

## WINDMILLS OF SOMERSET

Martin Watts

The essential process of milling corn for flour and meal was well established in Somerset long before windmills appeared in Europe sometime towards the end of the 12th century. The earliest types of mill were basically hand-tools and it was not until the Romans introduced water-powered corn mills into Britain that the process became more than a domestic activity. In the Domesday Survey of 1068 some 371 mills were recorded in Somerset, driven by animal or water-power, and only Norfolk and Lincolnshire had numbers in excess of this. From this time Somerset has gained a reputation for its watermills, while windmills have been given little notice, often being regarded as rather isolated examples of a primitive tradition. It appears from present evidence, however, that far more windmills have worked in the county than was originally anticipated and the study of these is of value in giving a wider view of the agricultural background of Somerset and a specific look at some fascinating and unique structures and mechanisms.

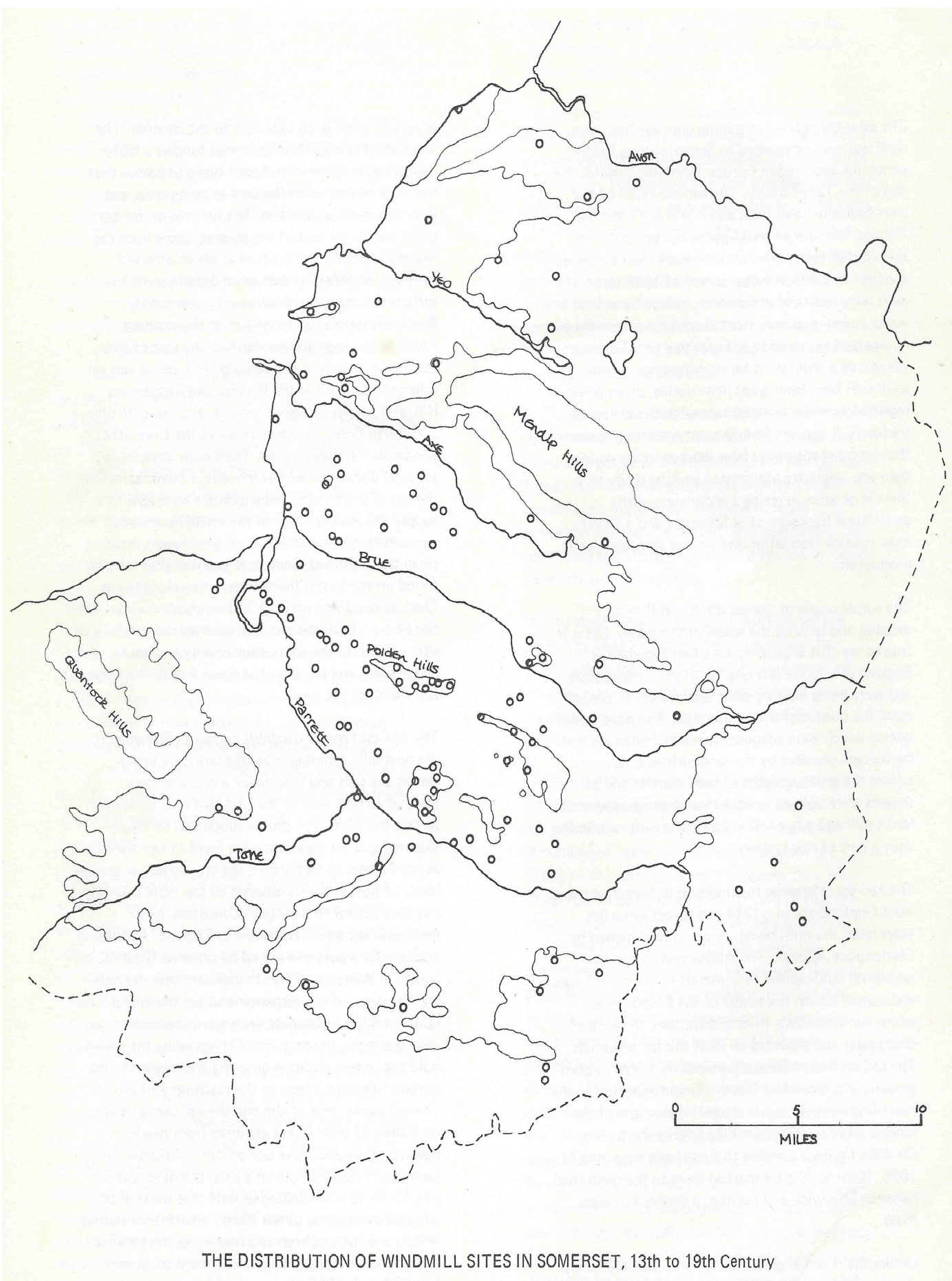
The actual origin of the windmill is still much debated and beyond the scope of this paper, but it is true to say that windmills were first recorded in England during the last quarter of the 12th century and were being built by great landowners to supplement the output of their watermills. The hand-powered querns which were adequate for domestic needs had been made obsolete by the landlords who now controlled the grinding rights of their manors and all tenants were obliged to have their grain ground at the lord's mill and pay a toll in kind. The early windmills were a part of this system.

