

STOKE ORCHARD MILL

F. RICHMOND



STOKE ORCHARD MILL

SO 917277

The existence of water mills has always attracted the Industrial Archaeologist and the mill at Stoke Orchard has had a special interest for the writer, consequently when time became available in 1977 the mill building and contents were measured and photographed, and later a search was made for documentary information concerning the history of the mill.

All the corn milling machinery including the water wheel had earlier been removed but it was thought worth while to record what was left of the building. This mill is rather smaller than other mills in the locality and had an internal overshot wheel which is unusual in this area.

History of the Mill

The earliest reference (1) to the existence of a water mill in Stoke Orchard is AD 1314, when the Earl of Gloucester's Manor had a water mill which at that date was described as old; the site of that mill is difficult to establish and may have been in the vicinity of the existing mill. The builder of the mill is not known, but there are a number of documents in the Manor records which show that the Beale family were active both in Stoke Orchard and at Swindon from around 1635. An Indenture exists dated 1805 between William Beale of Swindon and Richard Evans, farmer and miller of Stoke Orchard, for the purchase of the watergrist mill and bakehouse recently erected, all for the sum of £800 (2). This Indenture is followed by a Conveyance dated 1821 when the mill finally became the property of Richard Evans.

On the west gable wall of the mill is a stone bearing the date 1784; as no documentary proof has yet come to hand to confirm this date we must assume that the phrase in the Indenture "recently erected" must refer to the bakehouse and not to the mill.

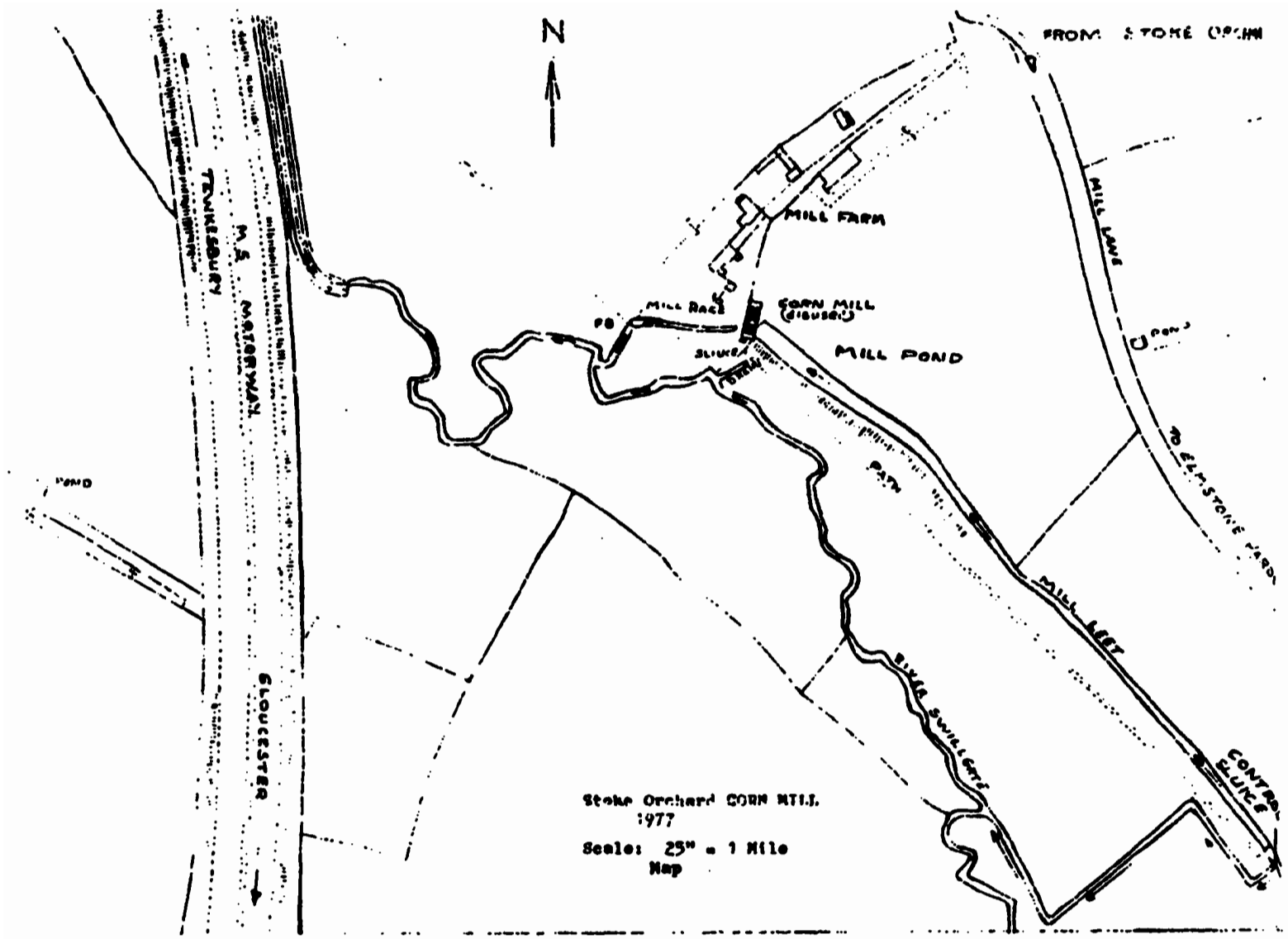
Richard Evans held the mill for the next 16 years, until his death in May 1821, and in his will he left all his property in trust for his grandson Richard Hone. In 1829 Richard Hone instructed Messrs. Moore of Tewkesbury to make an inventory and valuation of the mill and bakehouse, some examples of articles and their value are given: (3)

