THE MIDLAND WIND AND WATER MILLS GROUP

(affiliated to the Society for the Protection of Ancient Buildings)

This Journal is published by the Midland Wind and Water Mills Group, which is concerned with the study of the history and technology of mills, and, in principle, with their preservation and restoration. Its area is the region loosely defined as the Midlands, especially the central counties of Staffordshire, Worcestershire and Warwickshire.

The Group, which functions as an autonomous society, holds monthly indoor meetings, with talks and discussions, during the winter, and arranges several tours to mills during the spring and summer. Members periodically receive a Newsletter and the Journal, and can purchase other publications at preferential prices.

For further particulars, please contact the Hon. Secretary, John Bedington, 5, The Crescent, Bromsgrove, Worcestershire, B60 2DQ.

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Wind and Water Mills

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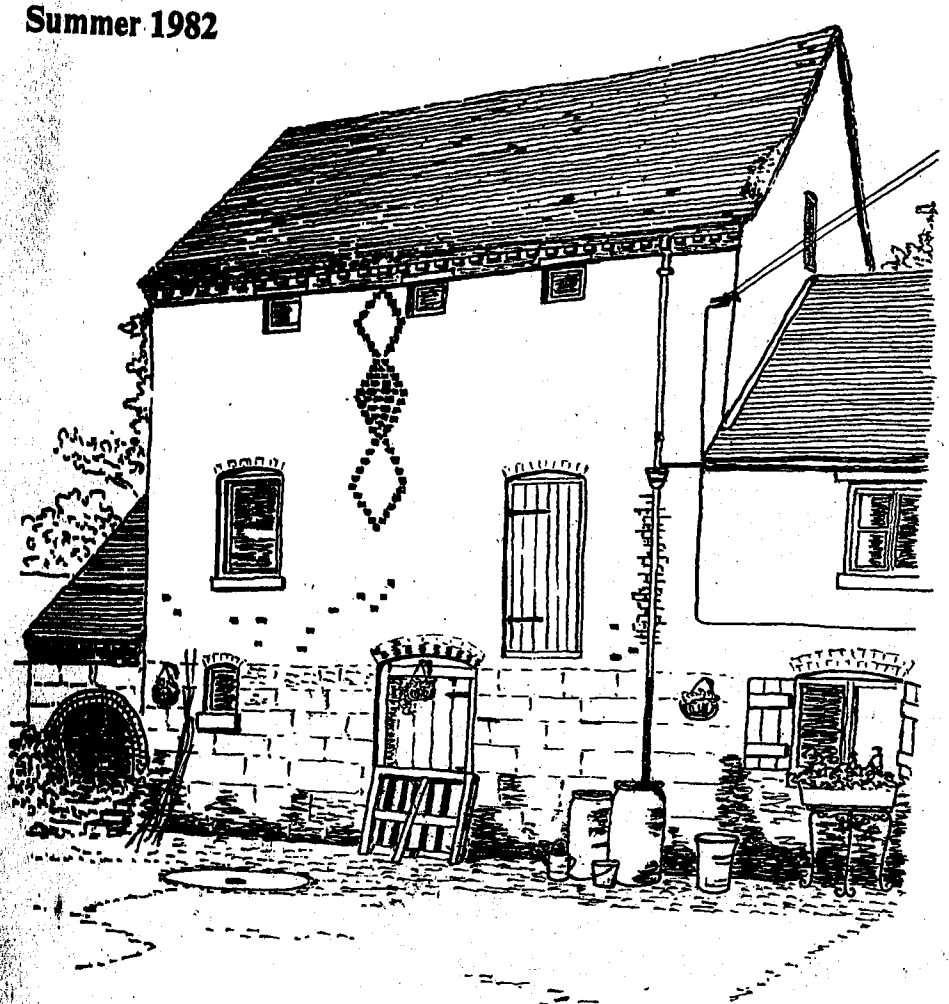
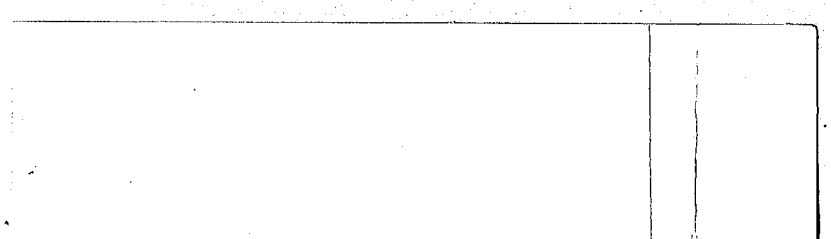


Wind and Water Mills, although the journal of the Midland Wind and Water Mills Group and therefore naturally concerned with the mills of the Midlands, is not intended to be narrowly parochial. Articles have already been, and will continue to be, published relating to mill matters in other parts of Britain, and may in future deal with other parts of the world, if the subjects are of sufficient interest and importance. In general, articles by members will have priority, but submissions by others will be willingly considered.

D.G.T.
D.T.N.B.

Cover illustration:
HADLEY MILL, see p.14, Watermills of the River Salwarpe and its tributaries.



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WATERMILLS OF THE RIVER SALWARPE AND ITS TRIBUTARIES
PART 2. THE SYSTEM OUTSIDE BROMSGROVE
by GORDON TUCKER

In Part 1 of this paper (Wind and Water Mills, No.2, 1981, pp 6-15), J.D.Briggs dealt with the 14 identifiable watermill sites in the parish of Bromsgrove. In this part the remaining 25 known sites on the River Salwarpe and its tributaries will be discussed.

Because the Tithe Awards of c1840 play such an important part in watermill research, it is convenient to use the parishes as they were defined then. It was on this basis that Briggs took Lint (or Charford) Mill as the last one in Bromsgrove, for the next two mills are now in the modern civil parish of Bromsgrove, although formerly in Stoke Prior. On entering the parish of Stoke Prior as formerly defined, the combined Battlefield and Spadesbourne Brooks become known as the Sugar Brook, but before leaving the parish this brook has become the River Salwarpe, and so continues for its tortuous course of some 12 miles to its confluence with the River Severn just north of Worcester. There are several tributaries, all those of any consequence being on the western side; two of them powered some watermills - the Elmbridge Brook which joins the Salwarpe just below Droitwich, and the brook which rises near Fairfield as the Hockley Brook, then becomes the Elmley Brook and finally the Hadley Brook before it joins the River Salwarpe in the parish of Salwarpe. Over its course the main stream of the Salwarpe (including the Sugar Brook) falls about 185 ft, and our survey shows 20 mill sites on this stretch. Fig. 3 shows this river system and the identified mill sites. The numbering of the sites is continuous with that of Part 1, and so here starts with No.15. Numbering proceeds down the main stream until a tributary is reached; numbers then proceed down the tributary from source to confluence; then down the main stream to the next tributary, and so on. Fig.4 shows a schematic representation of the watercourses associated with the mills, based as far as possible on the Tithe Maps of c1840.

The list of numbered mill sites is as follows :-

15. Bant Mill
16. Sugarbrook Mill
17. Sugarbrook Old Mill
18. Fish House Mill
19. Needle Mill, Stoke Prior
20. Corn Mill, Stoke Prior
21. Stoke Prior Mill
22. Upton Warren Mill
23. Paper Mill
24. Wychbold Mill
25. Walkmill
26. Impney Mill
27. Town Mill, Droitwich
28. Briar Mill
29. Turn Mill (Badgecourt)
30. Elmbridge Mill
31. Salwarpe Mill
32. Elmley Lovett Mill
33. Doverdale Mill
34. Hadley Mill
35. New Mill
36. Porter's Mill
37. Mildenham Mill
38. Hawford Mill
39. Hawford Old Mill

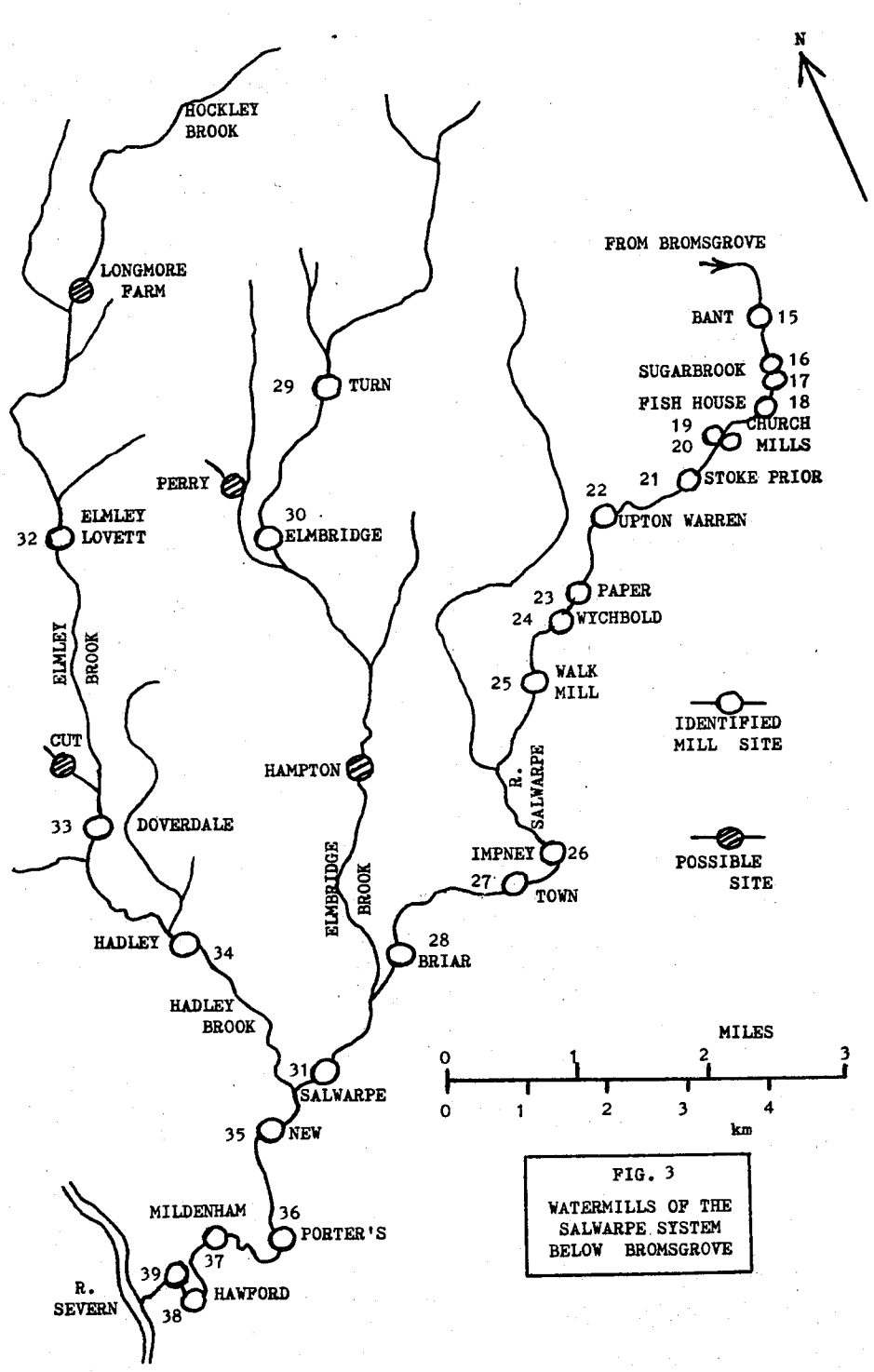


FIG. 3
WATERMILLS OF THE SALWARPE SYSTEM BELOW BROMSGROVE

Although some 14 of these mill buildings still stand in some form, only two - Hadley and Mildenham Mills - remain complete with their machinery, and even these are not fully operational.

POSSIBLE WATERMILL SITES

It must be emphasised that the above-listed sites are those that have been positively identified in some way as sites of watermills. There were possibly many other mills on the Salwarpe system at different times. The Domesday Survey of 1086(1) included the following mills which must have been on the Salwarpe system :-

Bromsgrove,	3 mills	Salwarpe,	1 mill
Upton Warren,	1 mill	Elmley Lovett,	3 mills
Wychbold	5 mills	Doverdale,	1 mill

and the following, some of which would have been on the Salwarpe system :-

Chaddesley Corbett,	3 mills
Ombersley,	2 mills
Northwick	3 mills

Nash(2) gives several references, from the 11th to the 15th centuries, to a mill at Tapenhall in Claines parish, and to a mill at Mildenham nearby; these mills may well have been on the sites where Porter's and Mildenham Mills now stand, but may alternatively have been at other points on that stretch of the Salwarpe. Mrs.Berkeley(3) states that in 1659 there were ten watermills on that last mile or so of the river; but it is unlikely that they occupied ten separate buildings and much more likely that there were several waterwheels, each driving a pair of stones, at each of three buildings. There is an advertisement in 1766(4) for a 'freehold farm situated in Wichbold .... consisting of a Dwelling House, Four Fulling Mills, ... ', but again the four fulling mills would almost certainly be in one building, or at any rate on one site (probably No.25).

Other sites are suggested by field names in the Tithe Awards. Three which have been noticed are :

a) 'Perry Mill Close' on the Tithe Award for the Chapelry of Elmbridge in the parish of Dodderhill, 1842. The site suggested is at about S O 888689, on a tributary to the Elmbridge Brook, and lying on what is now a footpath. The stream is a small one, and the mill could have been a horse-driven cider mill.

b) 'Part of Hampton Mill', and 'Mill Grove', on the Tithe Award for Hampton Lovett, 1839. The configuration of the land suggests a possible site at S O 892655, on the bridle road just the other side of the railway from Hampton Lovett Church, next to the bridge over the brook. There is a possible line of a leat, marked by trees on a bank running from the brook about 200 yards above the site, with a potential head of about 10ft.

c) 'Cut Mills' (a field) on the Tithe Award for Doverdale, 1838, and 'Cut Mill Piece' on the Tithe Award for Elmley Lovett, 1840. These two fields lie on opposite sides of the small brook (tributary to the Elmley Brook) which forms the parish boundary. The site suggested is approximately S O 854672.

A site where the layout of the watercourses suggests a former watermill, but the only documentary evidence found is of a steam mill, is at Longmore Farm, Chaddesley Corbett, S O 884726. The steam mill, however, has an interesting history. Some further discussion of this site is given at the end of this paper.

THE IDENTIFIED WATERMILL SITES

The principal sources of information used in this section comprise firstly maps, principally Isaac Taylor's map of Worcestershire of 1772, the Ordnance