The earliest references to windmills in Somerset come from Glastonbury in c.1244 and Street some ten years later, the mills being set up on land owned by Glastonbury Abbey<sup>1</sup>. The Abbey was one of the wealthiest land-owners in Somerset in the middle ages and owned almost the whole of the Polden Hills, which run westwards from Glastonbury to north of Bridgwater and provided an ideal site for windmills. The soil on these hills was particularly suited to corn growing and lack of surface water and exposure to the prevailing westerly winds made this area one of the longest established windmilling sites in the county. On John Ogilby's London to Barnstaple road map of 1675, 10 windmills are marked close to the main road between Shapwick and Puriton, a distance of eight miles.

Unlike the steam engine and the later 'flexible' power sources, windmills and watermills needed to be well-sited; a watermill cannot function without a regular and easily maintained water supply and similarly a

windmill needs good exposure to the weather. The location of windmills in Somerset follows a fairly logical pattern, the main factor being of course that the mills were sited in the corn-growing areas and near to centres of demand. The best region for corn crops was to the east of the county, away from the 'watery vapours' of the Channel which affected ripening, an area of higher ground well-served by surface streams and, consequently, watermills. Windmills were sited, however, on the exposed slopes of the high ground, both to the east of the county and north of the Mendip Hills, but it was on ridges of hill, such as the Poldens and Sedgemoor Hill, and islands of higher ground, as around Wedmore and North Curry, which rose above the Levels that windmills were well suited. The Levels were subject to flood during the winter months, a factor affecting the use of watermills, and windmills were able to supply the milling needs of the small, essentially agricultural communities which grew up on these small tracts of land. Some low exposed sites are also found on the Levels themselves, often close to the Channel coast and only 10-20 feet above sea level. As can be seen from the distribution map the majority of sites are within the area of the county known as Sedgemoor, and between the rivers Axe in the north and Parret in the south.

The earliest type of windmill known in Somerset is the post mill, a timber, box-like structure which carries the sails and machinery and pivots on a massive vertical post so that the sails may be turned to face the wind. The post is supported by four diagonal quarter bars which are fixed to two timbers at right angles to each other, the cross trees, at ground level. Of post mills in Somerset all too little is known but they appear to have been consistent with mediaeval windmills elsewhere in England. A building account for a post mill set up by order of Glastonbury Abbey at Walton in 1342-3<sup>2</sup> indicates that the mill was the work of the carpenter and the smith and built from local materials. Iron was expensive and so used sparingly, the only iron fittings being the nails to hold the timber cladding onto the frame and the important bearing surfaces in the machinery of the mill. The sail backs were of elm and the sail canvas was set on frames of alder stakes gathered from nearby marshes. The sails drove one pair of millstones, an item which cost 27/- out of a total building cost of £11.12.11. It is interesting to note that most of the windmills belonging to the Abbey were let for money rentals and their upkeep and repair was the tenants responsibility. The annual rent of the Walton mill was £3.0.0. in 1358, thus in the 16 years since it was built the Abbey had had their money back four times. Illustrations of mediaeval post mills show them to



THE DISTRIBUTION OF WINDMILL SITES IN SOMERSET, 13th to 19th Century

have been of small stature with straight-pitched gable roofs and short, broad sails. A good 15th century wood carving of such a mill can be seen on a bench end in the church at Bishops Lydeard.