Bakehouse.

	£	s	d
1. Pair of dough scales and weights		3	6

Mill

1. Iron beam and pair scales, chains and weights	1	4	0
2. Sack cart		10	6



	£	s	d
3. Corn shovel, broom bellows, brush, oil can		3	9
4. Oak mill staff and level	1	6	0
The valuation of the mill is not given			

About the year 1840 Richard Hone installed a steam engine in or near the mill, the precise reason for this is not given, but it became common practise about that period to use steam power to boost the output from the mill, the steam engine being used to drive ancillary machinery such as winnows, sieves and crushers.

Richard Hone died in 1841 from injuries received in an accident involving the mill machinery, leaving all his property, including the mill, to his brothers, Edward and Henry Hone. (4,5)

Some six years later Edward Hone conveyed the ownership of the mill to his brother Henry, (6) and although the Hone family appeared to own the mill, the millers were tenants, the first on record being Samuel Chandler in 1863, followed in 1902 by A. Corbet who held tenancy until 1910 (7,8).

In 1902 George Hone instructed Messrs. Bruton and Knowles Auctioneers to sell the mill and adjoining lands; however there are no records of a sale being made. A second attempt to sell the mill and land was made in 1919, Mr E.W.Yend appears as the tenant, again there are no records to show if a sale was actually made. (9,10) From 1919 all mention of the mill and millers disappear from the Manor records and the Trade journals, but local information agrees that the mill was in use on rare occasions for the preparation of small quantities of cattle feed, and that a Mr.H Firkins owned the mill and farm from around 1923 until the present owner took possession.

Description of the Mill

The mill is a brick building with a tiled roof, three floors and basement, there are wooden window frames and very substantial roof timbers. There are three sections to this building, centre section which is the Mill proper, an eastern extension and a bakehouse with oven on the west end. The dimensions of the eastern and centre sections are similar except that the eastern section is 16'.5" (5m) long, while the centre part is 29'.3" (9m) long, 20'.0" (6.15m) wide, 16'.0" (4.92m) high to the eaves, 30'.6" (9.4m) to the ridge. The bakehouse measures 9' (2.8m) long, 20' (6.15m) wide, 12' (3.7m) to the eaves and 19' (5.85m) to the ridge; the oven dimensions are 11' (3.61m) long, 12'.4" (3.9m) wide, and as built 10'.6" (3.23m) high to the eaves. It is unusual to find Dormer windows fitted into water mills in this locality but there are two such windows in the north side of the roof where they give much needed light to the corn bin loading floor. When the east section was added to the mill the lower part of the east gable wall from the basement floor to the underside of the grain bin floor was removed leaving the upper part of the gable intact. As a replacement for the lower wall a transverse timber beam 14" square (360mm) was inserted between the north and south walls, the north end of the beam resting on a brick buttress, the other end built into the south wall.