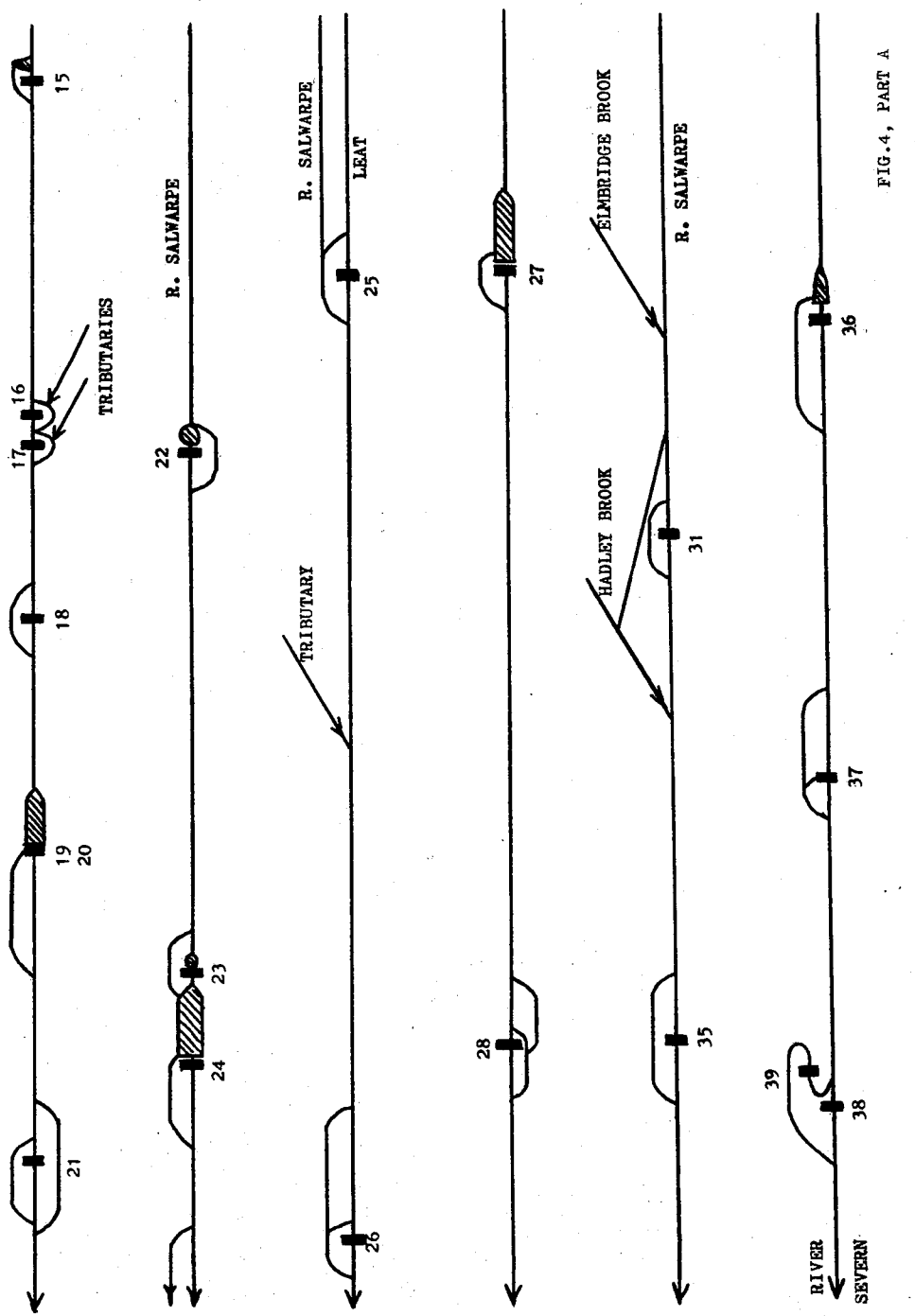


FIG.4, PART A

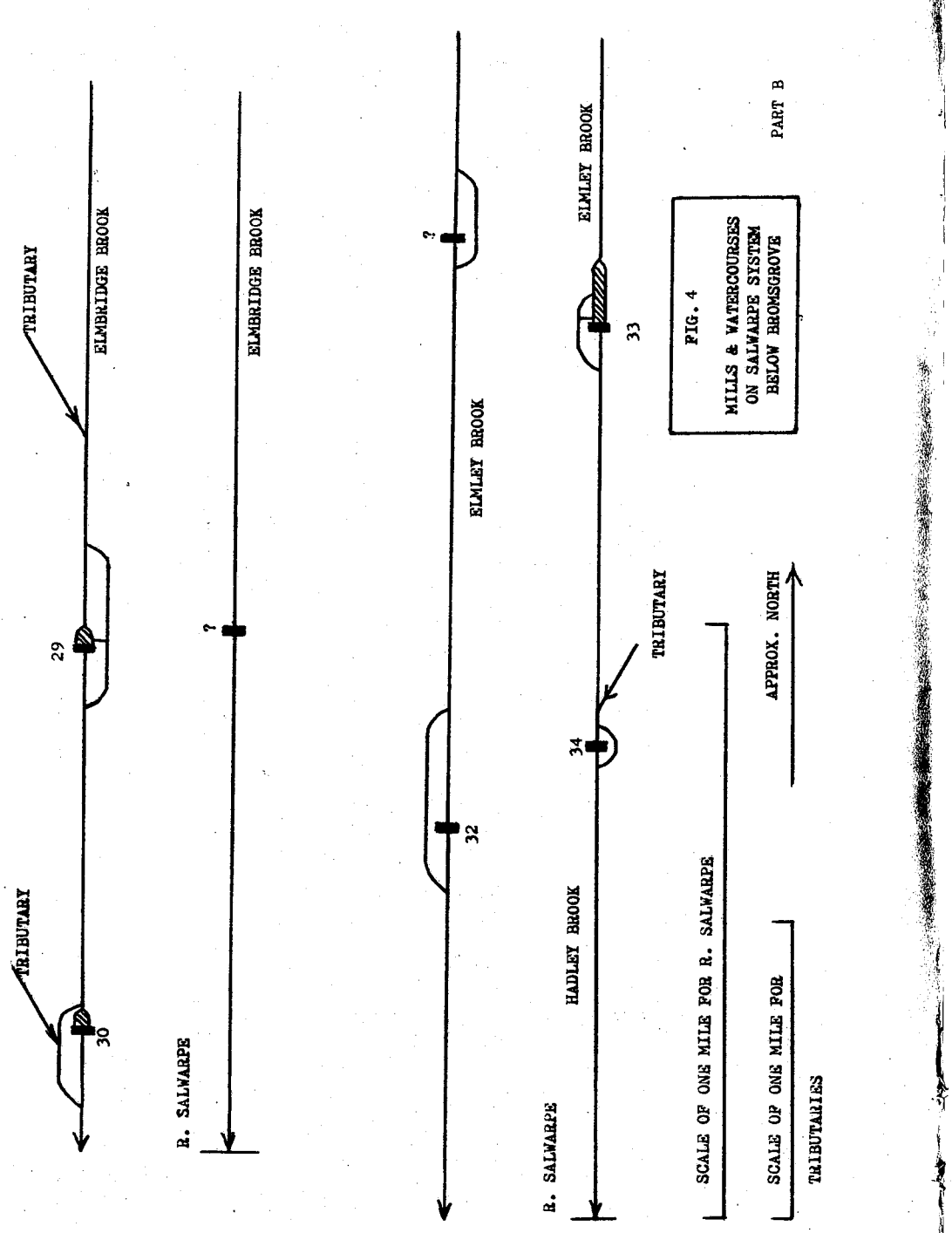


FIG. 4
MILLS & WATERCOURSES ON SALWARPE SYSTEM BELOW BROMSGROVE

Survey (OS) maps of scales from 1 to 25 inches to the mile, dating from c1830 to the present, and the Tithe Maps with their associated Apportionments, collectively known as the Tithe Awards (TA), of c1840; secondly the very extensive typewritten notes of the late H.E.S.Simmons, dating as far as this area is concerned mainly from the years 1944-45, and now filed in the Science Museum Library in London; thirdly published sources, principally those of references 1-3 together with the Victoria County History (VCH); and fourthly manuscript documents of various kinds, but mainly deeds, mostly in the County Record Office in Worcester but some in private hands.

Comments on the present-day condition of the mills and/or sites are based on the author's visits during 1978-81.

15. Bant Mill (Stoke Prior parish). SO 959690

Shown as Baddington Mill on OS c1830, Pant Mill on Tithe Map but Barrington Mill on Tithe Apportionments 1846, Pant Mill (owner Maria Cooke) in 1855(5). Name Bant Mill used on large-scale OS, by Mrs.Berkeley 1935, and by Simmons 1944; and persists in present-day road name. Corn Mill 1884 (OS). Demolished c1900 (Simmons). Some masonry remains visible in 1934 (Mrs.Berkeley). Site now lost.

A mention of Baddington Mill on the Salop Brook in the manor of Stoke Prior in 1650 (VCH) presumably refers to a mill on or near this site.

16. Sugarbrook Mill (Stoke Prior parish) SO 958682
17. Sugarbrook Old Mill (Stoke Prior parish) SO 958681

It is likely that the present mill building dates from between 1846 and 1848, for in the former year the TA shows the mill at site 17 (no mill at site 16), and in the latter year one James James declared that 'the Sugars Mill has been taken down and rebuilt'(6), and in the plan accompanying his declaration the mill is shown at site 16. The mill was part of the Bunsford Hill Farm estate and was referred to in 1842 and 1845 as Bunsford Hill Mill with an overshot wheel and three pairs of stones (Simmons). Simmons states there was a fulling mill there in 1820, quoting the Worcs.J. for 16 March 1820.

Henry Baylis was miller from just before 1848 to after 1860, and was followed by various members of the Gibbs family from before 1872 to 1940. The mill ceased working as a mill in 1941 (Simmons).

Some idea of the scale of the machinery in the mill in the 1870s is obtained from surviving correspondence of 1876 between Robert Summers, millwright of Tanworth-in-Arden, and J.Gibbs, the miller(7). It appears that a previous estimate was rather costly, and the reconstruction now suggested, to cost only £850, involved putting in a water wheel about 13ft diameter and 6ft.8in wide with machinery for only four pairs of stones instead of the previously-proposed five, and with a wooden pentrough costing £50, presumably instead of a previously-proposed iron one. Evidently a complete replacement of the mill machinery was contemplated less than 30 years after the mill was built. No information is available on what was actually installed.

In its later years, the mill at site 16 had only roller plant and no longer relied on stones. This plant was on the ground floor, driven by the enclosed, all-iron, overshot water wheel of approximate diameter 15ft. and width 6ft. Dressing machines were on an upper floor, with a line shaft driven from an iron-and-wood crown wheel of 5ft. diameter. The description of the mill in a sale brochure of 1909 is interesting:(8)

> 'The Mill is in very good order, and is fitted with a Roller Flour Mill Plant by Messrs.Thomas Robinson and Co., of Rochdale.
>
> It is capable of producing 1½ Sacks (280 lbs.) of high-class finished flour per hour, and includes Grain Cleaning Machinery, Brush Machine and Elevators, Shafting and Pulleys, 4 Horizontal Roller Mills, Rotary Sieves, Scalpers, Elevators and Purifiers, Dressing Machines, Dust Collectors, Pair of French Stones, and other Plant and Machinery. In addition to the Milling Rooms there is a Sack Room, Flour Room, and Office; also large Wagon Shed, Stable and Cart Shed.'

At the present time the original large brick-built 4-storey mill on site 16 has been extended from its plan of approximately 90ft. by 25ft. by some single-storey buildings, and several manufacturing companies are housed; SAXONFOAM LTD., makers of cavity-wall insulation, occupying much of the main mill. There is now no trace of the mill-pond or pentrough.

Only a house now stands on site 17.

18. Fish House Mill (Stoke Prior parish). SO 954678

There is a good deal of confusion in the records of this mill and the next three, and it has not been possible to untangle their history completely. Simmons states that Fish House Mill was originally a 'tanning mill', although it may have been merely a tannery which did not use the water for power. He appears to have got this information in 1944 from the 91-year-old owner Mr.Gibbs, who stated that it was his father who converted the tanning mill. This is just possible, but 'the Water Corn Mill called the Fish-house Mill' was well established by 1832 because in November of that year it passed to Thomas Baurkes and John Horton under the will of Mrs.Mary Enniss.(9) By 1842 Baukes and Horton had died and the mill had passed to John Jones, who advertised it for sale in 1842 as

> 'A Water Corn Mill called the Fishouse Mill having an undershot wheel, driving three pairs of stones and machinery and tackle complete on an excellent stream of water ... and now or late in the occupation of Mr.Henry Freeman. The mill has lately been put into complete repair'(10)

But it was not until 14 April 1846 that Jones transferred the mill to Benjamin Allcock, who nine years later sold it to J.Pitman for £700 or more.(11)

In the light of this evidence it is extremely curious that in the Tithe Awards of 1846 this mill is shown as a Needle Mill owned by Richard Alport and occupied by James Rockford. Tithe Awards are normally scrupulously accurate. Could it be that in, or just before, 1846 the mill had been converted to a needle mill, and that it was a later conversion back to a corn-mill which was done by Mr.Gibb's father? Could the story of the tanning mill be just a misunderstanding ?

The mill was still working when Simmons visited it in 1944, but it has for many years now been a residence, considerably rebuilt and altered. It is most attractive. It is built of blue 'engineering' bricks, and is quite small, with only two storeys. A very considerable porch now on the south wall was stated by the owner to have been moved from the west wall. The watercourses still exist, as does the weir, and it seems clear that the waterwheel must have been on the south side, and it is difficult to see now how the head could have been as much as 9ft. Yet Simmons stated that the wheel was 'in a covered-in brick compartment at the east end ... all-iron overshot 9ft overall by 6ft.2ins. wide, the curved iron buckets being 12 inches deep with an overhang of 10 inches, the six arms being 5 inches by 3/4 in. and the round ribbed iron shaft 10 inches diameter'. (The wheel shaft now lies in the stream which was formerly the headrace.)

Simmons went on to describe the unusual drive arrangement :- 'The pit wheel, which is cased in flush with the wall, engages a similarly placed toothed wheel operating a horizontal shaft on which are mounted two 4ft. bevelled spurs, iron with wood teeth, driving 15in. iron stone nuts on round spindles; the nuts are on tapers and are lifted out of engagement by a forked lever and chain. This gear is enclosed in a cupboard.' The stones were one pair of 4ft. Peak stones and one pair of 3ft.10in. French burrs, the latter coming from Sugarbrook Mill when it was converted to roller milling. There was a large dresser on the stone floor. The line shaft driving the sack-hoist and machines was belt-driven from a wheel on the main driving shaft.

It is possible that the weatherboarded protrusion on the north wall is a modern accretion; but it is more probably a replacement of an original lucam.

The origin of the name Fish House is not known, but 'Fishhouse Meadow' occurs in deeds of 1792,(12) when John Tolley acquired the tenancy.

19. Needle Mill (Stoke Prior parish). SO 951678

20. Corn Mill

John Tolley held a 'Water Needle Mill' in 1784(13), and as he did not acquire the tenancy of Fishhouse Meadow until 8 years later, and as he was in 1801 advertising a Needle Mill near the turnpike road from Bromsgrove to Hanbury and near the church in Stoke Prior, it is most likely that the mill was at site 19. By 1846 the Tithe Awards showed Edward Perks occupying a Needle Mill and 'Shops and Yard' for needle stamping and hardening at this site; but they also showed Jeremiah Jordan Haynes as occupant of a Flour Mill adjacent. Edward Perks, Needle and Fish Hook Manufacturer of Redditch and Stoke Mills, was bankrupt in 1849.(14) J.J.Haynes appeared in directories as the corn miller at Stoke Mill up to the 1860's, followed by John Haynes in 1872 (Simmons). The 6-inch OS of 1884 marked a Needle Scouring Mill. In 1887, 'Mr.A.Zealley, of the Church Mills, Stoke Prior, has favoured Mr.William Gardner, of Gloucester, with the order to remodel his mill on Mr.Gardner's combined stones and roller system.'(15) There thus seems adequate evidence of the simultaneous existence of both a needle mill and a corn mill.

The name Church Mill was often applied to one or other, or both, of these mills. There was a serious fire in the early years of the 20th century, and the site was derelict by 1934 (Mrs.Berkeley). In 1944, Simmons found that 'The decayed flood gates and the small mill cottage are all that remain, and the small mill pool is choked with weeds.' The dam still remains, and Needle Mill Cottage has been renovated. From its position beside and below the dam, it might well have once been part of the mill.

Confusion of the records with those of Stoke Prior Mill (No.21) is only too easy, and Simmons fell into this trap with many of his notes.

21. Stoke Prior Mill (Stoke Prior parish). SO 943674

The massive and ugly 4-storey brick mill which stands on this site has been the subject of much controversy in the last year or two, because its owners, who have been using it only for storage, have wished to demolish it, as, together with the formerly attractive mill house, it has been badly vandalised by the children of the area. Renovation and protection were thought to be too expensive; yet planning permission to demolish had been withheld,(16) although the house has recently been pulled down. This building is, however, not the original mill, which was burnt down in 1896.

It is difficult to separate the early history of this site from that of the sites 19 and 20 discussed above. It is convenient to take the Tithe Awards as a kind of anchor and note that in 1846 they showed at this site the 'Stoke Prior Flower Mill' with Francis Rufford as owner and William Bladom as occupier. (It may be noted in passing that adjacent to this site the TA showed 'Needle Mill Meadow', suggesting that at some time before the corn mill there was a needle mill on this site.) Now in 1852 there was advertised for sale a water corn mill called Stoke Mill which was leased to William Bladen and was the copyhold of the manor of Stoke Prior.(17) It had two overshot wheels with a fall of 15ft.8in., driving four pairs of stones. This was presumably our Stoke Prior Mill. A mill 'near to Stoke Church' with 'four pairs of stones and two very powerful water wheels' was advertised as 'new built' in 1820.(18) This must have been the same mill, and so we have its date of building as just before 1820. It was occupied from 1820 for many years by William Harris and Son. Bladen or Bladom must have occupied it for perhaps ten years or more in the 1840s and 1850s, and then it passed to William Herbert Wall, in whose family it remained for over 40 years. Wall was apparently only 43 when he died in 1879,(19) so he must have been only in his very early twenties when he first had the mill.

In 1889 at least some of the stones were replaced by a roller plant (Simmons), but this and the whole mill were totally wrecked in the fire of 1896 already mentioned.(20) The new mill was built quite quickly, and was advertised to be let in 1899, 'recently erected with entirely new and complete

3-sack roller plant and two pairs of stones'.(21) Townsend and Sons, who had the Albion Flour Mills in Worcester, ran the mill for a few years, then in 1906 it was advertised again as a '3½-sack Roller Mill, with almost new and up-to-date machinery, steam and water. Electric light throughout.'(22)

Corn-grinding had ceased long before Simmons visited the mill in 1944, for by then it had been used as a factory for box-making, then for making lamp-burners, and was currently in use by L.G.Harris for brush-making. In recent decades it has had very little use.

The name Stoke Prior Mill was a very ambiguous one, as there were so many mills in Stoke Prior. The mill was often called Wall's Mill through its long association with that family. On the 1st-edition 1-inch OS of c1830 it is marked as 'Brick Ho.Mill'.

22. Upton Warren Mill (Upton Warren parish). SO 932674

There may have been a mill on this site since before the Norman conquest. There was a mill there in 1772 (Taylor), and it may well have been the present building, which now has no machinery in it, having ceased work before 1930. In fact the mill had been out-of-order for some years before it was restored by Oliver Hancox in 1923 and worked for four years (Simmons). It is a small two-floor building, with attic, attached to the former mill cottage. Simmons gives the following description of the machinery :-

> 'The pit wheel was iron; the water wheel, on the south side, was an undershot 4ft. wide and about 12 feet diameter, covered over, with small flood gates alongside. The paddles and arms were wood on iron naves and an iron shaft. The upright shaft was also iron. The stone nuts were on tapered spindles lifted with fork and lever. The spur and wallower were iron. The stones were one pair of French 4ft. and composites 4ft. and 3ft.6ins. The iron crown wheel had wood teeth on top, with iron nuts operating the sack hoist and machines.'

23. Paper Mill (Hampton Lovett parish). SO 924666

This site is in the village of Wychbold on the south side of the river, and was at the time of the Tithe Awards in a very small detached part of the parish of Hampton Lovett, embedded in the large parish of Dodderhill, in whose Tithe Map and Apportionments it appeared in 1845, without any reference to the mill, although the map clearly shows the head-race entering the presumed mill buildings in their middle. It is likely, therefore, that the mill had ceased work not very long before then. The name 'Paper Mill' is preserved in Paper Mill Lane and in the name of the pair of semi-detached houses on the site, but the history is very obscure. A 'brown paper mill' was to let at Wychbold in 1777 and R.Lloyd was a paper maker in 1810 (Simmons). The site has been marked Paper Mill(s) on OS maps since c1830.

The owners of the houses on the site believe that the northern one was once the mill and the southern one the mill-house. Whatever the truth of this, there is no doubt there was a mill here; the site of the weir seems definite, with a stone dam for the head-race.

24. Wychbold Mill (Dodderhill parish). SO 922664

Although this mill has now disappeared, it was still standing, although disused, in 1945 (Simmons). It then had an undershot water wheel, about 20ft. diameter by 7ft.width, with paddle boards and three sets of eight arms, on an octagonal iron shaft 10 in. across. The wheel was at the west end of the building under a high arch. Some machines were worked from a line shaft. Simmons described the building as a 'large old red brick rectangular building, not used as a mill for a long time.

In 1845 the undershot wheel was of 10ft. diameter, with 12 arms and a 12 ft. shaft of 13 in. diameter, and there were four pairs of stones.(23)

'Corn Mill' on OS c1830; 'Mill' on TA 1845, Owner and occupier William Lilley. Millers: William Lilley c1835-54; J.Gibbs c1860-76; J.A.Jackson, then T.B.Jackson, c1880-1900; W.Pritchard c1900-04 (Simmons).

A paddle-type water-wheel now stands as an ornament in the garden of Mill Cottage, but it is not thought that this is derived from the original wheel.