Although it is probable that post mills continued to work in the county until at least the beginning of the 19th century, no actual illustrations are known and so whether they possessed any regional features is not known. Remains of the substructure of early mills have been found through archaeological digs. A mound at Chedzoy was excavated in 1908<sup>3</sup> and found to contain a 'decayed oak beam', perhaps a main post. In a more recent dig at Butcombe, 1946-7<sup>4</sup>, traces of a 13th century post mill were found, the substructure having been built into a barrow. Iron nails, from the cladding, sandstone roof tiles and pieces of millstone were also found. The substructure of post mills was sometimes dug into or buried in a mound, presumably to increase stability and facilitate access to the working part of the mill. The incomplete substructure of another sunk post mill was uncovered near Chedzoy in March 1971 when a mound was excavated in the path of an M5 access road and the oak timbers were removed to be preserved. It is important to realise that while Somerset is not now thought of as a wooded county, oak trees were far more common in the middle ages and the timber could be felled and transported at the lords expense on any part of the manor if not available on site.

In the 16th century the power of the abbeys and manors began to decline and many Windmill sites appear to have been allowed to run down and to be finally abandoned by the 17th century when early enclosures and a new form of administration began to alter land use. Many of these sites can still be traced on current OS maps by names such as 'Windmill Hill' or can be found in the field marked by small mounds. The upkeep of timber structures so much at the mercy of the weather became more difficult in areas where suitable timber was becoming scarce and the building tradition was predominantly in stone. Also during the 17th century more land was being given over to pasture through enclosure and the systematic draining of the Levels. It is interesting to note that windmills were not used to pump water, except in one or perhaps two isolated instances, although the situation and exposure of the Levels would seem to indicate the suitability of drainage mills as used in East Anglia and the Netherlands. Perhaps this is an indication also that the timber-framed and clad smock mill, originally introduced in drainage work, was beyond the natural and economic resources of the region.

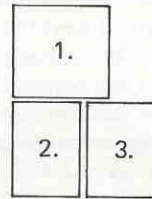
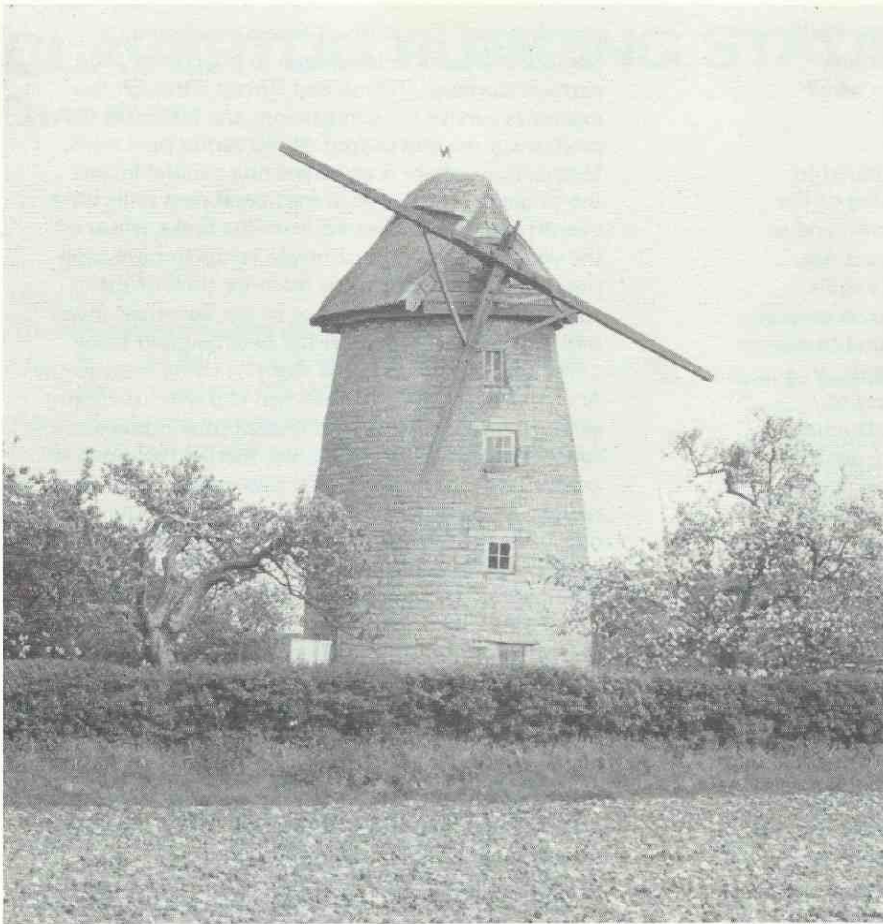
By the middle of the 18th century the tower mill form had appeared in Somerset. The tower mill was known in Europe early in the 15th century but does not appear to have become widely distributed until the 18th century. In general it offered a more stable structure than the post mill and the masonry tower gave more storage and work space, a growing necessity with the decline of the Abbey barns and granaries, and only the cap and sails had to be turned