Basement

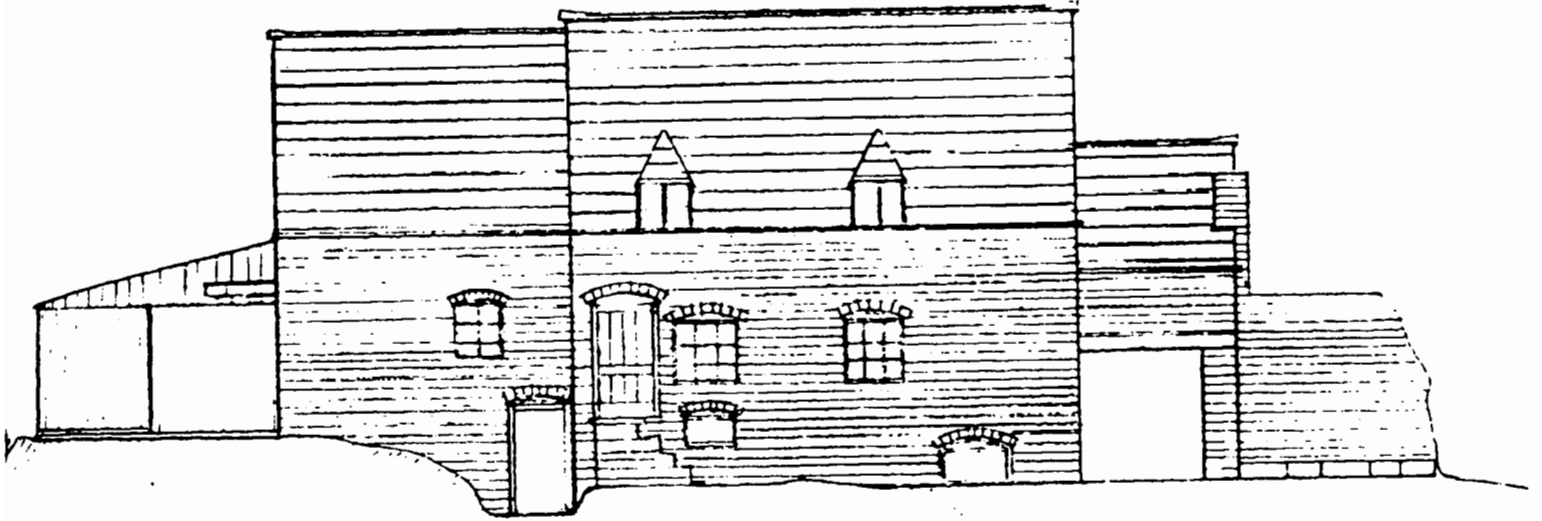
The basement is entered through the only door at ground level in the north wall, there being no access to any other part of the building from this floor (Fig.1). Paving stones 2" (50cm) thick and 2' (610mm) square, cover the entire floor leaving a working head room of 6'7" (2m)(Fig.6-8) In this area the mill stone driving gear was housed and separated from the wheel pit by a brick wall. Two heavy cast iron pillars set into the floor, and in the beams of the milling floor above, carried most of the weight of the driving gear. (Fig 6)

Milling or Stone Floor

On this floor near the wheel pit were two sets of 600mm diameter millstones driven from the gear in the basement, and placed near to these stones were the ancillary machinery, winnows, sieves, and crushers, driven from the line shafting, and fed from the overhead grain bins, the graded grain finally reaching the millstones, through one or more of these machines. Set over the south end of the wheel pit is the cast iron sluice box, the body of the box passes through the south wall where the outside end is sealed into the brick walls of the millpond. Water enters the box from the pond and is directed onto the water wheel through the water gate or valve set in the inside end of the box. Three doors give access onto this floor one door at each end and a central door in the north wall near the flight of wooden stairs leading to the floor above, over the grain bins. The head room over the milling floor is a little over 6'6" (2m).