25. Walkmill (Dodderhill parish). SO 917658

This site is only marginally qualified for inclusion as an identified site, but it was marked by a mill symbol on a leat by Taylor in 1772. 'Walk Mills' on OS c1830. The name 'Walkmills Farm' has persisted since then, and almost certainly indicates the site of the old fulling mill. The long leat, the small terminal pond, sluice and overgrown tail-race are all clearly shown on the 25-inch OS 1903, and suggest the site of a mill with some precision.

26. Impney Mill (Dodderhill parish). SO 910636

This mill, which was in the grounds of Impney Court, the home of the Corbetts, was demolished in 1879 (Simmons).

'Impney Mill' marked on Taylor 1772; clearly shown, with leat, overflow channel, and tail-race, on Tithe Map 1845 (but not in Apportionments); owner and occupier Thomas Thould at least from 1820 to 1864 (Simmons).

The mill-site is probably ancient, for a mill at Impney was mentioned in the 13th century (VCH).

27. Town Mill, Droitwich. (Dodderhill parish). SO 904634

This mill, which has now gone, was, in the 1840s, in its own tiny detached part of the parish of Dodderhill, embedded in the parish of St.Peters, Droitwich. It appeared in the Tithe Awards for St.Peters in 1841 and for Dodderhill in 1845. References occur from 1802; owners or millers were R.B.Jameson up to 1802. Thomas Perkins c1820-51; Mrs.E.Perkins c1854; J.Goodwin and Son in 1860s; William Horton c1870-1910; C.H.Everton c1910-45 (Simmons).

The TA show the mill standing just below the weir on the river, on the south bank immediately to the north of the Hanbury road. Later, in 1854-6, the Droitwich Junction Canal was built, and passed between the mill and the road and must have caused some modification to the arrangements. In 1901 the machinery included a 3-sack Turner roller plant driven by an engine, and three pairs of French stones driven by the water wheel.(24) The main part of the mill was destroyed by fire on 22 August 1909 and was rebuilt, probably on the same basis, for it had an undershot waterwheel 12 ft. diameter and 7 ft.wide. The mill was auctioned in 1945 and was then still at work, although no water-driven machinery remained (Simmons).

28. Briar Mill. (St.Nicholas parish). SO 887632

Marked as Bryer Mill by Taylor 1772.

Although the building itself was in the parish of St.Nicholas, Droitwich, the parish boundary divided the land on which it stood and part was in St. Andrew. Thus the mill appears on the Tithe Awards for both parishes (1839 and 1840 respectively); in St.Nicholas it is not named, but in St.Andrew it is named as 'Appler Mill' - a curious name which does not appear in any other records seen.

The name Briar (or Brier) Mill and the mill-site are ancient, the latter dating at least back to medieval times, when the name was Bierhalla (VCH). In 1774 there appeared an advertisement(25) for 'a stack of overshot mills near Droitwich ... much out of repair ... within half a mile of the Droitwich Navigation'. This must refer to Briar Mill. (Note that the Droitwich Canal, here referred to, was opened in 1771; it should not be confused with the Droitwich Junction Canal, mentioned in connection with the Town Mill.) In 1816, Briar Mill had two water wheels, two pairs of French stones and one pair 'French and Welsh'.(26) The mill was demolished in the 1870s and a house built on the site (Simmons). The site has now been virtually obliterated by recent road construction.

Millers were William Brook(s) c1816; Thomas Brooks 1818; John Knight 1835; Charles Haynes c1839-51; J.Craddock 1860; C.Cotterill 1864; Needham and Walker 1872 (Simmons).

29. Turn Mill (Badgecourt). (Dodderhill parish, Chapelry of Elmbridge) SO 906702

This mill worked on the Elmbridge brook with only a small pond. 'Turn Mill' was marked here by Taylor in 1772, by the OS c1830, and on the Tithe Map of 1842; it still appears on modern OS maps. The mill building still exists, devoid of

machinery; a small brick building of three storeys attached to the mill-house to form an L-shaped plan.

In 1844-45 the waterwheel was overshot and about 14ft. diameter by 3 ft. wide.(27) It was the same when Simmons visited the mill in 1945, with 9½ in. round fluted shaft; heavy six-arm pit wheel with square hub; iron spur; 2ft. iron wallower; three 15-in. iron stone nuts with wood teeth; iron bridge trees 20 in. long, bolted to 6-in. round iron uprights; tentering by spanner and nut; octagonal upright shaft 6 in. across; six-arm iron crown wheel with wood teeth, 4ft.4in. diameter; sack hoist; belt wheel for machines; and three pairs of 4ft. French burr stones. The mill broke down in about 1930, and never worked again.

Millers: William Fox in 1840s (TA and ref.27); Oliver Hancox 1916; S.C.B.Packer in 1920s (Simmons).

30. Elmbridge Mill. (Dodderhill parish, Chapelry of Elmbridge). SO 893 686

This site on the Elmbridge Brook may not be ancient, and the mill is probably of the early 19th century. The farmhouse with which it was associated is now a smart residence standing beside the renovated millpond, which has been incorporated into the large garden. The mill itself is a very small one, square, of red brick with three floors, standing just below the dam at the south of the pond. It now contains no machinery, but when Simmons visited it in 1945 it was complete, although disused. The overshot wheel was on the west side (Simmons said south, but this appears to be a slip), covered in, 11ft. diameter by 4ft.6in.wide, with 9in. rim, six arms 4in. by 3/4in. with inside ribs, a shaped nave, 7 in. octagonal metal shaft, and iron pentrough. The pit wheel was of iron, 6ft.3in. diameter in two sections. The wallower was of 3ft.diameter. The all-iron spur was of 5ft.diameter. The 17-in. stone nuts had wooden teeth and were carried on 2½in. spindles. Disengagement was by double rod and ring, with screw tentering. The 9in. round upright shaft carried an iron, four-arm crown wheel of 3ft. diameter. There was a pair of 4ft. Peak stones and a pair of 3ft.10in. French burrs. There was a small inclined bolter on the stone floor, and a bread-oven.

The mill originally had a wooden waterwheel, but this was replaced when Messrs.Bradley and Turton of Kidderminster renovated the mill in 1913.

Millers were: J.Homan 1820; J.Harris c1854-64; W.H.Langley c1880-1900; A.Langley c1900-1916; J.Brown c1920-40 (Simmons).

31. Salwarpe Mill. (Salwarpe parish). SO 874621

This site is almost certainly where the mill mentioned in the Domesday Survey was, and mentions of Salwarpe mill are frequent from then on (see Nash and VCH). It was shown by Taylor 1772, on the Salwarpe Inclosure Map 1817-18 (there was no Tithe Map), and on the OS c1830. The mill was last used in 1914, but was in working order until a great flood on 9 May 1925 swept away the sluice gates. It was demolished in 1942. (Simmons and Mrs.Berkeley).

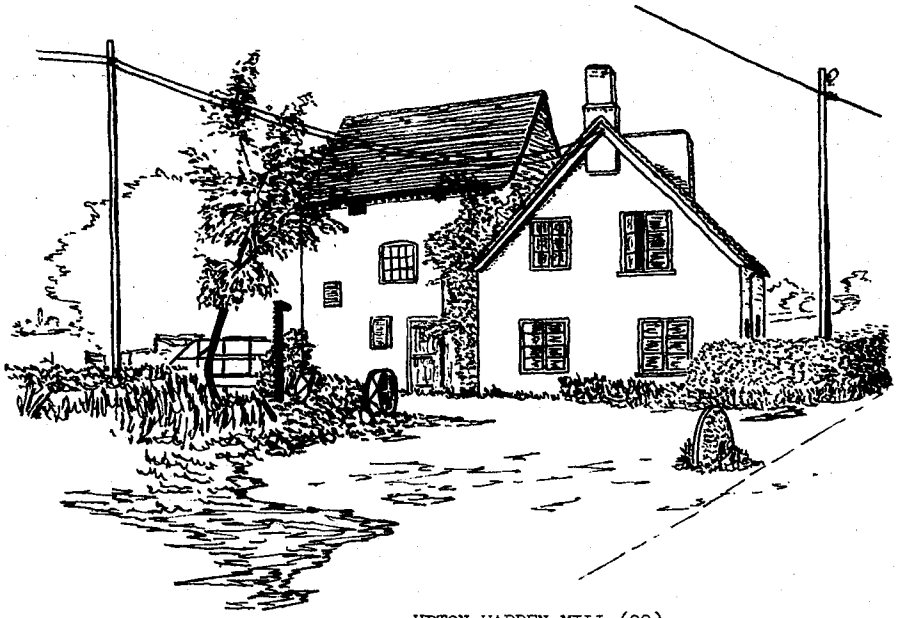
Millers were: Betty Brewster 1820; Thomas Brewster 1828; T.Croydon 1854; Anthony Rider 1860; William Mucklow c1864-90; Henry W.Smith c1890-1912; Sidney C.Knight 1916 (Simmons).

At the present day the head-race can be traced from the remains of the weir, which was apparently of brick; but there are few other remains.

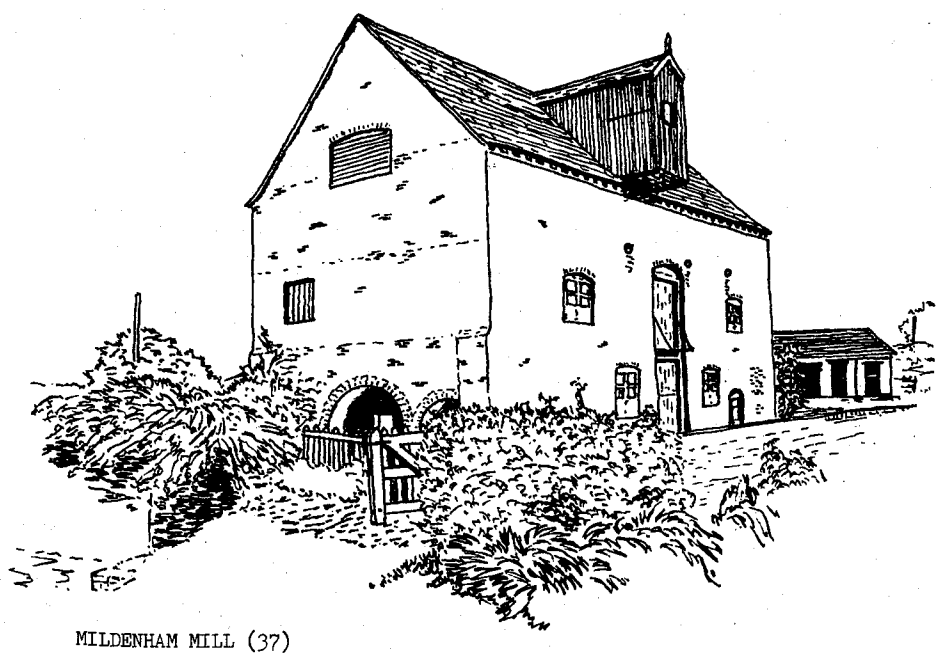
32. Elmley Lovett Mill (Elmley Lovett parish). SO 868696

This site on the Elmley Brook may have provided the power for one or more of the three mills in this parish which were mentioned in the Domesday Survey. Certainly the mill of which fragmentary remains can still be seen must have been very old, for it had an inscription on it 'H.T.1645', according to Mrs.Berkeley, who found it a ruin in 1934. Simmons simply reported 'Gone' in 1945. Now all that can be seen are the retaining wall on the bank against which the mill was built, below the now-abandoned small mill house, a few other pieces of wall, the pentrough still carrying water from the leat, and the leat itself in good condition. Seemingly the head available was about 12ft.

The mill was shown by Taylor 1772 and on the TA 1840.



UPTON WARREN MILL (22)



MILDENHAM MILL (37)

33. Doverdale Mill. (Doverdale parish). SO 858660

This may well be the site of the mill mentioned in the Domesday Survey and in documents of 1670, 1709, 1772 and 1804 (VCH). The present mill building, attached to the mill house, remained intact, apart from the removal of machinery, until 1976, when the present owners started to rebuild it as part of the residence. It was a four-storey brick mill, and was probably the one shown on the TA 1838, being then without a tenant (William Minifie was the owner). Minifie must have been trying to modernise or repair the mill at that time, for Turtons of Kidderminster supplied him with a pitchback waterwheel 10ft. by 5ft.6in.(28) These are the same as the dimensions quoted by Simmons in his inspection of 1945, when he found the mill complete and in good order although not used since World War I. Simmons' description of the machinery was as follows :-

'The wheel is under an archway at the west end; it is an all iron breast shot 10ft. by 5ft.6in., with a 9in.rim, two sets of six plain arms tapering from 4½in. to 4in., and on one of these arms is an inscription in raised lettering ... seems to read "Robert Ball". The water shaft is wood 17in. diameter. The pit wheel is 6ft. all iron, engaging a 2ft.6in. wallower 18 inches above the brass which is on a 11 inch by 12 inch timber. The spur is 6ft.6in. across, 8-arm, iron, in two sections with wood teeth and is placed 3ft. above the wallower. The upright shaft is octagonal wood 14in. across. Wooden bridge trees 7in.by 8in. support the 16in. iron stone nuts on 2in.square spindles. The two pairs of stones are placed N and S, 3ft.8in. and 3ft.10in. respectively in octagonal cases. The crown wheel is iron 4ft. across. On the west side a 13in. nut on a 2in.square shaft drives an iron pulley. On the east a similar nut and shaft drives a 1ft.8in. flanged wooden drum and, against the wall, a 3ft.wood drum presumably for a one-time flour dresser. Both shafts are brought into engagement by short levers.'

Millers were: G.Williams 1854; Eleazer Lamb 1860-1893; William Wall 1893-1900; E.H.Lamb 1900 on; Everton 1914-18. (Simmons).

At the present day the broad leat from the Elmley Brook still carries water which flows over the old overflow weir and sluice. There is no trace of the pentrough or tail race. The building no longer looks like a mill, although it has become an attractive extension of the house.

34. Hadley Mill. (Ombersley parish). SO 865640

The brook has now become the Hadley brook. Whether this site corresponds to one of the mills in Ombersley mentioned in the Domesday Survey cannot be known, but 'the mill of Haddeley in Ombersley' was mentioned in 1230 (Simmons). The present day mill is of brick, of three storeys, attached to a two-storey L-shaped mill house, which has a barn attached to the wing remote from the mill. Although the mill is used for storage of hay, the machinery is complete and, apart from the waterwheel, seems to be in good order and could probably be got working without much difficulty. The situation is a charming one, in a deep dingle, and owing to the fall in the brook there was no need for a leat; an overflow or by-pass channel was all that was needed.

The mill was working in 1934 (Mrs.Berkeley), but had ceased work, although it was in working order, when Simmons went there in 1944 and 1945. The wheel is undershot, 14ft.6in.diameter by 2ft.6in. wide, in an arched-in compartment in the east side of the mill. The paddles are 2ft.9in. wide and 14½in.deep with strainers between each pair. The rim is 5in. deep by 1.1/8in.thick, in eight sections, the eight arms 4.1/2in.by 1in. ribbed back and front. The octagonal nave is 2ft. across and is packed on to a 7.1/2in. octagonal iron shaft. Between the nave and the bearing is a 2ft.cogged wheel with 2.1/2in.face, formerly used for conveying power to a nearby sawbench. The pit wheel is about 7ft.6in. diameter; wallower of iron; clasp-arm wooden spur 7ft.6in. diameter by 7.1/2in.deep. There are three pairs of stones, north, south and west, all French burr; the runner of the western pair has an eye ring of iron carrying, in raised letters, J.PICKIN MILLSTONE BUILDER 27 COLESHILL ST BIRMINGHAM. The stone nuts are iron, 1ft.9in. diameter, on 2in.square spindles with plain screw adjustment;

wooden bridge-trees and uprights are 8in. square. The upright shaft is 12in. chamfered, and has its brass on a 14in. square timber. The clasp-arm wooden crown wheel is 4ft.3in., with teeth on its underside. Extending across the south stones is a 1½in. square iron shaft worked off the crown wheel by a 16in. iron nut and operating a 4ft.8in. seven-spoked wooden belt wheel with 6in. face. There was once a similar arrangement on the north side. The drive is engaged by a lever and chain working in a slotted upright beam. The sack hoist is a long octagonal wood shaft and 4ft.8in. wooden wheel, cord operated, with ratchet release, taking its drive from a small wood nut with a close-up 1ft.9in. wood drum against the east wall. The nut is brought into gear by hand lifting a beam in slots on both sides and wedging. (Mainly from Simmons.)

Millers were: William and Henry Lawrence before 1819; John Burrow .1820; Eli Lamb 1850s and 60s; Henry Harford c1870-1903; Mrs.Mary Harford 1903-10; Arthur T.Wynne 1913-28; John Butler from 1928 (Simmons).

35. New Mill (Salwarpe Parish). SO 865618

Back on the River Salwarpe, we have here an old, if not ancient site. 'New Mills' at Salwarpe were referred to (and probably newly-built) in the late 16th century (Simmons). 'New Mill' was marked here on Taylor's later map of 1800, on the Salwarpe Inclosure Map of 1817-18 when the owner was Thomas Callow, and on the OS c1830. It was advertised for sale as 'a corn mill known by the name of New Mill in the parish of Salwarpe' in 1815(29). William Nichols was the miller in 1820, and John and Samuel James in 1828, but no miller appeared in directories after that. It was still marked as a mill on the OS 1884, and was believed to have been converted to a residence about then.

There is at present a derelict brick house on the site, there is no sign of the leat (it must have been ploughed up), and the head must have been very small, inferring an undershot wheel. Whether the present building is in any way derived from the old mill is not clear.

36. Porter's Mill (Claines parish). SO 861604

There has almost certainly been at least one mill on this site since the Norman Conquest, as mentioned in the introduction to this paper. The mill was for long associated with the farm of Tapenhall nearby. The name Porter's Mill probably arose from its ownership by John Porter in the 16th century. In the Gentleman's Magazine for November 1771 it is shown as Papist Mill (Mrs.Berkeley) and similarly on Taylor 1772. It is Porters Mill on the OS c1830 and on the TA1843 when the owner and occupier was Henry Thould. It seems to have been Porter's Mill ever since.