into the wind. The form of tower mill found in Somerset appears to be unique to the county, and perhaps Cornwall, Devon and Dorset although few examples survive for comparison, and possesses the modest stature and output of the earlier post mills. Mechanically there is an interesting parallel in that the single pair of stones in mediaeval post mills were overdriven, directly geared from the brake wheel on the windshaft and this principle seems to have been simply transferred into the masonry shell of the tower mill. The actual origins of the Somerset tower mill are again obscure, but the parallel-sided tower, often with a short external slight of stone steps to the first floor level, and the thatched cap with its simply geared hand-winding is reminiscent of windmills found in the Mediterranean, the Iberian Peninsula and Brittany. Elsewhere in Britain and Europe the tower form was used to develop the efficiency and output of the windmill. The exact nature of the mechanical layout will be dealt with later, with reference to particular mills.

The windmills of Somerset were never the work of millwrights and engineers, but of carpenters, smiths and masons, no doubt descendants of the men who built the Walton post mill in 1342, and thus the structures and machinery never achieved the degree of refinement typified by windmills in east and south east England. This is consistent with their purpose of answering local needs rather than those of urban areas; they were literally country mills and it was the watermills, with their open, flexible workspace and more reliable source of power, which were supplying the bigger towns of the county and were the work of millwrights and iron-founders. Similarly the windmillers were a distinctive breed of men, often related to each other by blood or marriage, who moved from mill to mill or ran their milling businesses with a brewery, bakery or farm as well and worked the same mill for generations.