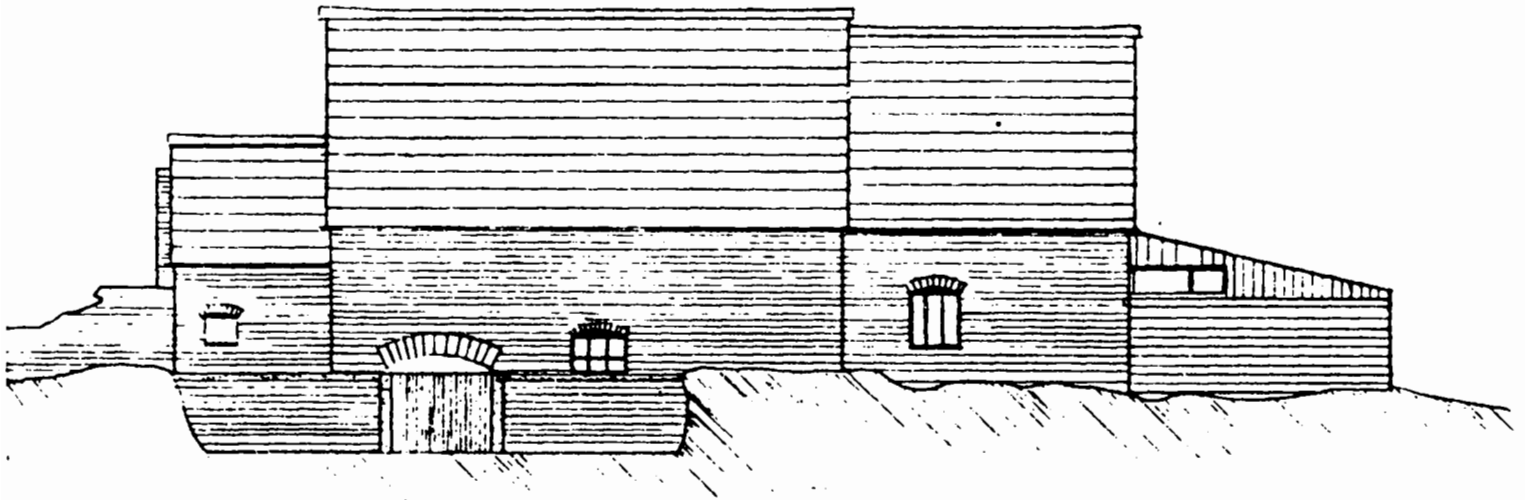
Grain Bins

There are six grain bins occupying the whole of the top floor, 3'6" (1.08m) deep and can be enlarged or reduced in size by the fitting or removal of separating boards which form dividing walls between the bins. The total bin capacity is some 3,036.70 cub.ft.(86m) (Figs 5-6) The bins are filled from grain sacks off loaded through the north door on the milling floor, then lifted by the sack hoist to the floor over the grain bins, and discharged over the edge of the floor into the open topped bins (p 1 & 2).



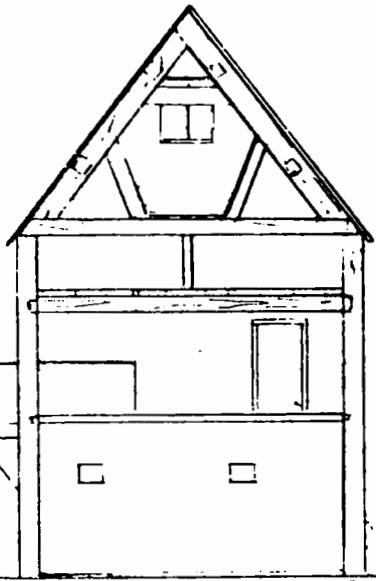
STOKE ORCHARD MILL 1977
NORTH ELEVATION

Fig. 1.

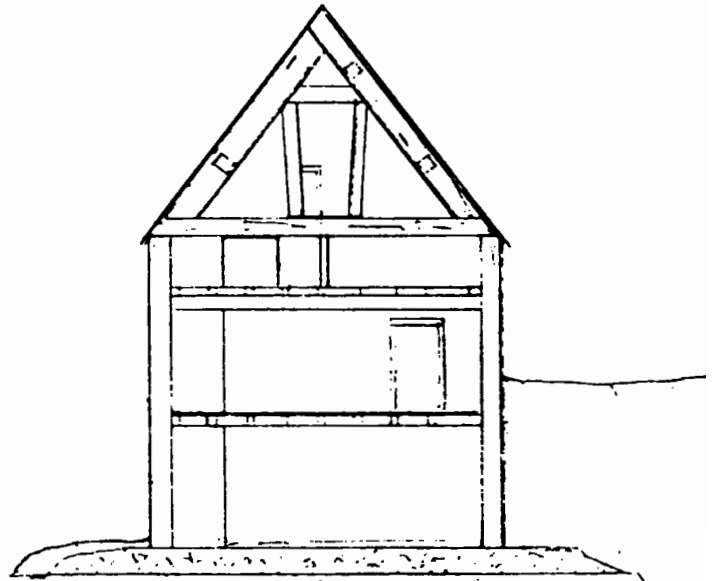


STOKE ORCHARD MILL 1977
SOUTH ELEVATION

Fig. 2.



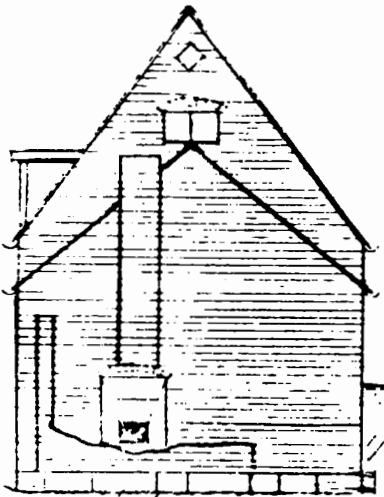
SECTION A A



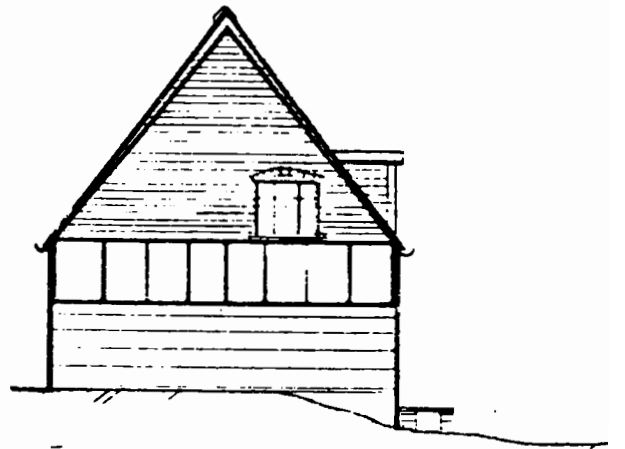
SECTION B B.