The present large (approx. 45ft.by 36ft.) four-storey mill building dates from 1881, and according to Mrs.Mary Somer who lived at the mill house opposite (a very fine half-timbered house) for 75 years and is now (1981) within a few years of 90, and who helped her father James Alfred Jackson at the mill until his death in 1930 and then ran the mill herself, the brickwork showed three stages of expansion. She said the mill operated as a normal corn-mill, using three pairs of stones driven by the waterwheels, until 1938. Thereafter occasional corn grinding was done, the only customer being Besford Court, a boys' home (SO915453). After 1938 the main business was cake-crushing, using electrical power; but water power was still used for the hoists. The business continued until late in the 1960s, when the mill was sold and converted into a residence, with the addition of a large picture window on the south wall of the stone floor, and a much altered lucam. All that now remains of the machinery is the pit wheel inside, and the western waterwheel in situ, with the eastern wheel lying in the garden. Both wheels are practically the same: undershot, 11ft.diameter to rims, with wooden paddles 18in. by 37in. giving an overall diameter of 14ft. The width of the wheels between outer edges of rims is 32in. Paddle supports are of wood; all the rest of the wheel is of iron. There is iron peripheral bracing on the paddles. There are six T-section arms on each side. The octagonal iron axles are 8in. across. The wheels are rather dilapidated.

Millers were: Henry Thould 1843; William Beedom 1850s and 60s; James and Henry Beedom c1870-1890; William Jackson c1890-1900; J.Alfred Jackson c1900-1930 (Simmons); thereafter Mary Jackson and her brother. (N.B. Miss Jackson became Mrs.Somer in 1953 but remained at the mill.)

37. Mildenham Mill (Claines parish). SO853608

This site is now the most important mill site on the Salwarpe system. Not only is it almost certainly the site of one of the mills listed in the Domesday Survey of 1086; not only does an almost complete set of deeds exist from 1729 to 1872 (we have studied these), and it is believed some also from the century before that; but it is by far the best-preserved mill on the Salwarpe system, being complete with its two waterwheels and all machinery, having its full water-supply, being used for no other purpose, being in sufficiently good order to be readily made operational again, and being a very handsome mill in a most attractive setting. Justice cannot be done to it in this brief entry in a general survey of the whole Salwarpe system, and it is hoped that a separate and more detailed study of the mill and its history can before long be published.

In spite of Mrs.Berkeley's belief, echoed by Simmons, that the present mill was built by Thomas Nash in 1609, this is very unlikely and it is probably of 18th-century date. It is brick-built, of rectangular plan, with its long axis roughly N-S, and of three storeys, with a lucam on the west side. Both waterwheels are inside the mill with their shafts N-S; they are undershot, both with 12in. paddles. The southern wheel is 14ft.6in. diameter over the paddles and 3ft. wide at the rim or 3ft.8in. over the paddles. The northern wheel is of lighter construction, 12ft. diameter and 3ft.4in. wide over the paddles. Both wheels drive two pairs of stones; one pair at each end is of French burr type by R.G.Handley, Moor St.,Birmingham, and the other is of composite type by Barrons of Gloucester.

There are differences in the gearing construction between the two ends of the mill although the layout is conventional. At the south end all gears are of iron except that the stone nuts have wooden teeth. At the north end the great spur wheel is of clasp-arm wooden construction and the stone nuts are all-iron. At the south end the upright shaft is of iron, at the north end of wood. Some of the auxiliary machinery is driven from the north end, where the 5ft. clasp-arm wooden crown wheel drives an iron nut on a ribbed iron shaft carrying a small wooden drum formerly used for operating a wheat screen, a larger one for operating a grindstone, and another for driving the sack tackle and a Bentall grinding mill. At the south end the wooden crown wheel is of cross-arm construction, driving a wooden nut on a wooden shaft carrying a belt-wheel formerly used for driving the bolter and now a Tattersall mixer of about 1-ton capacity in a circular wooden casing. (Technical description largely based on Simmons' visit in 1945)

Millers were: Thomas Wood 1729; Thomas Brook 1781; Thomas Allies 1787; Thomas and Ephraim Lingham 1808; Ephraim Lingham 1816; Henry Thould 1831; William Horton or William Warner 1843; William Smith 1848; Joseph Hughes 1854; Henry Bill 1872; Mrs.H.Bill 1888; Mrs Emma Bill 1896; Sidney Bill and George Watts 1921; Sidney Bill and George Thomas Watts 1928; Mrs.Watts and Sidney Bill 1940; Dennis Watts to 1970. (Information mainly from Mrs.Mary Tucker.)

It can be seen why this mill, for a long time, was known as Bill's Mill. It was working commercially when Simmons visited it in 1945, and went out of use, it is believed, about 1947. It was restored to full working order by Mr.Dennis Watts in the 1960s.

38. Hawford Mill (Claines parish). SO 847600

The shell of this mill still stands; it is about 53ft. by 17ft. in plan. The early history of the site is rather obscure, and is also confused by the reference to another site close by (see No.39 below).

The main part of the story of Hawford Mill was well-told by Simmons in 1945. His papers usually comprise unordered and sometimes contradictory or even incoherent notes; but in this case he gives an admirable, concise and

coherent account, and we cannot do better than reproduce it, with the addition of references to some of his sources :-

> There were three water corn mills at Hawford in 1659, owned by Richard Jones. These were probably all under one roof, for the foundations of the present mill include three wheel pits, one at each end and one in the centre. On December 3, 1767, when the mills belonged to Mr.Mayhall, they were entirely destroyed by fire. In 1775 they were the property of Samuel Corbyn of Losemore, Worcester, and tenanted by Nicholas Field(30). In 1815 they were again rebuilt, a new water wheel added and were used by the proprietor Mr.Pearce, who in that year sold them to Thomas Bedford(31). In 1854 William Horton was in occupation and by 1860 he was using both this and Turn Mill, Ombersley. He was succeeded at Hawford by T.Davis, followed by a miller named Warner whose widow carried on during the years 1892 to 1904. Later Mr.Flexman had the mill and in 1927 the property was acquired by Mr.James Dukelow the present owner(32). The mill was last used for corn grinding in 1910, but continued at intervals up to about 1936 for chaff cutting etc.
>
> Hawford Mill is a low two-storey red brick building with attic, and stands below the mill house on the east side of the Ombersley road. From about 1815 it had two wheels, one each end, but there is evidence of a third wheel indicated by an archway in the centre of the building, and the present owner attending to a small garden placed in the triangle of the two end water-ways once fell through the shallow earth into the culvert below !
>
> Both wheels as well as all the machinery, except for bedstones, are now removed, having been sold to a Worcester firm of iron-founders just before the 1939 war.
>
> The wheel at the north end was an uncovered undershot measuring 18ft. by 4ft.3in., with iron frame, arms and nave and wooden boards. This is said to have been originally of the 3-arm type, brought from another mill and narrowed to fit. The shaft certainly was, for it was unduly long and extended well into the mill. The two pairs of 4ft. stones side by side at the north end of the west wall were driven by a horizontal shaft operated by a heavy iron pit wheel face geared to a smaller one; and there were the usual bevelled spurs operating the stone nuts. All the machinery was of iron, geared with wood.
>
> At the south end the wheel, also an undershot, was 18ft. by 4ft.,of similar construction to the other, but was covered in. It drove the usual pit wheel, an iron spur and wallower, and two pairs of 4ft.stones placed east and west. The round wooden upright shaft measuring 14 inches diameter and the iron supports to take the iron bridge-trees alone remain. Two of the stones went to Mildenham Mill. A Burrows inclined flour dresser still stands in good order in the centre of the stone floor. There were two sack hoists, one at each end of the mill.

One point is worth adding to the above account. In the mill as rebuilt at the beginning of the 19th century there were three pairs of French stones, and one pair mixing a French and a Welsh stone.

The TA1843 shows the layout of the watercourses as they are now; the owner was then C.W.Osborne and the occupier William Smith.

39. Hawford Old Mill (Claines parish). SO 849601

The TA 1843 shows a small parcel of land on the north bank of the old course of the river (this channel became the overflow channel for Hawford Mill, No.38) which was entered as 'Allotment-site of old mill'. Nothing more is known of this matter, but the reference is specific enough to justify entering the site as an identified mill site.

THE CASE OF THE MILL AT LONGMORE FARM
(Chaddesley Corbett parish) SO 884726

The 25-inch OS of 1902 (Sheets Worcs.XV.5 and 9) shows on the Hockley/Elmley Brook, at SO 887729, a weir from just above which a leat starts, running across the country to the road junction beside Longmore Farm. The present mill at this farm stands well back from the road, but just opposite the mill, across the road, a channel looking like a tail-race runs down to the brook. The leat can be clearly traced over its first few hundred yards, and is marked by a line of old willow trees. Where a cricket ground has been made near the road junction it has now disappeared, but it re-appears just at the road junction. It was clearly not built for land irrigation, and the former existence of a watermill is a natural supposition. Unfortunately no documentary evidence of such a watermill can be found.

The present brick-built mill was erected around 1880 as a steam mill, and its large water tank can still be seen. It replaced an earlier steam mill of wooden construction which stood 'between the timber yard and the farm buildings' - i.e. more-or-less where the present mill is - and which was totally destroyed in a fire on Good Friday 1879(33).

The TA 1838, which shows the farm by its former name of Burgess's Green, clearly indicates the line of the leat but only as a field boundary, and does not mention a mill. On the other hand, the 1st edition one-inch OS does show the leat. No leat is shown on a large-scale map of 1745-6.

The tentative conclusion reached is that the leat was made along existing field boundaries to provide water for the steam engine at the mill, and was never associated with a watermill as such. Such use of leats is known elsewhere, but is not common. It is, of course, possible that a small waterwheel might have been used to pump the water to the boilerhouse. This case indicates how careful one has to be in mill research.

The mill at present is still in use for farm grinding, driven by an electric motor.

ACKNOWLEDGEMENTS

Many people and organisations have helped in this research. The owners and occupiers of the various mills and sites have been consistently helpful and I would like to mention particularly Mr.Parker at Fish House Mill, Mrs.Shaw at the Paper Mill, Mrs.Smart at Doverdale Mill, Mr.Thiselton at Hadley Mill, Mr.Forgaard at Porter's Mill and Mrs.Somer formerly of that mill, and Mr.and Mrs.Bayliss of Mildenham Mill. The staff at the Science Museum Library in London and at the Record Office in Worcester have been most co-operative. Mr.D.T.N.Booth has supplied some useful information from millwrights' records and has commented on the draft of the paper. More particularly, he has made the accompanying sketches from my photographs. To all these people I am very grateful. Above all, however, I must express my thanks to my wife Mary, who has helped in all the fieldwork and has spent much time studying the deeds of Mildenham Mill; and to Mr.Jonathan D.Briggs, who has done so much of the work on the Tithe Awards and other documents in the Worcester Record Office and at the Birmingham Reference Library.

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12. As ref.9
13. As ref.9
14. London Gazette, 26 Jan.1849, cited by Simmons.
15. The Miller, 3 Oct.1887, cited by Simmons
16. Bromsgrove Messenger, 19 Oct.1979, 23 May 1980.
17. Midland Counties Herald, 12 Feb.1852, cited by Simmons
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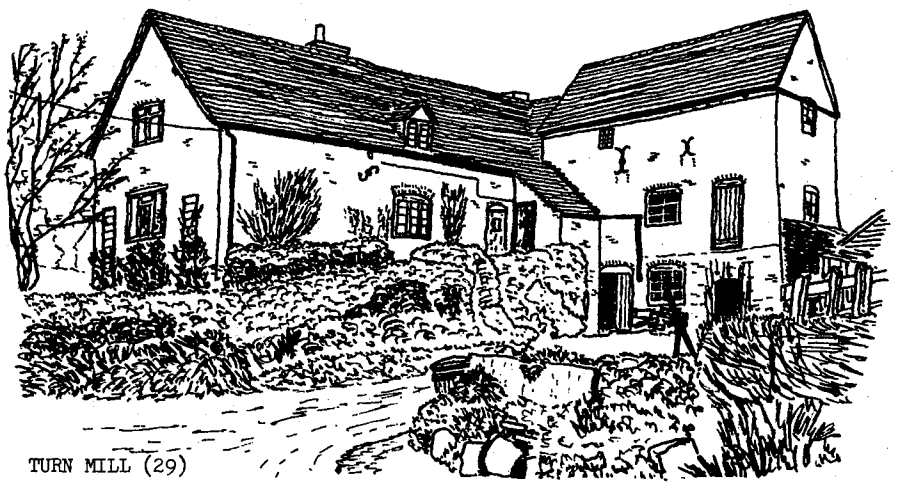
19. The Miller, 7 April 1879, cited by Simmons.
20. Ibid, 7 Sept.1896, cited by Simmons. (Gives details of fire.)
21. Ibid, 3 April,1899, cited by Simmons.
22. Ibid, 8 Oct.1906, cited by Simmons
23. Letters from G.and R.Turton of Kidderminster to William Lilley; information from Mr.D.T.N.Booth.
24. The Miller, 7 Jan.1901, cited by Simmons
25. Worcester J., 17 March 1774, cited by Simmons
26. Ibid, 1 Feb.1816, cited by Simmons
27. Letter from G.and R.Turton of Kidderminster to Michael Bick, 29 May 1844; information from Mr.D.T.N.Booth.
28. Turton's correspondence; information from Mr.D.T.N.Booth.
29. Worcester.J., 6 July 1815, cited by Simmons.
30. Ibid, 14 Sept.1775.
31. Birmingham Gazette, 17 April 1815 and 23 Sept.1816.
Note, however, that Simmons has overlooked a reference making it clear that the rebuilding took place before 1808:-
Worcester J., 18 Aug.1808
32. This was in 1945. Mr.Frank Ellaway is the owner now.
33. Bromsgrove, Droitwich & Redditch Weekly Messenger, 19 April 1879.



TURN MILL (29)

A HISTORY OF NORTON LINDSEY WINDMILL, WARWICKSHIRE

by K.F. CHAPMAN

On 17th July, 1792, John Clarke leased to Thomas Mander of Lapworth one rood and twenty perches of land in Norton Lindsey, 'upon part of which a windmill is intended to be erected[2].' In 1791, Thomas Mander's son, James, married a Norton Lindsey girl, named Mary Smith and he borrowed £150 at 5% from Joseph Lines on 5th April, 1793 to build the first mill. It is interesting to note that 1793 was the year of the outbreak of the French Revolutionary Wars, which started a long interruption of corn imports from the continent, forcing our farmers to grow more corn at a time when the home market was rapidly expanding due to a population increase and the growth of towns of the Industrial Revolution. The first mill was wooden and stood on a wooden platform near where the Mill House now stands[1]. It was completed and in operation in 1795. It was one of many mills which were built about this time to process Britain's additional corn production, that continued to expand in the early 19th century with the spread of enclosures. (The enclosure award of Norton Lindsey is dated 1809.) James Mander borrowed a further sum of £30 from Joseph Lines on 5th July, 1800 on the security of the same land, 'windmill recently erected thereon[2].' However, his enterprise was brought to an end in 1802 when the mill was burnt down[1]. On 30th November, 1802, Edward Lewis purchased the freehold of the same one rood and twenty perches of land from George Gibbs and others[2] and in 1802-3 he employed Philip and Robert Bartlam to build the present windmill.

The Bartlams were licensees of the nearby New Red Horse Inn (now the Red Horse Cottages); they were also builders and ran a brick-making business in the nearby Brick-kiln field, which they rented from Captain Musgrave, and where the bricks of Norton Lindsey mill were made. On 9th April, 1804, Edward Lewis secured a loan of £300 from John Newey against all the 'newly-erected premises, outbuildings etc. and windmill' and is later described as having built the Mill House[2]. So, it seems reasonable to assume that the £300 mortgage was to fund the building of the house in 1804 amongst other things. Edward Lewis sold the whole property on 15th May, 1805 to Joseph Findon[2]. A number of other mortgages and sales followed in rapid succession and the listing of ownership of the mill in 1809 by the enclosure commissioner as 'Greaves or Bastock' is evidence of one sale taking place at the time of publication of the enclosure award in February of that year. After Thomas Bastock, most of the millers were tenants of the premises, which were bought as an investment first by Thomas Canning, a local farmer, in 1834 and then the Willcox family, who were the owners from 1846 to 1909. The obvious exception was Samuel Coleman, who purchased the mill from Thomas Canning in 1844 and evidently worked it for two years until his bankruptcy because a deed of assignment dated 1st May, 1846 states that, 'Samuel Coleman of Norton Lindsey in the County of Warwick, miller, assigns all his estates to James Squires of Milverton of the same County, miller, and Thomas Davis, millwright,of St. Nicholas, Borough of Warwick, for the benefit of his creditors.' The ensuing Margetts sale notice stated that 'the mill is situate in a neighbourhood where a lucrative and sure trade may always be carried on; more particularly in the gristing department. It is further deserving of notice that it adjoins a good road, is substantially built, and a large outlay has lately been made in putting the whole of the buildings into thorough repair. This would prove a very desirable purchase to an industrious man with a

moderate capital.'

From a variety of sources, including parish registers, censuses, deeds and County directories, it is possible to compile a list of village millers, which is almost complete. It is clear that for most of the time there was more than one miller at work.

James Mander	1795 - 1802
Edward Lewis	1802 - 1805
Samuel Greaves	- 1809
Thomas Bastock	1809 - 1817
John Taylor	1815
William Goold	1818 - 1827
Thomas Wallin	1827 - 1833
Richard Pollard	1833 - 1834
Edmund Morris	1834 - 1844
Samuel Coleman	1844 - 1846
Joseph Walker	1831 - 1858
Charles Anker	1858 - 1869
Frederick Drinkwater	1861
Peter Mouzer	1868
Henry Summerton	1868
William Blakeman	1869 - 1892
W. Fred. Blakeman	1892 - 1902
Peter Mouzer	1892 - 1906
James Mouzer	1902 - 1906

During the ownership of the Willcox family, Joseph Walker had a terrifying experience when attending the sailcloth. A sudden gust of wind came and he was taken round. The spars were sound and he clung on, grimly. Fortunately, someone was on hand to apply the brake and so he was only severely shocked.[1]

Dressing millstones is a highly-skilled job, which can be dangerous. Thomas Enstone of Claverdon was blinded at Norton Lindsey mill while doing the job in Joseph Walker's time. He finished up trying to eke out a living by selling oranges.[1] From the late 1860's, Peter Mouzer, who lived at Peartree Cottage from 1876 to 1914, was regularly employed for dressing millstones and windmill repairs. He was considered to be a very adaptable man and good at his work. When he made teeth for the wooden gears in the windmill, he always used seasoned crab wood. One of his sons, Ernest, was a mechanic and also was good at dressing millstones.