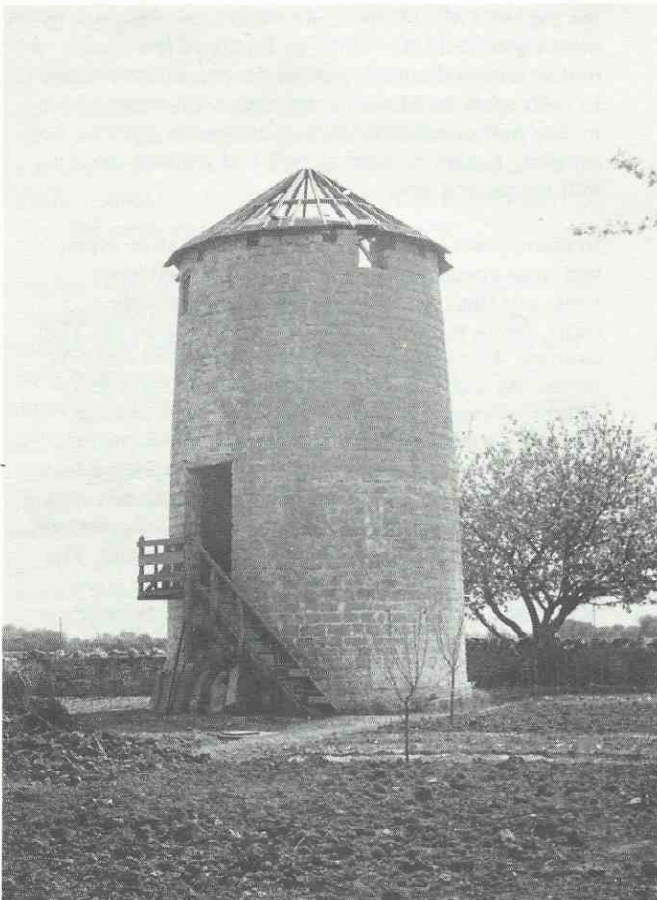
In many cases tower mills were built on sites which had been occupied by windmills since mediaeval times but their working life was comparatively short, many stopping work by the middle of the 19th century. The change from arable to pasture was ever increasing and a series of bad harvests in the 1850's-1860's encouraged further decline in crop acreage. After the Repeal of the Corn Laws in 1846 cheap grain began to flood the market, being imported from the Americas, and it was more economic to mill it at the port of entry; large steam-powered mills were set up in the Bristol Channel ports for this purpose. The railways had opened up the countryside to a great extent and trades people began to think less locally and, through improvements in iron-founding and the widespread use of steam-power, mass-produced milling products were inevitable and so the country mills declined. Of the few windmills which worked on until the end of the 19th century, few worked by wind alone, steam engines being introduced to turn the machinery on windless days, and most of the orders were for animal foodstuffs. The basic rural practice of milling flour for man's bread had become automated urban activity.