Fig 4.

STOKE ORCHARD HILL 1977

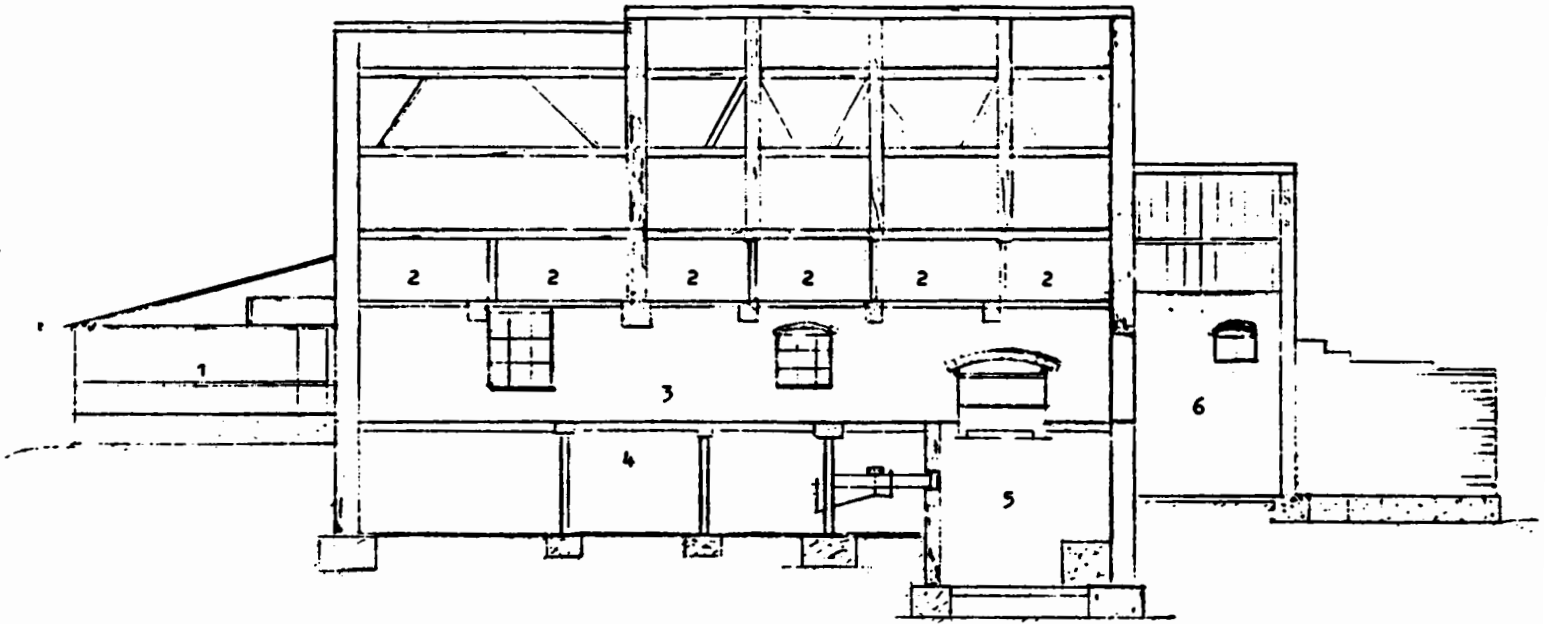


WEST ELEVATION



EAST ELEVATION

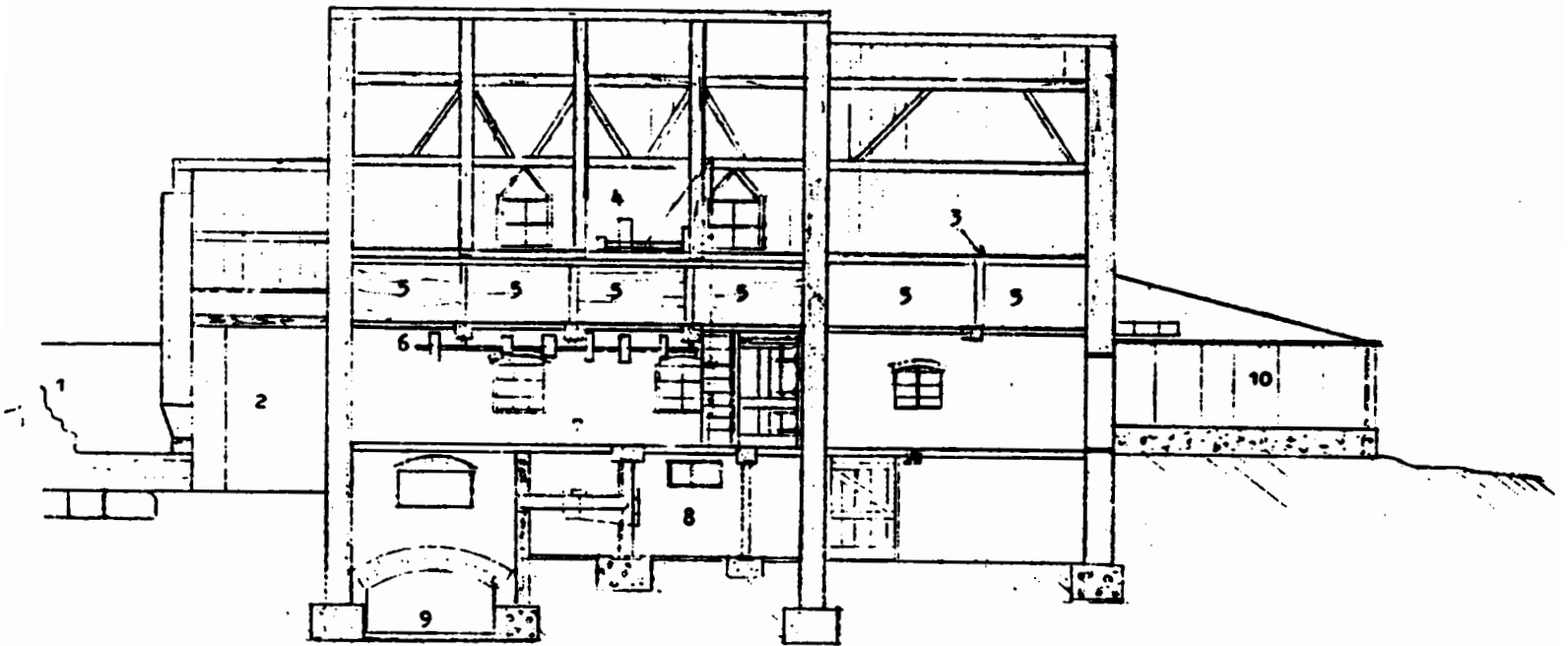
Fig 3.



SECTION LOOKING SOUTH

1. Corrugated Iron Shed 2. Grain Bins 3. Milling Floor 4. Basement 5. Wheel Pit 6. Bakehouse

Fig. 6.