In 1869, William Blakeman, a native of Wilmcote, came to the village from Barford to work Norton Lindsey mill. He was only just over five feet tall and had a very hasty temper but his good deeds outweighed his shortcomings.[1] He was for many years first an Overseer of the Poor and then Poor Law Guardian. In these capacities, he was very aware of the needs of the poor and, frequently gave flour at his own expense to help poor families in times of distress. In 1889, he introduced a steam engine to help power the mill.[3]

On the calm afternoon of Thursday, 10th March, 1892, William Blakeman was putting cloth on the sails of the windmill whilst his employee, Herbert Harrison, was attending the steam engine outside the mill. Suddenly, a puff of wind came on and the sails started to revolve. Mr. Blakeman shouted to Mr. Harrison to 'stop her.' The latter ran as fast as he could up the steps inside the mill to the brake and found that it had not been put on. When he applied the brake, the spar, to which Mr. Blakeman was clinging, broke and he fell about 23 feet to the ground, landing head-first onto some old millstones stacked against the outside of the mill. It was about 2.30 p.m. The Snitterfield doctor was summoned and a child was sent to fetch the miller's son who was not home at the time. At about 2.45 p.m., and about 20 minutes before the doctor arrived, Mr. Blakeman died without regaining consciousness.[4] He was sixty-two years old.

The mill continued in operation under William Blakeman's son, William Frederick, assisted by Peter Mouzer. From correspondence, it is clear that Mr. Summers, millwright, of Tanworth-in-Arden carried out a number of works for W.F. Blakeman in the 1890's.

Memorandum

From W.F. Blakeman
Norton Mill
Warwick

To Mr. Summers, April 30th 1896
Tanworth,
Hockley Heath

Dear Sir,

I am sorry I have not been able to send to you before, but really it is such a difficult matter to get money in, never knew it so before. I am sending you a cheque for £3 - will let you have a little more as soon as I possibly can.

With reference to the a/c I hardly think the sail work should be put to my a/c considering it was not my job in the first place and not any fault of mine it fitting loose. Wheeler was 3 days at the new stock and now it is not tight. Of course, the engine and track work I am satisfied with but I am sure you will see entirely what I mean. I should be sorry to dispute anything I know was not fair.

Hoping you are well,
I remain
Yours truly
W.F. Blakeman

(N.B. Wheeler was one of Summers' workmen.)

To Alfred Henry Summers (Robert Summers' son and successor)
Norton Mill
Nr. Warwick

Dear sir,

I am sorry I've not been able to send you before this - but will do so next week (certain).

Yours truly,
W.F. Blakeman

Mr. Summers
Tanworth

(undated but March 1896)

Norton Mill
Warwick
March 23rd 96.

Dear sir,

I hope to send you cash sometime this week but money is awful to get just now. I cannot get it in.

In haste
Yours truly
W.F. Blakeman

These letters testify to the difficulties endured by the rural community in general during years of agricultural depression. In 1897-8, the same circumstances are related in correspondence between W.F. Blakeman and Mr. Summers concerning late payment of a bill for further work, namely the fitting of a new stock on the mill and the installation of a new chimney on the mill engine. From 1892 to 1902, the mill was trading as William Blakeman and Son. After W.F. Blakeman took over the managership of Whitehouse Farm, Norton Lindsey, Peter Mouzer and his son, James, ran the mill but it failed to be a viable proposition owing to competition and introduction of more modern methods. It finally closed as a working mill in early 1906.

The associated bakery business, located in what is now the South West part of Mill House, continued for a short time. Firstly, Mr. C.A. Adams of West Street, Warwick, and his sons bought the bakery business and moved to the Mill House in 1906, living there until 1911. The Adams family opened the first Norton Lindsey village post office in a room on the East side of the Mill House in 1907 and it became a telegraph office as well in 1910 after Miss Ethel Adams went away to learn telegraphy in 1909. On 17th September, 1909, Mr. and Mrs. Thomas Weaver of West Bromwich purchased the property from the Willcox

family and moved in to run the bakery and post office in 1911. Thomas Weaver died in 1914 and his widow closed the bakery business, but continued the post office till 1934, when it was transferred to Whitehouse Farm. In 1938, Mrs. Weaver renewed the cladding of the mill cap. It was about this time that two village girls, Ruth West and Betty Ivens, were near the mill one day, when an old man came along the road talking to himself. When he drew close to the mill, he paused and looked at it, saying, 'Ah, I've brought many a load of corn to you and you'd got four fine sails then. But now, you're like I be meself, a poor old invalid with two old arms.' In 1941, Mrs. Weaver sold the house and mill to Mr. and Mrs. H.E. Lamplough, who purchased a small extension to the garden in 1946 from Mr. Arthur Haimes.[2] For a short time during World War II, the mill was used as a school for a group of about fifteen evacuee children from Birmingham. In 1955, Mr. and Mrs. M. Saville purchased the property and sold it to Mr. and Mrs. C.W.B. Eustace in 1961. After Major and Mrs. D.F. Westby bought it in 1968, they put three new windows in the mill to replace the ones which were broken and rotten. The present owners, Mr. and Mrs. Paul Waterworth, moved from Snitterfield in 1975, having purchased the property in December 1974. In 1977, Messrs. Gormley and Goodman were employed to put a new roof on the mill and, at the same time, the remains of the old whips and spars were removed because of their dangerous condition, leaving the two surviving stocks as the solitary remnants of the sails. In 1980, a fourth new window was inserted in the mill, replacing one which had rotted.

REFERENCES AND NOTES

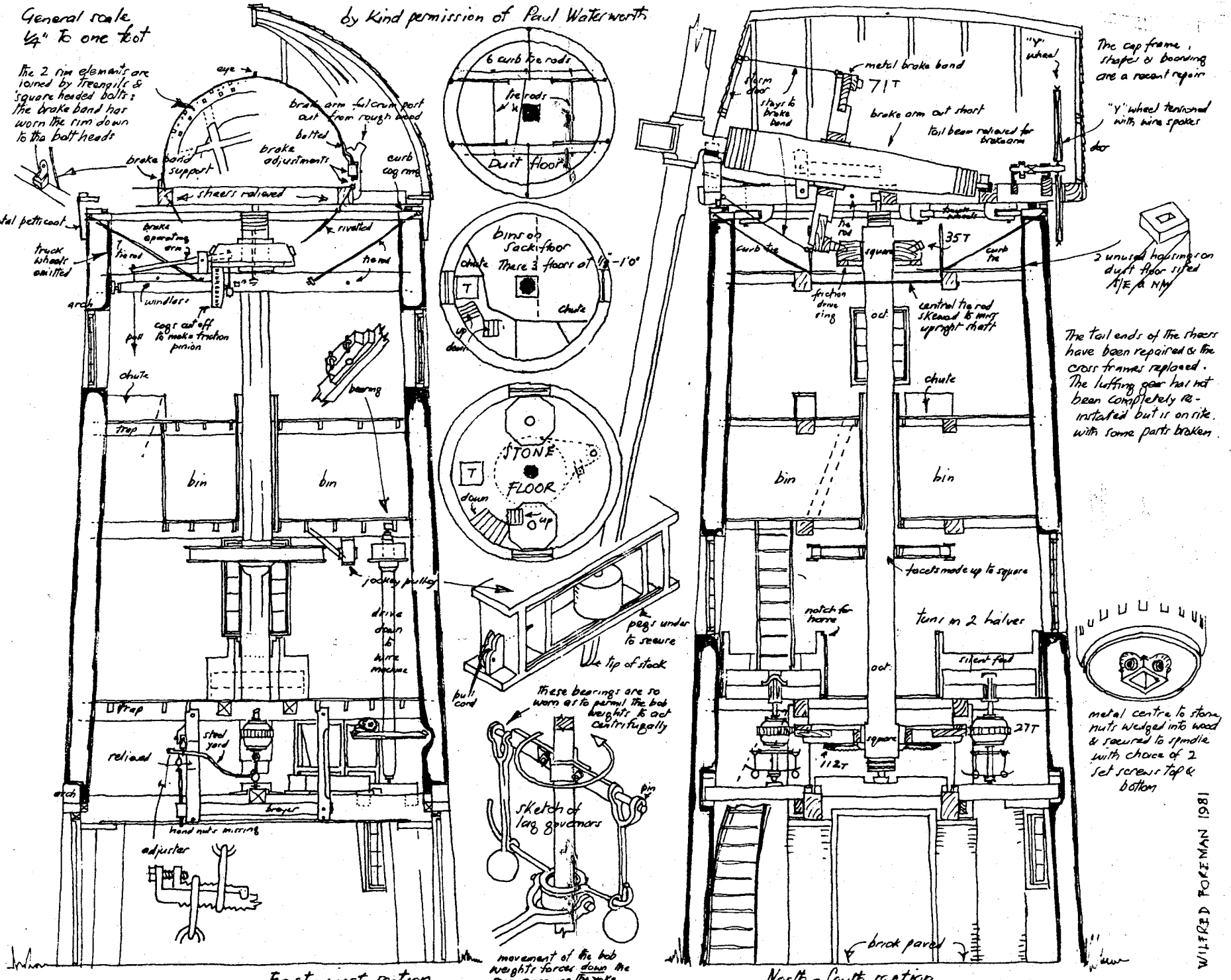
1. Robert Bartlam, as a boy, helped to build the present mill and told the Gibbs family about the events of 1802-3, which were recorded by Ned Gibbs in his notebook of Norton Lindsey, dated 1938, together with other corroborative details.
2. Extracts from the deeds of the windmill and Mill House
3. White's, Kelly's and Spennell's directories of Warwickshire.
4. Warwick Advertiser, County Record Office.

NORTON LINDSEY WINDMILL . WARKS.

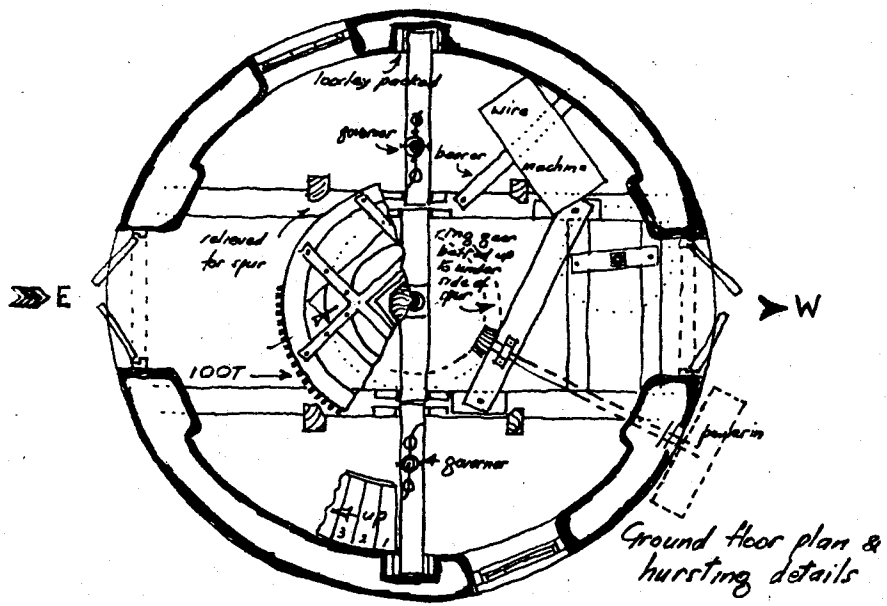
O.S. ref SP 224 633

General scale
¼" to one foot

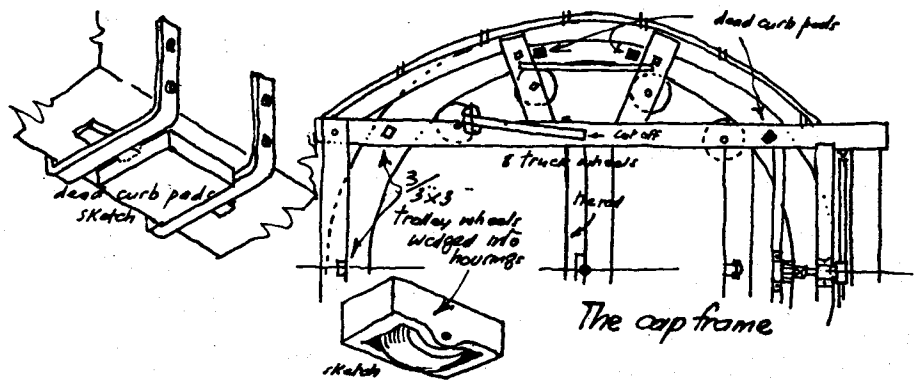
by Kind permission of Paul Waterworth



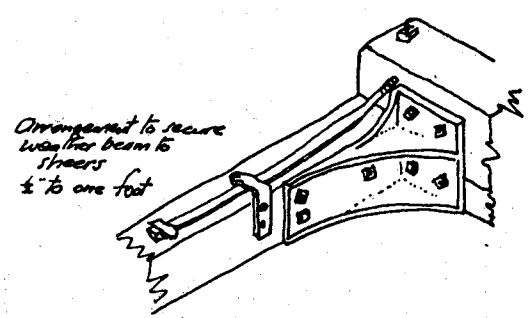
WILFRED FOREMAN 1981



Ground floor plan & hursting details



The cap frame



NOTES ON THE STRUCTURE AND MACHINERY OF NORTON LINDSEY WINDMILL

by W. A. SEABY

The brick tower, built in alternate courses of headers and stretchers, is unusual in having very little batter. It is therefore unlike those of Berkswell (Balsall Heath), Knapton, Harbury and Thurlaston, or the somewhat more barrel profiles of Rowington Green and Packwood. The tower windmill which formerly stood on Shrewley Common (demolished 1949) was also a structure with little inward slope towards the top, but its diameter was greater in relation to its height than at Norton Lindsey, which probably remains the most slender tower in brickwork surviving in the western midlands.[1]

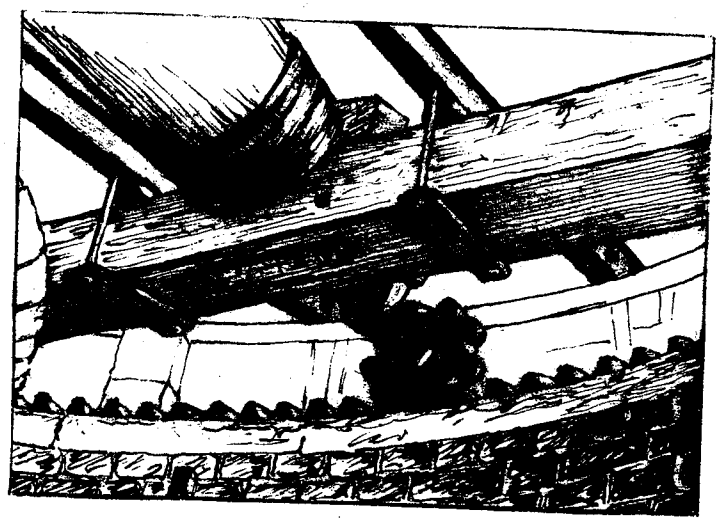
The principal measurements are as follows:	ft.	in.	metres
Vertical height including cap	42	6	(12.96)
Vertical height to top of brickwork	33	6	(10.22)
Height of cap and dust floor	18	0	(5.49)
Height of bin floor	4	6	(1.37)
Height of stone floor	8	0	(2.44)
Height of meal or ground floor	11	9	(3.59)
Interior diameter of curb	12	9	(3.89)
Diameter at top of brickwork (outside)	14	9	(4.50)
Diameter at top of brickwork (inside)	12	9	(3.89)
Diameter of bin floor	13	6	(4.11)
Diameter of stone floor	14	6	(4.42)
Diameter of meal or ground floor	15	3	(4.65)
Exterior diameter at ground level	18	3	(5.57)
Length of wind shaft	11	3	(3.43)
Length of main shaft	25	0	(7.63)

When the mill was to be sold by auction in 1804, together with the mill house, there were 'five capital new stones, three of which are French.[2]' This suggests that besides the spare French burr, the others were then as now the usual Peak stones. Almost a century later this advertisement appears: 'To let as a going concern. An old established Mill, wind and steam, in good order, bakery attached, 2 pairs of stones, 8-horse portable engine, small baking business, house, mill, stables, bakery etc. Rent £25. Apply W.F. Blakeman, Norton Lindsey, Warwick.'[3]

In 1894 A.H. Summers, the Tanworth millwright, put on a new stock and sail, but from Blakeman's letter (quoted above, p.22) one wonders if it was this sail or another which caused dissatisfaction. The sails then measured 37 feet (11.28m), were cloth covered, and turned anti-clockwise. However, in the last years of the mill's existence it was the steam power rather than the wind which kept the mill in operation up to 1906. A photograph exists which shows this windmill in the early 1890's, with all its four sails, having a different belt wheel - curved spokes instead of six straight spokes as on the existing wheel - and the steam engine shed sited to the south of the mill instead of the north where it was later known to have been.[4] Between 1906 and about 1920 two opposite sails were dismantled, the other pair gradually disintegrating over the decades. Now only two opposite stocks remain.

H.E.S. Simmons made an inspection of the windmill on 3rd March 1944, but his description, based one suspects on too hurried an examination, caused him to make several errors in writing up his notes; so that the following account of the internal workings, taken both from Wilf Foreman's elevations, plans and drawings, and personal inspection with John Bedington, Tom Mitchell and others, is corrected accordingly.[5]

The hand-winding gear is operated by a 5ft. 6in. (1.675m) narrow-rimmed iron Y-wheel, with small guage spokes placed closely together. This turned through gearing a somewhat heavy 9-toothed iron nut directly on to the rack running round the top of the wooden curb (see drawing made from photograph taken in August 1976 before renewal of cap when this nut was removed).



The former cap, also of boat form, but easily identified in photographs by a short post or finial protruding above its centre ribs, was steadied against the inside of this curb by trolley or truck wheels placed four a side in pairs. The neck bearing is mounted on a deep and heavy round baulk held in position by massive iron brackets; the poll end is of the usual metal form. The windshaft itself is of oak, octagonal in section, 1ft. 6in. (0.457m) diameter, except where the brake wheel is fitted, that part being 1ft. 9in. (0.533). The brake wheel, with iron brake bands, is mostly of elmwood and of clasp-arm type, 7ft. 8in. diameter (2.34m) and having 71 fruitwood teeth. Engaging it is the 3ft. 6in. (1.07m) wallower also of elm, having 35 teeth, and on the underside of this, where the wheel is bevelled, a 1ft. 9in. (0.533) solid wood drum is friction-driven for the sack hoist, the bollard with its former teeth sawn off, being extremely well worn.