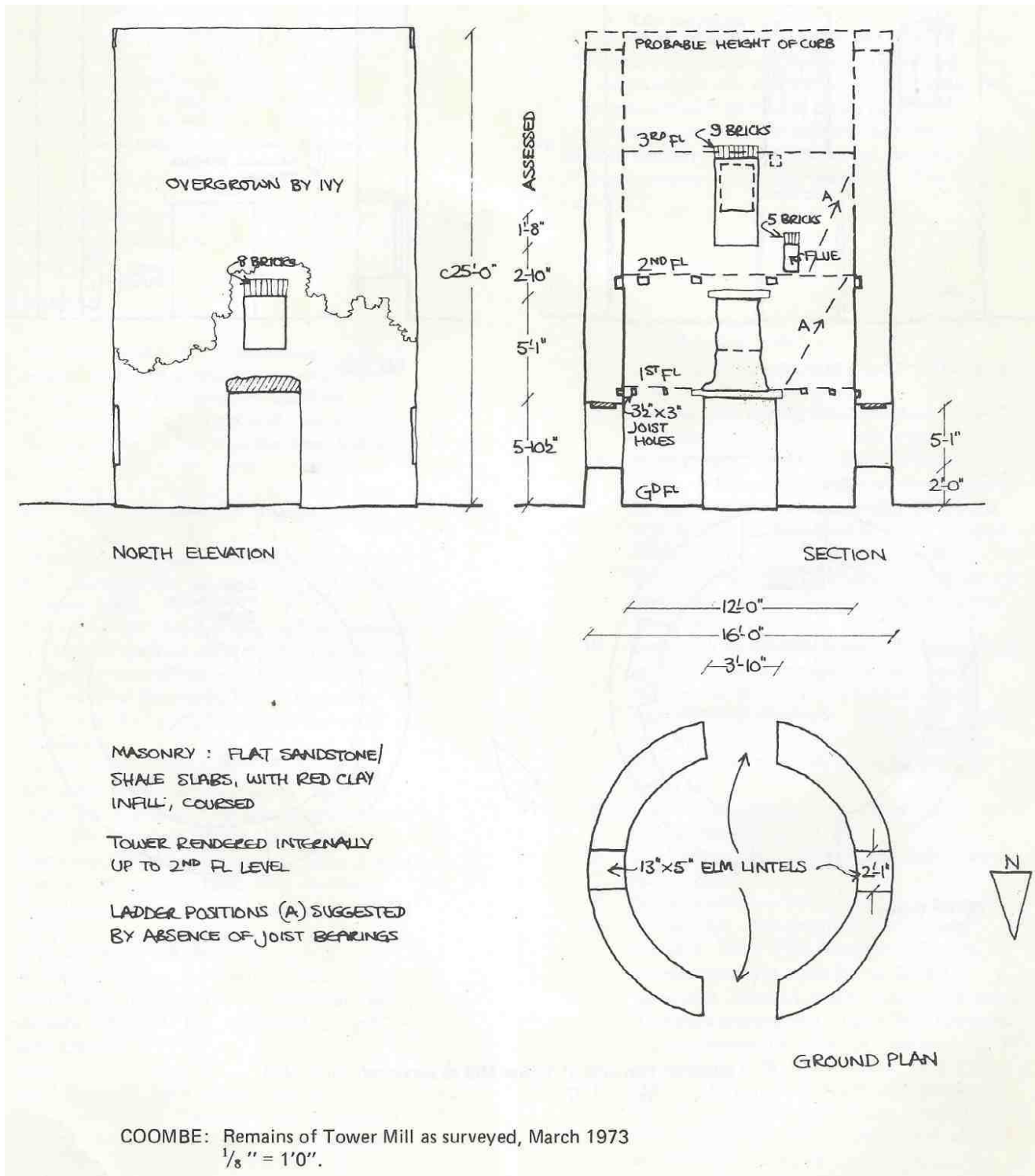


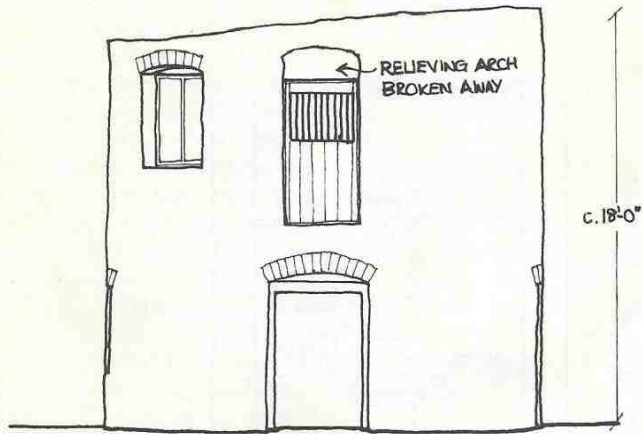


1. Stembridge Mill, High Ham  
Before Restoration
2. Watchfield Mill
3. Ashton Mill  
Chapel Allerton

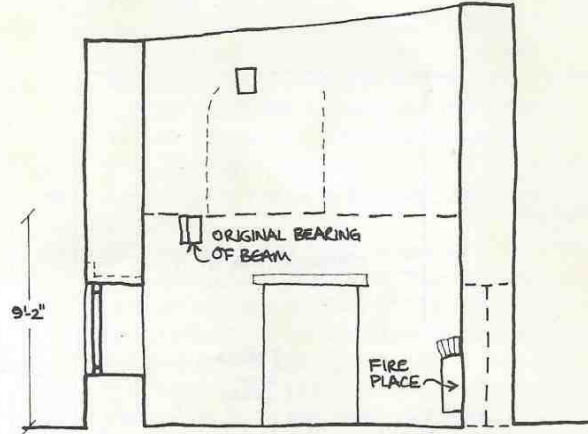
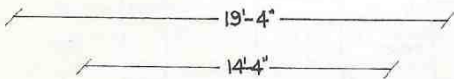
Photographs by Roy Day