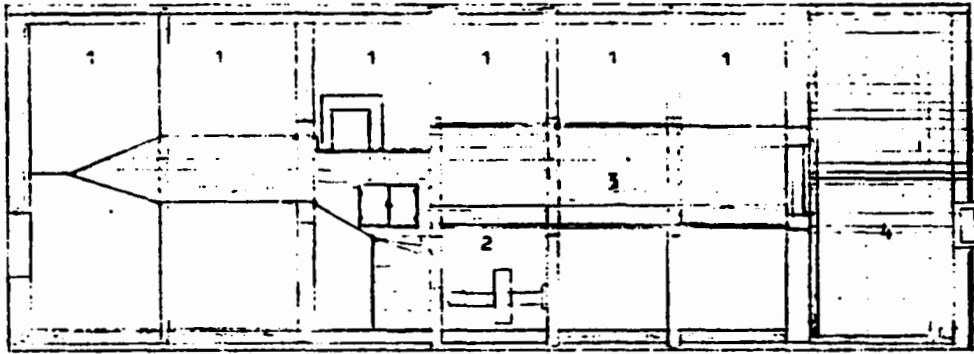


SECTION LOOKING NORTH

1. Collapsed Oven 2. Bakehouse 3. Floor Over Grain Bins 4. Sack Hoist 5. Grain bins 6. Line shafting
7. Milling Floor 8. Basement 9. Wheel Pit 10. Corrugated Iron Shed

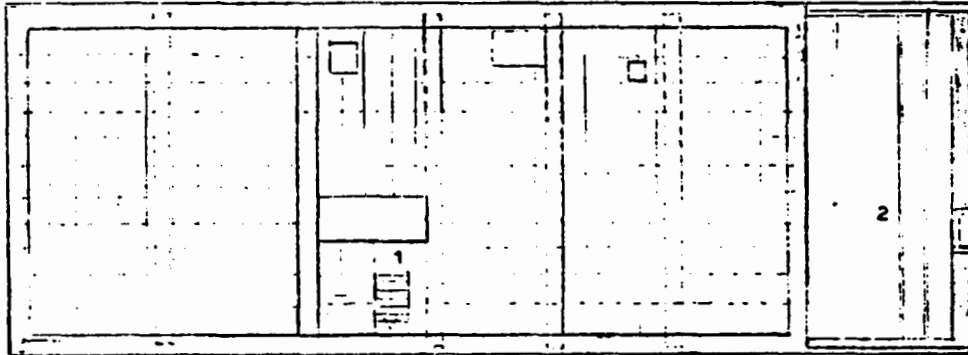
Fig. 5.