Throughout the mill the main timbers and gearing appear to be original and for the most part are in reasonable condition considering their age. Immediately beneath the Dust floor level the bins are enclosed in a low space, and, where it passes through the Bin floor, the upright post is boarded round. This main shaft, 15in. (0.38m) across, is of Scots pine; it is octagonal except where wheels occur and the sections are then square. Cut somewhat crudely on this timber, in the Stone floor below, are the initials: JS 18-3, the third figure of the date

being dug out; possibly it was originally a diamond-shaped O, but looking now more like an elongated one.[6]

Two pairs of 4ft. (1.22m) stones, Peak and French, both retaining their casings, are underdriven in the usual manner; but the grain chutes, horses, hoppers and damsels, etc., have gone. Also on this floor, beneath the ceiling, a 6ft. (1.83m) cross-arm wheel, set on the upright, and constructed of elm and pine wood was used with a belt and jockey pulley (see Foreman's sketch) to operate an oak shaft some 10ft. 9in. (3.28m) long set near the wall on the west side. At its lower end a spur wheel, 3ft. 3in. (0.99m) diameter with 56 wooden teeth, engaging a 17-toothed iron pinion and spindle, worked an inclined dressing machine fitted close beneath the ceiling of the Meal floor.

The 8ft. (2.44m) very heavy and almost solid elm great spur, having 100 'crab' teeth, is also set close below the ceiling of the ground floor. Bolted on its underside is a 4ft. (1.22m) bevel-toothed iron ring (face gear) having 112 teeth so that the same stones could be driven either by wind or steam power. The latter operation was by means of a 28-toothed iron pinion and shafting to a 4ft. (1.22m) diameter iron belt wheel set against the outside wall, the spindle having a backwards and forwards movement for disengagement. The 27-toothed stone nuts are of wood, each 2ft. (0.61m) diameter, with iron spindles, both being controlled by a lag governor, including steelyard, adjuster, chain and timber brayer.[7]

The doorways E. and W. are 6ft. 9in. (2.06m) high by 3ft. 10in. (1.17m) wide, each having a low arch with internal timber lintel. The jambs and 2ft. (0.61m) inner buttresses either side are carried out in rounded-off brickwork; but the former double doors have been replaced by single doors made from elm boards. On the ground floor there are windows to the N.N.W. and S.S.E., each 3ft. 6in. (1.07m) high by 2ft. 6in. (0.67m) wide; on the Stone floor are a pair set N. and S. above the millstones; and windows E. and W. on the Dust floor. All have low brick arches externally with rounded-off brickwork jambs internally. Frames and glazing have been renewed in recent years and the woodwork painted white externally.

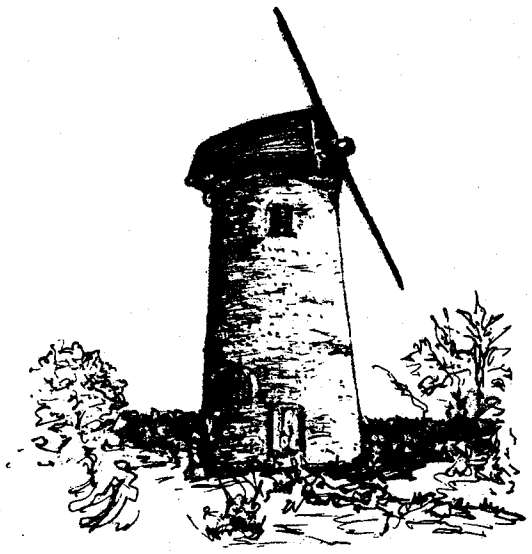
The original wooden stairway, much repaired, remains at the lowest level; but there is now a ladder, set on the upper Peak stone, to reach the Bin floor. A set of treads, two of which have broken away, leads to the Dust floor; and there is a second ladder reaching some loose boarding laid across the sprattle beam and the main timbers at the top of the tower. At ground level the flooring is paved with bricks; other floors have wide boards, somewhat holed and patched, but supported on joists in the normal way. The trap doors of the sack hoist are still in evidence on the E. side of the mill. Many more details are shown in Wilfred Foreman's elevations, floor plans and sketches.

It only remains to thank Mr. and Mrs. Paul Waterworth who have given every facility for the carrying out of this combined survey. Norton Lindsey is one of the few windmills of the western midlands where the wood mechanism appears to be largely in its original state, although out of commission for more than 75 years. It is to be hoped that the mill may long continue in sympathetic hands and that the interior repairs to ensure safety of machinery, floors and stairways may be carried out in the not too distant future.

REFERENCES AND NOTES

1. Quite the most slender windmill tower so far encountered in the region is that at Howle Manor, Shropshire; but this is built in courses of finely shaped pudding-stone blocks.
2. Birmingham Gazette (15th October 1804).
3. The Miller (7th January 1901).
4. Taken by E.C. Middleton for the Warwickshire Photographic Survey, started about 1889. This photograph (WK/H7/2) is one of several, showing the county's windmills still at work, which are now housed in the Local Studies Department of the Central Library, Birmingham.
5. The vast collection of notes, formed by this pioneer molinologist, is at the Science Museum Library, S. Kensington.

6. The 8 is in the form of a double diamond; but if the date is really 1813 the initials seem unlikely to be those of the millwright, but could be those of an unknown miller's assistant.
7. See accompanying sketches. Wilfred Foreman has described in more general terms the principles of mill governors in Wind and Water Mills Number 2, (summer 1981) pp. 16-19.



NORTON LINDSEY WINDMILL
post-1977

MILLSTONE MAKING IN FRANCE: WHEN EPERNON PRODUCED MILLSTONES

Translation of an article 'Quand Epernon produisait des meules à moulin' by J.Beauvois, Les Moulins, (Publication semestrielle de la Fédération française des Amis des Moulins), No.4, 1980, pp.5-13. The French article is illustrated by 16 old photographs collected by Mme.Colmont. While trying to remove in my translation many of the obscurities and ambiguities of the original (as they appear to an English reader), I have nevertheless tried to retain something of the flavour of the French text. I am grateful to Kenneth Major for drawing my attention to this article, and to the officials of the Fédération for permission to publish this translation.

D.G.T.

* * * *

Epernon is a small town of Eure-et-Loir, situated at the northern limit of la Beauce, between Rambouillet and Maintenon, about 30 km from Chartres.

Situated in a charming valley, it is famous, among other things, for an important deposit (or bed) of millstone rock, exploited mainly since the 19th century.

The Parisian Basin, La Brie, La Beauce possess important millstone deposits which, situated in the centre of large areas of cereal production, have been exploited practically since mills first appeared. On the other hand, the millstone rock of the Epernon region, little appreciated over a long period, found a considerable economic outlet only in the second half of the 19th century, when the choice in manufacture changed from the porous 'éveillée' stone to the solid type.

It is this which explains why one finds two Epernon enterprises, Chevrier and Moulin, in the amalgamation of nine specialised millstone firms which created the Société Générale Meulière (S.G.M.) in 1880 at La Ferté-sous-Jouarre.

The ruthless competition which drove the manufacturers to opposition among themselves gave way at this time to a protective alliance of the profession. Actually the danger was very real. A revolutionary and perfected system for the milling of cereals using cylinders [of iron] was on the point of being adopted by millers. This process had begun in Central Europe, gaining ground due to the economic and industrial thrust of the 19th century.

Technically, the replacement of the early porcelain cylinders which were costly and fragile, by fluted cylinders of cast iron which were much more resistant and manufactured industrially at minimum cost, permitted milling to achieve its industrial revolution.

In this context, the millers had to defend themselves and were re-organised to create a financial capital which would permit an early and unprecedented commercial development directed above all towards export.

There was likewise a second stage in which the will to adapt to the reality of a mechanical world in full flight led to the creation of a new sector of activity specialising in the manufacture of milling plant and based on the mother-firm of La Ferté-sous-Jouarre. There were left in France only three large enterprises for the extraction, manufacture and marketing of millstones.

Epernon thus saw established on its soil the subsidiaries of the rival firms of La Ferté-sous-Jouarre - Société Générale Meulière, newly-created, and the Société Dupety-Orsel, a long-renowned firm established in 1751.

The S.G.M. was installed near the station, utilising of course the facilities of the railway. The Société Dupety-Orsel, although having opened a yard on the station approaches, had its main activities at the edge of the town on the Maintenon road (Vernot Yard).

Later, a third enterprise, the Abrasienne, producing millstones in agglomerate, was set up on the Rue de Cady.

Epernon was a large city of stone, and although the millstones were an important activity, they were not the only products of the quarries.

Sandstone quarrying became important with multiple uses. In this connection we should dispel the misunderstanding that these two activities were really only one.

In reality, the materials were totally different. The hardness of the millstone grit was incomparably greater than that of the more tender and friable sandstone.

In spite of comparable techniques of working, few of the sandstone-hewers changed over to the quarrying of the millstone grit, so true was it that the millstone rock of the Epernon region had properties to repulse the best intentions: igneous rock, compact and pure. Its extraction was done in quarries open to the skies, the beds of rock being found at depths varying from 3 to 12 metres and having a thickness of 0.5 to 2m on average.

The quarrymen's work was very rough, as also were the workings, for practically everything was done by pick and shovel. It was necessary to have an iron constitution, and the view of the quarries gave an impression of a convict prison.

The tasks of the workshops were just as trying; everything was done by hand. The cutting, the assembly of the pieces and particularly the finishing operations, furrowing, surfacing and above all chiselling, which forced the operator to be close to the stone and thus to breathe the dust produced by the blows of the tools, led to that terrible disease : silicosis.

The cases of silicosis were numerous and recruitment was difficult. Applicants on the spot were rare, and to meet the needs workmen were solicited from competing firms; sometimes, even, it was necessary to go further to find the workmanship, and by underhand means try to rally some units from the firm of Brisgault-Garnier of Cinq-Mars-la-Pile, 20 km beyond Tours. They also waited at the exit of the yards of Saint Hilaire du Arcouët, in La Manche, hoping to recruit some granite-hewers.

Men of sorrow, hirelings particularly hardened to effort and suffering - you could say you wouldn't tread on their corns. Nevertheless, like miners, they were proud of their craft.

Like all corporate bodies, millstone-making had its traditions of companionship derived from distant times.

St.Léger was the patron-saint of millstone-makers, and St.Léger's Day was the occasion of rejoicing.

At Dupety-Orsel, the personnel assembled after the morning mass, and an excellent meal, copiously 'watered' as was proper, was offered by the management. It was quite otherwise at the S.G.M., a 'young' enterprise which had broken with ancestral customs.

With the death of old traditions, the new doctrines propagated during the 19th century penetrated into all bodies.

These wild and hardened men, with barely-tolerable working conditions, who gained their living so laboriously, without help or assistance in case of illness, were animated by a free spirit mixed with anarchy. The profession remained profoundly stamped with this, and participated in all the struggles and claims of workers at the beginning of the century. However, it must be stated that except for the moments of great activity in workers' demands, in particular the great social struggles in 1909 and 1910 including those at La Ferté-sous-Jouarre, the unions never succeeded in establishing themselves among these shy individualistic workers.

In 1938, at the S.G.M., in replacement of M.Trochu, a new director was named : M.Colmont. He was to spend all his life in the service of the S.G.M., where his uncle, M.Nollin, mayor of Jouarre, was an administrator.

Engaged in the enterprise in the profession of accountant, M.Colmont went to Epernon and gave evidence of a great dynamism. In spite of the increasingly uncomfortable situation of the millstone industry, he directed the enterprise for more than 20 years, encouraged by his wife. Both were able to gain the confidence of their personnel, perfectly integrated into this professional sphere which they loved and had known for a long time.

The S.G.M. exploited five quarries, supplying not only the workshops of Epernon but also those of La Ferté-sous-Jouarre. There were also relations with Italy and stone was despatched to the workshops of the Baldeschi-Sandreani factory at Cantiano.

Under the influence of its director, the S.G.M. at Epernon was endowed from 1935 with mechanical equipment for extraction and transport - mechanical shovel, loco-tractor, and flat wagon.

At Epernon, millstones of different diameter were produced, from the French millstone in solid rock and even monolithic owing to the homogeneous quality of the beds, to the so-called English millstone, smaller but more complex. The techniques of mounting or making-up the stone and the texture of the rock used were dependent on the function; all the needs of millers were taken into account. Epernon produced above all millstones for grinding cereals, but also cocoa-beans, mustard-grains, spices, mineral and chemical products, etc.

A policy of export had become vital after the victory obtained at the beginning of the century by the cylinder over the millstones. The definite adoption by the big mills of the cylinder technique permitted a better mastery of the production of white flour. Above all the large capacity for millstone production necessitated a search for other outlets; the millstone companies sold about 80% of their production to foreign firms. The station at Epernon was very important and wagons were chartered for distant destinations. Millstones were regarded as ballast in the loading of the ships.

The Dupety-Orsel Company had a big trade with Tsarist Russia. After the First World War, the economic blockage of Russia deprived them of an important market and nearly proved fatal to them. In spite of everything they remained traditional to the end, producing only millstones.

Epernon never got its 'letters of nobility': all its millstones were marked as supplied by La Ferté-sous-Jouarre.

In 1940, the German troops overran Epernon, occupying the millstone factories. They ransacked the Dupety-Orsel works, largely destroying the millstones in course of manufacture, among other things utilising the eye-hole as a hearth. The heat produced shattered the stone, thus destroying the products in the yards.

As for the S.G.M., strategically badly sited, they endured the effects of bombardment without too much harm. In this critical period, the director, M.Colmont, was mobilised, and left the responsibility of management to his wife. She succeeded, with much difficulty, in evacuating the workshops. She re-organised the activities of the firm, and was then soon relieved by her demobilised husband.

The internal market had diminished; exports were re-started and a certain number of orders were despatched to Germany.

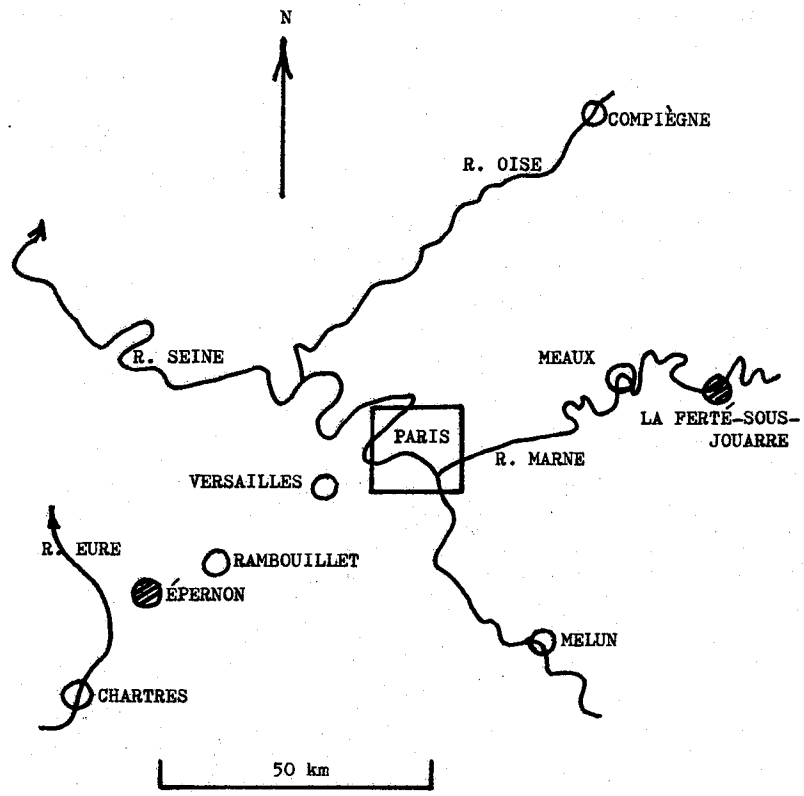
The war had been fatal to the Dupety-Orsel company of Epernon; the S.G.M. continued, but the situation became more and more of a compromise. Eventually, in 1951, the S.G.M. was wound up and the personnel of La Ferté-sous-Jouarre was almost totally dismissed. However, the millstone industry of Epernon did not wish to die: it survived for several years more with the Société de Construction d'Appareils de Meunerie (S.O.C.A.M.) The last orders were honoured in 1958, then the closure was final.

It was the end. Never again would Epernon hear the familiar noise of the hammers which had accompanied all hours of the day.

The yards of Dupety-Orsel had already been broken up and sold in lots for building. There remain today only some shreds of this enterprise - poor witness of what was a vast workshop with its forge, its hot chamber, its depot and its loading platform.

As to the S.G.M., the workshops and the director's house have remained to this day. A porch is still adorned with millstones, ultimate vision of what was once a branch of prosperous activity.

I thank particularly Mme.Colmont for her valuable help in completing this article. I have also consulted the too-sparse notes which M.Colmont left us, published in a regional edition of the 'Parisien Libéré'.



SHOWING THE LOCATION OF THE MILLSTONE-MAKING AREAS OF ÉPERNON AND LA FERTÉ-SOUS-JOUARRE

FRENCH MILLSTONES

by OWEN H. WARD

This article is a pot-pourri of views and judgements, which occasionally inform one another, but which are just as often likely to conflict. If one of the objects has been to assemble the 'evidence' from several written sources, another is to prompt those who have first hand knowledge to sift the sense from the rubbish.

If we have decided, in 1981, that there are just too many books then industrial archaeologists and molinologists must be partly to blame. So many of us feel obliged to write; and most who write about mills feel obliged to say something about the nature and appearance of French millstones, or burrstones. (The origin of 'burr' or 'buhr' is totally obscure - it might even be Welsh although the spelling looks Germanic). Such descriptions resemble more or less closely the paper presented nearly forty years ago to the Newcomen Society by John Russell (of Cranbrook Mill).

'French burr stone comes from La Ferté-sous-Jouarre and Bergerao in the Paris basin. It is a chalcedonic hornstone or freshwater quartz found among beds of freshwater limestone that lie above the chalk. Quarried in small pieces it is sorted for quality according to colour, though as the colours are due to small amounts of mineral oxides, theoretically they can have little influence on the quality of the stone. The irregularly large and small cavities which in the quartz forms a kind of network or skeleton, keep the grinding edges renewed as the stone is worn down. The small blocks are shaped rather in the manner of stones for an arch and are cemented together with plaster of Paris, which wears equally with the stone, to form a round stone bound round the edge with hoop iron; the working face is dressed level and the back, which has been left irregular, is smoothed off with plaster of Paris[1].'

