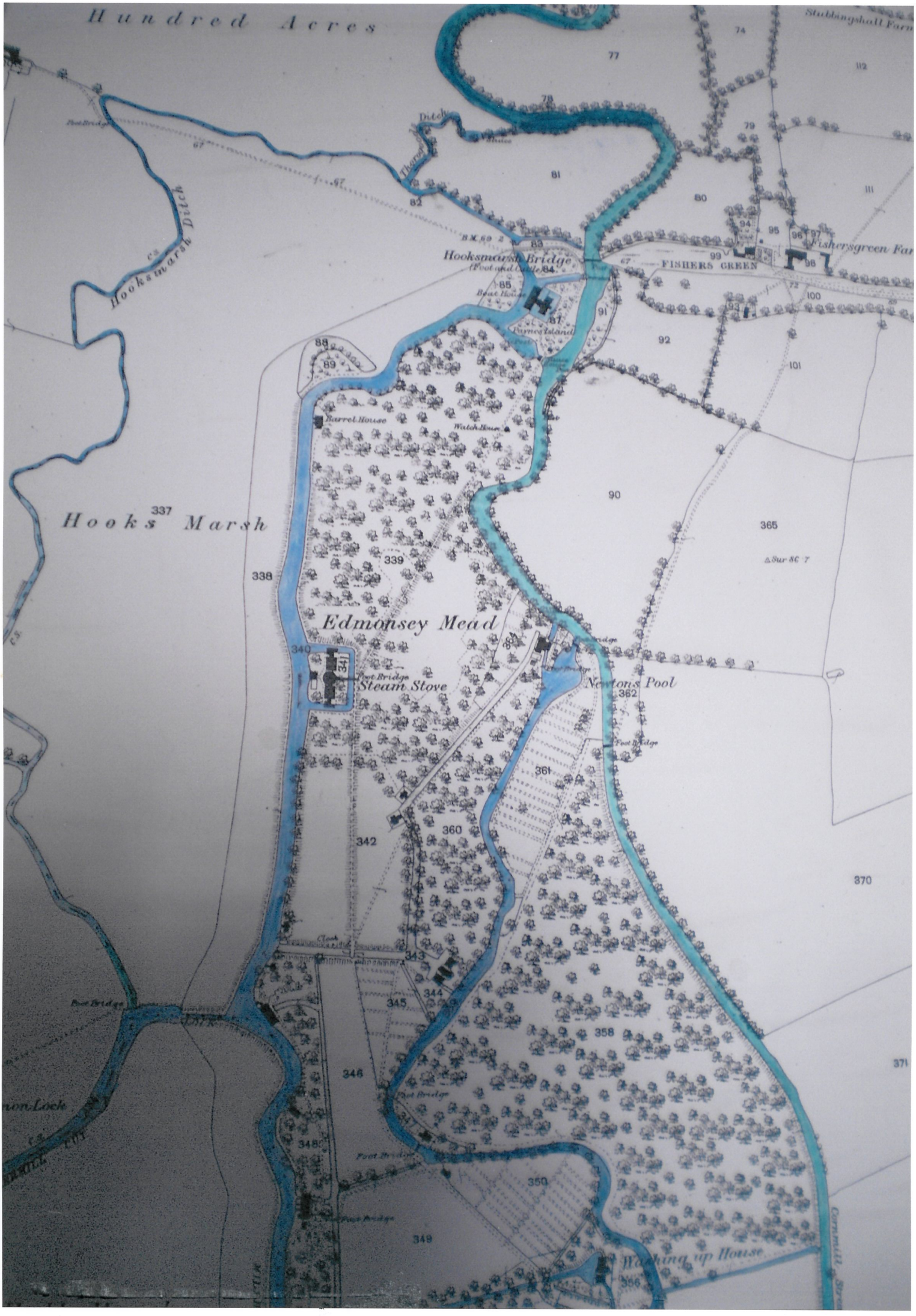



FIG.25 WALTHAM ABBEY, ESSEX, 1884
Part of 25-inch O.S. map
Middle part of Sheet 42-5


Hundred Acres
Hooksmarsh Ditch
Hooksmarsh Bridge
FISHERS GREEN
Fishersgreen Farm
Stubbingshall Farm
Barrel House
Watch House
Hooks Marsh
Edmonsey Mead
Steam Stove
Newtons Pool
Washing up House
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