ATTIC PLAN



- 1. Grain Bins
- 2. Working Floor Over Bins
- 2. Jack Hoist
- 4. Bake House

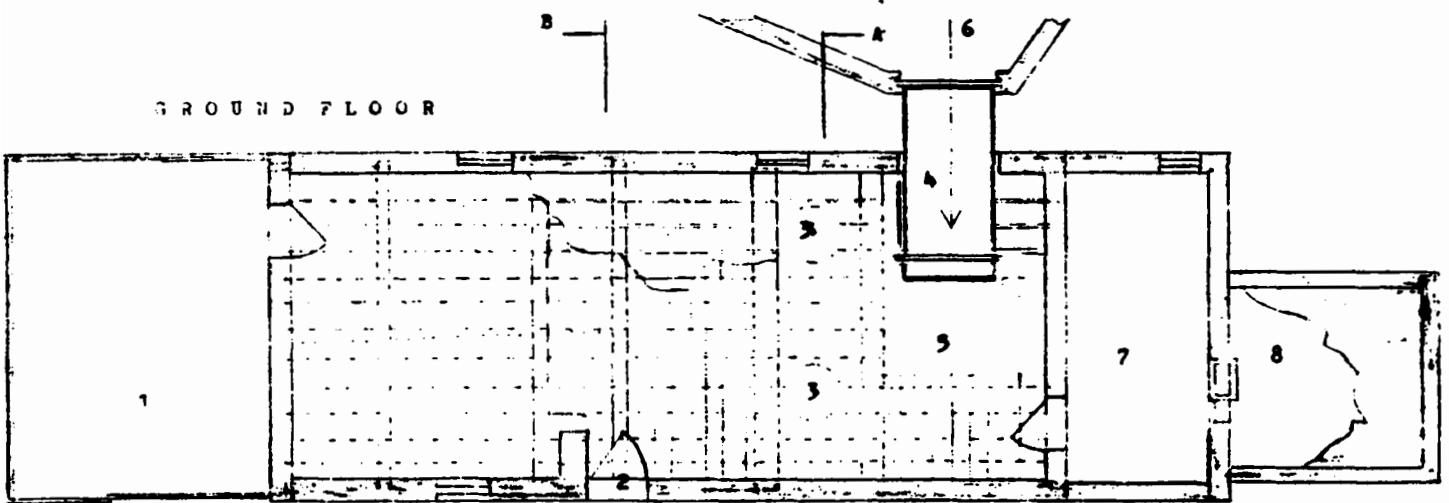
FIRST FLOOR



- 1. Access Steps From First Floor
- 2. Bakehouse

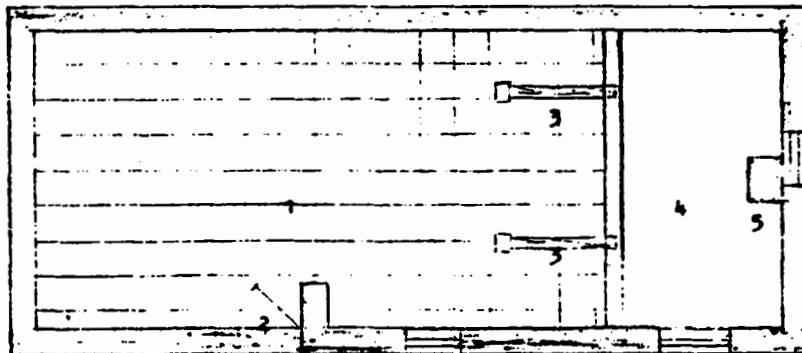
Fig 7.

GROUND FLOOR



- 1. Corrugated Iron Shed
- 2. Access Door For Grain Sacks
- 3. Original Position of Millstones
- 4. Sluice Tank Above Wheel Pit
- 5. Wheel Pit
- 6. Mill Pond
- 7. Bakehouse
- 8. Collapsed Bake Oven

BASEMENT



- 1. Floor Tiles
- 2. Access Door
- 3. Support Beams for Millstone Drive Gear
- 4. Wheel Pit
- 5. Concrete Block for Water Wheel Shaft

Fig 8

Lot 8

STOKE ORCHARD MILL

Comprising a comfortable dwelling-house, agricultural buildings, water mill, and about

25a. 3r. 26p.