Whether this is the primordial source of expressions such as 'chalcedonic hornstone' and 'freshwater quartz' seems doubtful because these terms were already obsolete at that time having first appeared in the eighteenth century[2]. Most of the other phrases can be found verbatim in later publications, as molinologists will readily recognise[3]. And for many years no new evidence was published to substatiate or dispute the myths and legends.

But a new dimension should have been opened up in 1970 when the first issue of Millnotes appeared[4]. It bore on the front cover one of the most moving pictures I remember seeing[5]- two rows of French millstones actually being dressed at the works in La Ferté-sous-Jouarre. Alongside them a range of differing sizes of stone is propped against the wall, and in the background new stones are stacked up to the roof of the workshop[6]. The postcard from which it is reproduced is apparently numbered 2 of a series, but it bore no date.

Also in this issue was a translation by J. Stephen Buckland of extracts from a report published for the French Government in 1847[7]; they include some comprehensible geological particulars, and name several quarries and the firms who worked them. Amongst them were M.. Gueuvin, Bouchon et Cie. (with quarries at Le Tartrel, to the south of La Ferté), Mm. Nayliès et Cie. (at Bois de la Barre, to the west), M. Gilquin and M. Roger. Although the author of the report says that Guevin, Bouchon et Cie. were highly spoken of by English and Irish millers, the editors of Millnotes had not at that time found their name on a

millstone. Some of the qualities of stone available are referred to, and there is a suggestion that the bedstone should be softer than the runner - not a theory that I have seen propounded anywhere else. The extracted sections of the report conclude with a reference to one of the more persistent myths confounding the French Millstone story, and which had seemed difficult to dispel or verify. This concerned the quandary which British millers found themselves in during the Napoleonic wars, some eighty years before the report was written[8]:

'During the war between France and Great Britain, commercial relations between the two countries having ceased, the English Government offered a prize to the person who could find a quarry whose stones would be able to do duty for the French ones. After much effort, a bed 2.5m broad was found at a not inconsiderable depth, near Conway in Wales, composed of an aggregate of quartz and schist, which hardened on exposure to air. In default of an alternative, this stone was put into service, but was found out to be very inferior to the La Ferté stones.

A few years ago, a quarry of stones suitable for corn-grinding was found by Mr. James Brownhill in the large basaltic cliff at Alley-Craig, near Stirling. These stones were tested for the first time by Mr. Alexander Ball, manager of the Alloa mills, and it has been claimed that these millstones could be preferable to those imported from France, because of their greater solidity and more even porosity.

I examined the Alley-Craig millstones, and I failed to find any marked difference between them and second quality stones from La Ferté-sous-Jouarre quarries.'

One investigator who was busy working on the English end of the millstone business, D. Gordon Tucker, did refer to this publication in the course of an article in 1973[9] when he stressed the apparent spread of taste for white flour amongst the newly more prosperous class of Britons who made good in the Industrial Revolution, although he now suggests that the change of standards began rather earlier. But whenever the fad was introduced it is fairly clear that Martin Watts[10] is right to blame the French for its introduction and for the aura of refinement which it wore. And, of course, with the demand for French-style flour came the call for French-style millstones to produce meal of such a consistency that the white flour could be separated from the other components of the grain.

There is ample evidence of the French tradition for 'fancy' bread. Bennett and Elton[11], the sages of cornmilling history, refer us indirectly to the 'Dictionnaire du Cange'[12] where twenty-one sorts of bread are identified, and to an eighteenth century author[13] who adds a few more. And there are at least two French idioms[14] which subsume a traditional predilection for white bread.

Further examination of French stones in England enabled Gordon Tucker to add to our knowledge in an article of 1977[15] where he describes the typical construction of the stones which he found, especially the tendency to use quite small pieces with a plaster backing and sometimes an indigenous stone for the eye. Incidentally, it seems that the more fragmented stones are bedstones, and were not built to whirl round at 120 r.p.m.

In the same year (1977) another paper[16] presented to the fourth symposium of the International Molinological Society, meeting at Matlock, suggested in a tantalising way that there was a positive and intentional benefit to be gained from using different kinds of stone for different parts of the millstone. 'The French stone is a superb stone,' it tells us, especially for the production of meal which can be separated; 'note the colour difference between the inner and outer pieces if you pass one.' The intended significance of this cryptic injunction becomes clear later.

But more detail which causes excitement to anyone keen on the French end of the trade comes from a further reference provided by D.G. Tucker. This is to an article of just a century earlier (1877)[17]; the anonymous writer gives a great deal of, possibly quaint, geological detail and specifies localities where it might be worth going to look for old quarries.

'The valley (of the Marne) is embosomed by hills to the right and left; which rise to a considerable altitude, and includes Le Ferté to the north by

the quarries of La Justice, Bois de la Barre etc., and to the southward the quarries of the Bois des Chénaux etc....To the south, gypsum banks are found on the hills that skirt the river in the communes of St. Cyr and Jouarre, and supply a plaster of superior description for the building of mill-stones, 'so that it would appear', says a report in the Revue des Sciences 'as if nature had made provision at the same place for the best millstone rock and the best cement for building it into millstones."[18]

The writer then goes on to explain how the occurrence, and the nature, of the stone both differ depending on the location of the quarries. In the quarries referred to north of the river;

'... the burrstone rock assumes a stratified form under layers of clay, of a thickness varying from over three to over six yards, occasionally cropping out at the surface. The thickness of strata is, however, far from homogeneous and equally good for millstone fabrication. The upper solid layer is of a white colour, affording material adapted to the making of solid eyes for millstones.'

In the quarries to the south however;

'..(in) the Bois des Chenaux, we find that here the rock is not always shown in stratified form, but in conglomerates of greater or smaller dimensions, among clays and silicious and micaceous sands, their colour ranging from brown, red, yellow and white.'

It could be that the tendency to occur in such nodules may have led to their being described as 'burrs'.

A survey of other types of flint millstones ends with a curt statement that 'the silex of Epernon comes nearest to the compact silex of La Ferté', Epernon lying 67km to the west of Paris and having, later on[19], very firm links with the industry at La Ferté.

The second article on the subject[20] began by giving much more exciting detail of the actual work in the quarries, and a number of invaluable terms in the original French describing both the work and the stones;

'The burr-stone deposits ... are generally worked from the top downwards, the existence of the stone having first been ascertained by sinking. The next operation consists in the removal of the superincumbent earth, which is effected in some cases by the use of wheel barrows, and in others, when the quarrying is to be done on a large scale, and the nature of the ground admits it, by approaching the stone by trenches on inclined planes, the earth being removed by trollies on wheels. On the stone being uncovered, and when it is found not to be adapted to millstone building, it is blasted by means of gunpowder, to facilitate its rapid removal, and when suitable stone is reached it is quarried and removed with care, and handed over to a class of workmen called 'Epaneures' who dress the blocks on one side, for the purpose of ascertaining their quality, and in order that they may be classified in different grades. These are generally determined by the degree of porosity in the rock. To the three grades the arbitrary names of French, semi-English and English stone have been given. The first, which is of greatest porosity, is, generally speaking, found in large blocks, the second in pieces averaging from about 12 to 24 inches square, and the third in small blocks less porous, of still less dimensions, the smallest of which is known locally as 'agneaux' (lambs). There is still another variety of burr, which combines, so to speak, the properties of the other three, and is found in pieces varying from nearly 14 to 16 inches in length, nearly 12 inches in breadth and nearly 6 inches in thickness. These blocks are locally known as 'carreaux' and are generally destined for exportation for various purposes. Blocks are also quarried some 20 inches long by about 12 inches broad, and 3 inches thick, the local designation of which is 'carreaux bretonds'. Other blocks of a ridge-like form occur, which are locally known as 'panneaux'. Then comes the variety of burr of which the solid centres or eyes of the millstones ('boitards') are made. These are found in various sizes, some reaching 3 feet in diameter. Half-eyes of various dimensions are also made from these stones[21].....

In order to split the blocks, which are not laminated in regular layers, ... a wedge or chisel is employed in cutting a longitudinal groove in the block, into the edges of which other wedges of different sizes are inserted ... until

the block is rent, according to its natural cleavage, into pieces....

The means employed in raising the stone from the quarries vary in accordance with the dimensions, and consequently the weight of the blocks to be raised. Generally speaking, the small pieces are removed by hods, the larger blocks being raised by screw-jacks, or by trollies worked by windlasses on tramways. In the case of quarries of considerable depth, if the excavation has been well conducted it is generaaly practicable to conduct carts up to the banks that are being worked, and to remove the stone without the necessity of reloading.'[22]

The most surprising thing about the article was not in the text at all, but the footnote, 'to be continued'. But when the further instalment was found it turned out that our anonymous benefactor had in fact run out of material and went on to speak of the geology of the millstone grit. This was a disappointment which was tempered not only by the presumption that he had nothing more of interest to say, but also by a reference to the legend concerning the discovery of British stones which could be substituted for French ones during the Napoleonic wars. The catalyst in this discovery was not the British Government but the Society for the Encouragement of Arts, Manufactures and Commerce in London, who offered a prize of one hundred pounds for such a find, and which records in their Transactions two successful claims for the money. (The Society offered their Gold Medal as an alternative inducement, but in both cases this was eschewed!) The first claim resulted from the discovery of a quarry in Wales, near Conway, and is supported by certificates from millers and millstone makers who, almost unanimously, prefer the Welsh to the French article. The second, recorded two years later in 1802, came from a miller in Scotland who had found stone at Abbey Craig, near Alloa, which he had made up into millstones and which, according to the accompanying certificates, gave universal satisfaction. But what may disconcert those looking for French burrstones in Britain is that these British stones were also built up from several pieces, and the Welsh stones were even said to be indistinguishable from the French in appearance.

There was a third claimant to the premium, one Mr. Field Evans, who reported the discovery and use of burrstones found on the Montgomery-Shropshire border, but his claim was only partially successful in spite of being well supported.[23]

To discover more about French stones it seemed a good idea to go to French sources rather than English ones. There were two tasks - one was to visit French sites, and the other to follow up such references to French literary sources as existed in the English texts.

It is a pity that Bennet and Elton ignored what was, to them about 1800, commonplace material; they ignored it not because it lacked interest, but because it could be picked up, at the time, from all sorts of unspecified ephemera which we precisely lack in the 1980's. But their reference collection of antiqarian material was amazingly rich. Included in it was a pair of volumes published in 1782, although the version obtainable (with difficulty) now is a Paris edition of 1815.[24] This social history of the French quotes le sieur Buquet (miller of Senlis, fl.1764-1768) as saying that for wheats from the north, which are naturally moister, the millstones from La Ferté are best, because they have a sharper cutting edge. But for wheats from the southern provinces, which are dryer, he prefers stones from Nérac and Clérac.[25] These kinds of stone are unfortunately extremely rare. However there are in France several places which produce blocks big enough for several, joined together, to make up a millstone. An iron band is used to clamp these separate pieces together; and the spaces left between them are stopped up with mortar or plaster - when the blocks are well chosen, such stones are better even than whole stones, because irregularities in the strata can be left out whereas they are normally left in whole stones.[26]

This book refers to an even earlier tome of rustic lore[27] which was also known to Bennet and Elton. The English translation dates from 1600, so the French original must be even earlier, and though it is reputed to include in its hundreds of pages a number of 'old wives' tales', the brief paragraph on grinding corn has a solid ring when tested:

'The husbandman, having made good choice of his corne, shall send it to the mill whether it goe with water or with winde, according as the countrie shall be

the most fit and convenient for; and if he have choice and may send it to either, then he shall rather choose to send it to a water mill, carried about with a very swift streame for the more forcible turning about of the stone, and which hath his stone of a very hard greete and all of one piece if possible, such as are in Brie and Champagne, especially at Ferté under Jouarre; for the millstones that are tender and soft doe easily breake and quickly grow out of frame[28], and withal do continually leave gravell in turning about, which being mixt with the meale, taketh away the pleasantness and all the good savour of the bread, and becometh oftentimes troublesome unto the teeth.'

We are also told that the hard grain was sometimes pounded in a pestle and mortar before grinding, or sometimes damped, then dried, then milled.

In 1979 I went to Paris and was able to plan to spend one day at what was too obviously the French millstone hunter's Mecca - the small township of La Ferté-sous-Jouarre: and I was not so very disappointed. The Jardin Public had a symbolic group of millstones in it; leading away from the river (Marne) was the rue du Port aux Meules; and in the café in the square was an older man to whom I was instantly referred for more information. The quarries were there, on the hills above the town, but those on the upper edge of the town were being filled and bulldozed. The land is being covered in commuters' homes, and the economic centre of La Ferté is the railway station I had arrived at. Hummocks and hollows just above the new housing estates bear a youngish growth of trees. Waste stone lies everywhere amongst them. The church, back in the town, is built of the reddish-brown quality of burrstone which is not often used for millstone manufacture. And, most of all, the river bank, where the old Port aux Meules used to be, has been refashioned at least twice exposing dozens of millstones at the foundations[29]. That there were other quarries further away from the town I knew from my informant in the cafe; but without transport there was no way of reaching them.

The town of La Ferté is obviously aware of, and properly respects, its historical identity; the folk we spoke to were quick to appreciate that it was reasonable for a foreign visitor to come to talk about their millstone industry. There is a pool of local antiquarian interest which could only be gently stirred in one brief visit, but a number of discoveries did result from recent editions of the local paper[30] to which I was referred by the town hall staff.

Introducing a brief series of contributions, the editorial spoke of this very old industry which owed its success to the quality of the stone taken from many quarries around La Ferté, one of the last of which to be worked was l'Hermitière, above St. Cyr-sur-Morin. By 1884 there were just two large companies at work, the Société Générale Meulière and the Grande Société Meulière. Five picture post-cards (including the one which distinguished the front of Millnotes No. 1) of the SGM were reproduced. They all appear to date from the first decade of this century, and something of the process emerges from the captions. The stone was taken from the quarries to the works in the rue Pierre-Marx, and there is a photo of the workshop where pieces of stone were trimmed and the millstones built up. The workshop was open along the southern side in an attempt to disperse the silex dust which the workers breathed in, and which caused silicosis. The stones were assembled, cemented together and banded with iron. Then they were dressed with furrows. The finished millstones were exported all over the world by the railway or in barges.

By the beginning of the nineteenth century the SGM manufactured ancillary machinery such as separators, winnowers and bolters, and also built roller mills using case-hardened cast-iron rollers which they obtained from elsewhere. Certain types of cylinder mills were still being produced in the 1930's.

In about 1880 the SGM amalgamated several smaller firms[31] none of them founded earlier than 1802. Stones labelled 'Société Generale Meuliere' can be found in this country; from the 1880's they seem to have added the words 'La Ferté' even if the stones were made at their works in Epernon - which is some forty miles to the west of Paris.

Local documentary evidence of millstone working goes back as far as 1597 and 1598, and a quarry at l'Hermitière is one of the earliest recorded. A

little is known of the process as it was described at the end of the eighteenth century; the millstones were rough-hewn in one piece in the quarries themselves by independent workers who paid rent to the owner of the land. They then negotiated with dealers who purchased the stones from them and arranged transport to the quay beside the Marne. There the stones were finished and any damage caused in transit repaired before they were loaded into barges for shipment. But at the same time pieces of stone measuring about 15 inches by 8 inches or 10 inches and 4 inches thick were quarried for export so that stones could be made up by millstone makers abroad. There exists an engraving[32] whose principal intention is to show Napoleon's army busy attempting to bridge the Marne at La Ferté and pursue Blucher's forces northward, but attention is rivetted on a disorderly jumble of huge millstones in amongst the otherwise precise orderliness of the military parade.

The rival firm to the Société Générale Meulière, the Grande Société Meulière, was apparently founded in 1751 as Dupety (or Dupetit) et Orsel. A couple of postcards, which must date from the early 1900's, show that the company had much the same sort of open-sided working sheds and stacks of graded stones stored in their yard. Because some pictures of l'Hermitière appear in the same collection it would seem that the quarry belonged to the firm which was so much the older of the two and which survived as late as 1950.

A final contribution to the newspaper was mainly concerned with the quarries and with the use of millstones for building purposes - including an abbey and part of the defences of Paris - but does tell us that the scraps of waste stone from the old workings found a new use when composition stones began to be made after the second world war. It also adds that these went mostly to Holland by barge.

Most of the points in these articles were evidently known to the distinguished writer of a recent book on Industrial Archaeology in France[33]. He refers to the change from solid, or monolithic, to multilithic stones which occurred late perhaps in the eighteenth century as a positive move to improve their effectiveness, since the inner and outer zones of the stone serve different purposes and need to differ in character. And the decision to dress stones with furrows instead of relying on simply 'cracking' the surface was another attempt to improve the efficiency of what they considered to be the best basic material for the construction of millstones.

A more recent writer has dealt independently with some of these conclusions using chiefly American sources[34]. Monolithic stones can be found in the USA, though they are not common; but it is suggested that although smaller blocks were used in order to achieve control over the quality of stone it was to obtain a uniform, rather than a graduated, texture. And the English are given the credit for discovering that by cutting furrows in the stones their size and weight could be reduced from the French standard of some six feet to the English one of nearer four feet. This change, he tends to confirm, dates from the end of the eighteenth century.

The discussion is not yet over; as a result of questioning one or two generalisations the enquirer is left with a dozen more specific problems - on the history and technicalities of discovering, selecting and working satisfactory stone; of building, dressing and repairing the millstones; and of trading in them both new and second-hand. And we are left now wondering how far even sixteenth to eighteenth century writers believed what they were saying or knew what they were talking about. And all these problems become more pressing as modern attempts are made to re-create, after at least a century in obscurity, the archetypal 'French Burr'.[35]

Acknowledgements

Besides those mentioned in the text and notes I am grateful to others who have helped to trace material and comment on it, especially staff of the Library at the University of Bath and members of the Midland Wind and Water Mills Group to whom a version of this paper was presented in October 1981.

Notes

1. This article, entitled 'Millstones in Wind and Watermills', was printed in the Transactions of the Newcomen Society, Vol. 24 (1944), this paragraph appearing on page 8. 'Bergerao' I have not identified; it could be a misprint (presumably Bergerac; although not in the Paris Basin, it was well-known for its millstone production, fl. 1878. See The Miller, 2 Dec. 1878, p.646). Incidentally, none of my writers refers to the amount of rubbish that is found in the backing of stones, nor to the practice of filling the facial cavities with alum or lead, presumably to prevent a build-up of sour flour.
2. Personal correspondence from Dr. Hugh Torrens of Keele University, 1981. The eighteenth century was also when these stones became the norm in these islands.
3. Better perhaps not to specify, but there are dozens of general books, large and small, from 1948 onwards, which borrow phrases and concepts from this paragraph and from one another. Curiously, though, none has included the word 'level' after 'dressed', and have assumed that the stones were dressed in the 'modern' fashion.
4. October 1970; published by J. Kenneth Major, this series faded away with the creation of the International Molinological Society and the publication of its Transactions.
5. A reproduction of a picture postcard from Kenneth Major's own collection.
6. This, like other early photographs, is obviously 'rigged', so it is dangerous to deduce too much from the picture.
7. Augustin Rollet, 'Mémoire sur la Meunerie, la boulangerie, et la conservation des grains et des farines ... publié sous les auspices de m. le Ministre de la Marine et des Colonies' (Paris 1847) pp.141-3 and 145.
8. This interesting subject is taken up again later, but there are some errors of fact, (eg. Alley-Craig for Abbey-Craig), so maybe the judgements can also be questioned. it is difficult to know, however, whether the British prize claimants or the French Government Inspector (who in any case only looked at one of the types of stone) is likely to be the more partial. It would be interesting to know whether the production of stones from Conway and Abbey Craig survived the resumption of trade with France.
9. D.G. Tucker, 'Millstone making in Gloucestershire', Glos. Soc. Ind. Arch. J. (1973) pp.6-16.
10. Curator of Worsborough Mill Museum, Barnsley, South Yorkshire. Personal conversation.
11. John Elton and Richard Bennett, 'History of Corn Milling' (1899-1904) (It has been reprinted, but that in turn is out of print now).
12. The 'Glossaire' quotes charters of the 12th and 13th centuries under the heading 'panis'. The reference is via op. cit. Note 13.
13. Le Grand d'Aussy, edited and revised by J. de Roquefort; 'Histoire de la vie privée des francais', (Paris 1815). vol. 1 pp.100,105. The Parisian dependence on white bread is further emphasised by plans during the wars of the Fronde (1648-1652) when Parisian food supplies were cut off, to include the early re-capture of a source of fine, white flour 'for those who have a delicate stomach and who are accustomed to it'. (p.106)
14. 'Changer son pain blanc en pain bis' (to strike a bad bargain); 'manger son pain blanc le premier' (not so easy to translate - to be a gourmet, perhaps).
15. 'Millstones, quarries and millstone makers', Post-Medieval Archaeology, Vol.11 (1977) pp.1-21.
16. J. Schoonhoven, 'Grinding with stones', (p.277) Transactions of the Fourth Symposium of the International Molinological Society, England, 1977.
17. 'The Geology of the Burr Stone', The Miller, April 2nd. 1877, pp.70-71.
18. The report in the Revue des Sciences has not so far been identified. It could be the source of much of the material in The Miller.
19. Just three years later, in 1870 (see pp.
20. The Miller, 7th May 1877, p.120.
21. These 'eyes' are not uncommonly met in stones in France. An example can be

seen in the Moulin de Kerouat, an 'Ecomusee' in the Armorican National Park.
22. If, as I surmise, this article is more or less a translation of an article in French, it could be worth having a fresh look at the source to see whether the terms employed are used in the way we now understand them.
23. There is something 'hole-in-the-corner' about this; the award is of fifty pounds only, instead of the hundred advertised (and there is nothing in the text to suggest any reason for this) - and the report was not even indexed in the transactions.
24. Already referred to in footnote 13. The translation here is my own.
25. Nérac is near Agen on the river Baise; Clérac I have not located.
26. The implication is that a piecemeal stone could be more uniform in texture; there is no suggestion of gradation from the centre outwards or any other form of variation.
27. 'La Maison Rustique', translated as 'The Countrie Farme'. The original was 'compiled in the French Tongue by Charles Stevens and John Liebaut, Doctors of Physicke'. It was translated by 'Richard Surfleet, practitioner in physicke' for publication in London in 1600.
28. Without the original French it is difficult to be sure whether 'frame' here implies a binding of iron hoops or whether the phrase simply means out of shape. The implication in the preceding sentence is that the stones from La Ferté were at that period in one piece. (The sources in Brie and Champagne, except in so far as the region around La Ferté is in those districts, have not been separately identified.)
29. Both the sculptural group and the foundation stones in the river bank were whole, single stones.
30. Le Pays Briard, in the early months of 1979.
31. The firms listed were (with date of foundation): Roger Fils & Co. (1802); Baudoin, Renaud et Lefevre, formerly Mon. Bailly & Co. (1842); P. Gilquin Fils & Co. (1825); Société Anonyme Bois de la Barre (1837); Ladeuil & Co. (1825); Bertrand, Morel et fils (1820) - all of La Ferté: Chevrier; Moulin - both of Epernon. Alex Fauqueux was also incorporated in the Company.
32. The date, very precisely, is 2nd. March 1814.
33. 'L'Archéologie Industrielle en France', by Maurice Daumas (Lafont 1980). M. Daumas is Conservateur of the Musée of the Conservatoire des Arts et Métiers.
34. Michael Laforest, in Old Mill News, 1981. (I am indebted to Martin Watts for this reference.) The American classics are 'The American Miller and Millwright's Assistant' by W.C. Hughes (1884), and 'The Young Miller and Millwright's Guide' by Oliver Evans. This was published in about 1780 and reprinted about 1970 in the U.S.A.: both editions are now out of print.
35. By, for example, Dorothea Restorations Ltd.

EVERTON WINDMILL, NOTTINGHAMSHIRE

by JAMES T. E. WATERFIELD

An outline of the mill's history

The exact building date of the mill is uncertain but I would venture to suggest c.1820. Up to 1883 I have little information except a list of early millers.

1832 James Taylor
1844 James Taylor
1853 William Templeman
Sold 1858
1864 William Wilson
1879 James Ashton
1881 Mrs. Elizabeth Ashton (widow of James Ashton)

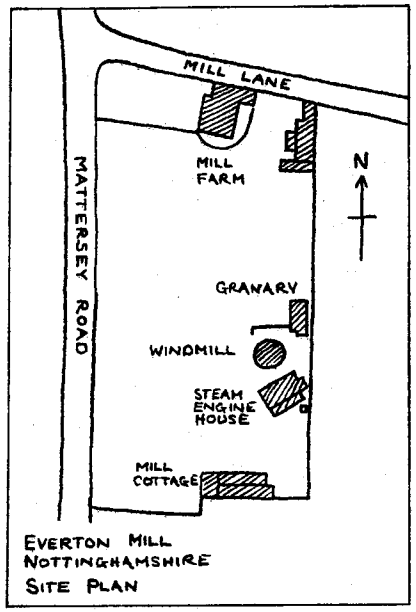
In 1883 Richard Kirk-Longbottom purchased the mill from Mrs. Ashton. Mr. Kirk-Longbottom had formerly worked the post mill at nearby Clayworth (which, incidentally, he had pulled down before he left for Everton - a good way of keeping competition down). His miller at Clayworth and later at Everton was John Marples who was born at Tuxford in 1863. Mr. Kirk-Longbottom learnt the trade from his father-in-law, Mr. Hugh Loughton-Longbottom, at Tuxford wind and steam mills, as did John Marples. Mr. Kirk-Longbottom retired in favour of one of his nephews, Albert Edward Longbottom, who came from Tuxford after the death of his father, Hugh. (His elder brother, Walter Hugh, took on Tuxford Mills.) This was in 1898, and with money left to him by his father, A.E. Longbottom had the steam mill drive refitted by Marshall's of Gainsborough. Albert died in January of 1921, at the age of 52 years. He was succeeded by his son, George Hugh Longbottom (late husband of the present Mrs. N. Longbottom) who was in turn assisted by his son, John, who is also deceased. The mill continued to work by wind until 1930 when the sails were removed. It is sad to think that the old miller, John Marples, died only a few days later. On steam power only, the mill carried on into the early 1940's. The mill was gutted in the late 1940's, or early 50's.

A description of the site

Situated in North Nottinghamshire, Everton Windmill is unique in that she is the only complete mill complex remaining in the county. The sketch map of the site illustrates this point well. The mill stands on top of a ridge, the land sloping away in all directions. Second to the windmill, the brick chimney stack is the most prominent feature. It is solidly built, standing just south of the mill and carries the date 1898 on its south side. It provided the exhaust draught for a large horizontal Marshall steam engine, also erected in 1898. This, along with a large marine-type boiler, was removed in the late 1940's. Unfortunately, its fate is unknown. The steam engine and boiler were housed in a large low building just a few feet south of the mill. It was built low to give the sails turning clearance and to avoid interference with the amount of sail area in the wind. I must be careful here not to give the impression that steam power was only used from 1898. According to a sale notice of that year, the mill was working on wind and steam in 1858. In fact, the steam tackle was

refitted on Mr. A.E.Longbottom's arrival.

About 100 feet south of the mill is Mill Cottage where the miller lived. The mill owners lived below the mill to the north (as Mrs. N.Longbottom still does) at Mill Farm. In busier days, the mill-hands lived in the attic of the farmhouse. Just outside the mill to the north is a single storey granary/office, the roof of which is made from old railway wagon roofs. It was latterly used as a pig sty.



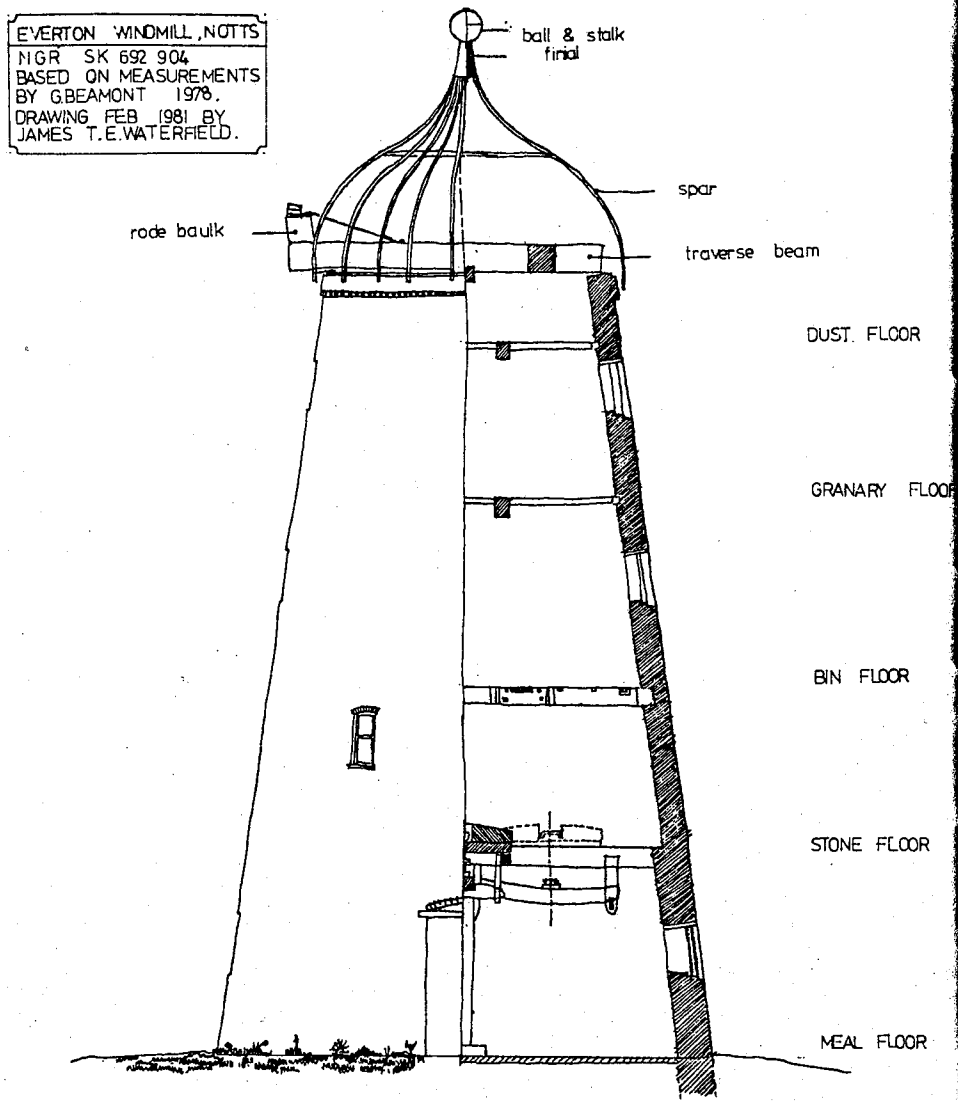
EVERTON MILL
NOTTINGHAMSHIRE
SITE PLAN

The Windmill

From the outside the mill is deceptively complete, the cap frame and roof still being in situ at the summit of the still partly tarred red brick tower, On entering the mill, the great extent of the gutting is evident. Apart from the stone spindles and bridge trees, all gear has been removed. As one walks into the mill onto a well laid red brick floor, a large square pitch pine post rising up from the centre of the floor, supported on a 30in. diameter stone, is immediately apparent. It is the full height of the meal floor and at one time carried the footstep bearing of the upright shaft on its uppermost surface. Slung from three sides are the wood bridge trees and at their outer ends are nicely fitted wood brayers. This is by far the best designed and uncluttered tentering gear that I have seen in any of the remaining Nottinghamshire windmills. The spouts from the stones came down onto three sides of this support post, all meal being bagged centrally. There were three sets of stones, laid out in typical Nottinghamshire/Lincolnshire fashion.

The west stones have been removed and are shown hatched in the drawing. They were 4ft. 6in. Derbyshire greys. The east stones are also greys. They are 4ft. 5in. and are still in situ. The north stones are French 4ft. 6in. and have been built up with cement to give them extra crushing weight. They bear an oval makers plate on the underside of the bedstone with the inscription 'W.J. & T.Child, Hull and Leeds'. Of the other floors, only the cross timbers remain. On the dust floor

are the remains of the sack hoist which was driven off the underside of the crown wheel (wallower) in the same manner as at North Leverton Windmill, Nottinghamshire, and not dissimilar to the drive in Berkswell Windmill, Warwickshire. The cap is of pitch pine and is in a very poor state. The traverse beams were sawn off short at the back of the cap as an easy way of taking the fantail down after the mill stopped working by wind. It is surmounted by a wood stalk and a hollow cast iron ball which makes up the attractive finial.

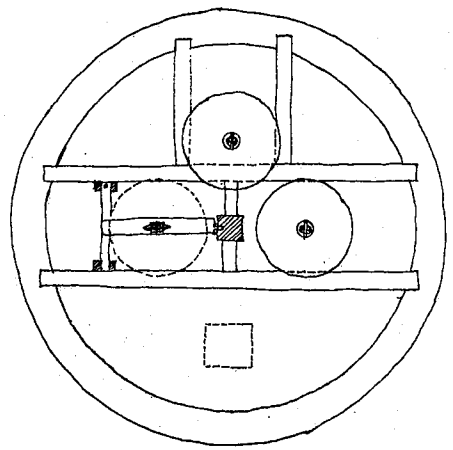


HALF SECTION NORTH / SOUTH

FEET 0 1 2 3 4 5 6 7

EVERTON WINDMILL, NOTTS. N

Plan of Stone Floor.



Bridging arrangement shewn for West stones only.

Feet 0 1 2 3 4 5 © J.W. '81

The Windmill in better days

Her tower was glossy black with well maintained gas-house tar and topped by her white ogee cap. She carried four double shade anti-clockwise patent sails with an approximate total sail area of 800 square feet. These were fixed onto a cast iron sail cross with a span of approximately fourteen feet. Her machinery was probably nearly all cast iron with some mortise gears. The stones were overdrift, as is usual in this part of the country. The steam engine drive came in underground from the adjoining building and then drove up to the spur wheel via a quant rising through two storeys. There would have been a cylindrical corn screen, probably on the bin floor, and a flour dresser, probably on the meal floor.

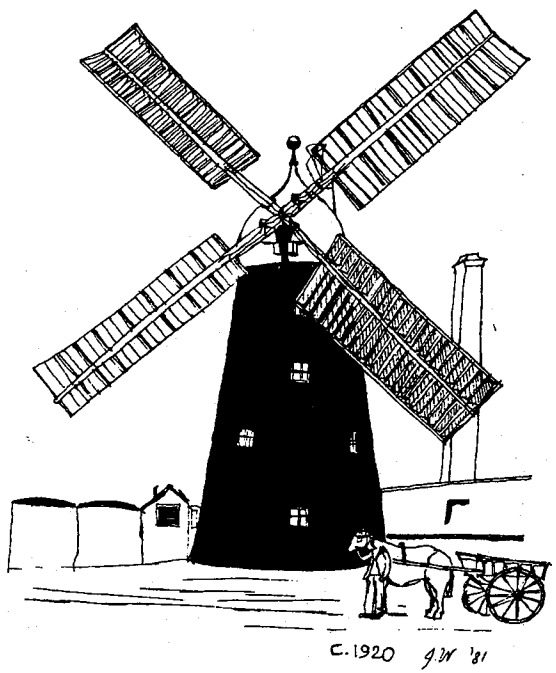
The Longbottom family only needed to work in the mill at busy times, as there was always a full-time miller, an apprentice and a carter. The following advertisement appeared in the Retford Times on 5th February 1904:

'Everton Flour Mill - wanted, a strong youth, about 16, as apprentice - to live in. Apply A.E.Longbottom. Everton, Bawtry.'

The Windmill today

The mill is a sad sight and it seems a pity that the County Council has not had the cap repaired. If it were done in the near future, the expense would not

be great and it would preserve a landmark visible for miles around. I am sure the owner, Mrs. N.Longbottom, would be most co-operative, as she has been with me. Visits to Everton would never be the same without the cup of tea and pikelet that always seem to be provided. My sincere thanks go to Graham Beaumont of Nottingham, who had the pleasure of getting to the top of the mill and measuring up the cap and floor levels which have provided the material for the scale drawings accompanying the article.



EVERTON WINDMILL, NOTTS.

Midland Wind and Water Mills Group Publications

The following publications are available from the Hon. Sec. John Bedington, 5, The Crescent, Bromsgrove, Worcs. B60 2DQ.

Warwickshire Watermills by D.T.N. Booth.
Published Oct. 1978. Reprinted June 1979.
95 pages, 25 photographs.
80p. to members, £1.40 to non-members (inc. postage).

Wind and Water Mills No.2
Published June 1981
48 pages, 18 drawings and maps.
Five articles.
60p. to members, £1.00 to non-members (inc. postage).