of fertile meadow and superior pasture orcharding situate in the parish of Bishops Cleeve, and of which the following is a Schedule taken from the second edition of the Ordnance Survey:—

No. on Ordnance Map.	Description.	Quantity.		
		A.	R.	P.
157	Pasture orchard	6	0	0
156	Stoke Orchard Mill, dwelling-house, yards and buildings ...	3	4	
164	Pasture orchard	1	14	
165	Meadow... ..	2	25	
162	Pasture	3	0	8
166	Meadow... ..	7	1	8
168	Pasture	7	1	26
163	Mill stream	1	22	
TOTAL		25	3	26

THE DWELLING-HOUSE contains two sitting-rooms, kitchen, (partly oak panelled), back-kitchen, dairy, drink-house, five bedrooms linen closet, and—approached by back stairs—three storerooms. The buildings comprise a brick-built barn, with slate roof, trap-house, stabling for six (two loose boxes and two stalls) enclosed cowhouse, open shed, large wagon shed, with piggery and poultry-house attached thereto; a second range of piggeries and an ancient dovecot.

THE MILL, which is a brick building of three floors with tiled roof, drives two pairs of stones, chaff cutter, etc., and is fitted with bins, hoisting tackle and overshot wheel. Attached to the mill is a good bakehouse. The land is of very superior quality, and the meadow No. 166, in which is a washpool, can be irrigated.

The property is intersected by a road, and is bounded by lands of T. E. WHITAKER, Esq., and MISS MARSDEN. It is situate about 4 miles from Tewkesbury and about 4 from Cheltenham.

This lot is let with lot 9 to MR. W. YREND at a yearly rent of £65, and for the purposes of this sale the apportioned rent payable in respect of this lot shall be £60.

POSSESSION WILL BE GIVEN ON COMPLETION.

This lot is subject to tithe rent charge amounting according to the tithe apportionment to £7 8s. 8d. a year.

In addition to his purchase money the purchaser shall pay £62 for the growing timber.

of use the mill pond and race are both in very good condition.

Waterwheel Outfall

The water from the wheel discharges into the wheel pit and leaves the pit through a culvert built into the north wall of the mill below the ground level; from the culvert the water enters an open ditch before finally returning to the River Swilgate. (Map & Fig. 5)

Bakehouse and Oven

There is little to indicate that the narrow open fronted extension built onto the west wall of the mill is a bakehouse, except for the remains of the fire and bread charging doors and chimney, all built into the west wall of the bakehouse, which is also the end wall of the oven (Figs 6 8).

Mill Production

From what little information there is about the mill's machinery it is possible to compare this mill with other similar mills and determine a likely pattern of production which could be expected from its machinery. The size of the wheel has been found from the position of the axle tree bearing blocks and the depth of the wheel pit, and the maximum water flow calculated from the sluice box and water control gate sizes. In the absence of the gearing from the waterwheel to the millstones, average figures for similar gearing have been used to calculate the maximum revolutions of the mill stones (11).

Description of the machinery which may have been installed in the Stoke Orchard Mill.

1	Diameter of waterwheel	8' 0" (2.44m)
2	Width of waterwheel	4' 0" (1.22m)
3	Circumference of waterwheel	25' 1.44" (7.72m)
4	Revolutions of waterwheel per min.	9
5	Head of water	9' 0" (2.77m)
6	Available horse power at the axle tree	5 (max)
7	Gear ratio between waterwheel and mill stones	28-1 (average)
8	Mill stone diameters	2' 0" (610mm)
9	Maximum revolutions per min. of mill stones	252
10	Quantity of corn ground to fine flour per.hr. per. set of stones 2½ bushels.	
11	Production of Meal from 2½ bushels of corn at 60lb per bushel 150 lbs.	
12	Quantity of corn ground into coarse meal for cattle 5 bushels.	
13	Meal produced from 5 bushels of corn for cattle feed 300 lbs.	
14	Power required at each set of stones	- 2 horse power.

Acknowledgements

The historical searches into the records of the Stoke Orchard Manor were carried out under the guidance of Mr B.S.Smith, the County Archivist, at evening classes held at the County Record Office, and I am thankful to him and his staff for their kind help. Thanks are due to Mr Brookes, the present owner for his kind permission to allow me to measure and photograph the building and contents. I am indebted to Miss Cathetine Bennett of the Department of Medieval and Later Antiquities of the British Museum, for information on water mills and especially on the small country mills. My thanks also to Mr John Vince of County Books for his assistance in identifying parts of the Stoke Orchard Mill machinery.

References

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- 4 Tewkesbury early Register ii 36.
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- 6 " " " D269 A T55
- 7 Kelly's Trade Directory for Gos. 1863
- 8 " " " " " 1902
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- 10 Gos. Record Office DC/546
- 11 County Books (Discovering Water Mills).

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