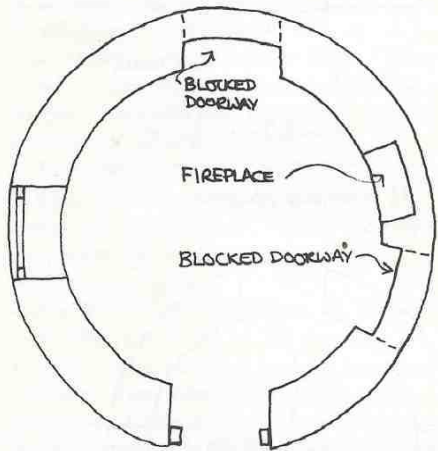




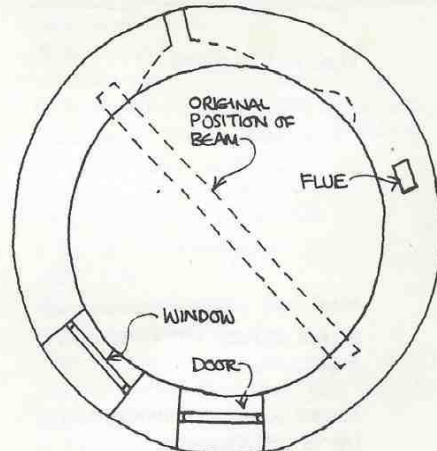
SOUTH EAST ELEVATION



SECTION



G.F. PLAN



1ST F. PLAN

KENN: Remains of Tower Mill as surveyed, June 1973  
 $\frac{1}{8}'' = 1'-0''$

Although much work is still to be done to compile a full list of windmill sites in the county and to correlate them chronologically, field work is an important part of any such study and the recording of remains has become even more urgent because of increasing 'motorway' activity in the county and the fact that two windmill towers have been demolished and a mechanically intact mill lost in the last thirteen years. There are now in existence the remains of 15 stone towers and two complete windmills have been preserved (many other counties have none), both of which are valuable in that they illustrate quite independently the structure, form and mechanical layout most typical of this region.

## **THE DEMOLISHED MILLS**

### **HEATH HOUSE ST 421469**

The last windmill to work at this site was built c.1775 and worked by wind until 1900, when a mid-summer whirlwind damaged the cap and sails. The mill was known as 'Westfield Mill', latterly as 'Heath House Mill' and was a stone tower mill with a reed thatched cap turned by chain winding gear and similar to Ashton Mill. Four common sails drove one pair of 4'6" French Burr stones by direct gearing from the brake wheel. The mill was evidently powerful and efficient and in keen competition with its neighbour, Ashton Mill.

On site are the remains of a pair of millstones and mill house, much rebuilt after a fire in 1856. A blue and white enamelled sign of "William Tucker, Corn & Cake Merchant", the last miller and owner who died in 1902, can be seen on a gable end. The windmill tower itself was pulled down by tractor on February 1 1962, having been derelict and unsafe for some time.

### **WOOLAVINGTON ST 347407**

The site of this tower mill is now obscured by a housing estate built since its demolition in 1967 and the only visible evidence of its location is the use of 'windmill' in some street names. The mill tower had been roofed and used as a dwelling since the 1930's. Like Heath House this windmill had worked with a single pair of overdriven stones and was an interesting survivor of this early tradition.

## **THE REMAINS**

### **BROCKLEY ST 473661**

A windmill was recorded in the parish in 1529<sup>5</sup> but the remains of the tower mill now standing in Brockley wood are of late 18th-century date. The north side of the tower is standing to a height of 18'-20' but the south side has collapsed and much rubble fills the original ground floor level. The tower is of a large diameter for the region, 16'9" internally with 2'6" thick rubble walls and is unusual in that it has a pronounced convex batter.

### **COOMBE ST 265295**

The complete parallel-sided shell of this tower stands

in a wood and is much overgrown by ivy. The tower is typical of the county, about 25' high to the curb, 12' inside diameter with 2' thick walls of coursed sandstone and shale slabs. It has two opposite doorways at ground level and structurally weakening vertical openings over at first and second floor levels. This windmill was at work early in the 19th century, perhaps going out of commission about 1850.

### **CURRY RIVEL ST 388264**

The base of 'Willtown Mill' stands on level ground to the south of the village to a height of 9' above the present ground level, although this has been raised since the mill was at work. The tower is well built of squared and coursed lias blocks and it seems possible that the natural tendency for the lias building stones to break into rectangular blocks has to some extent dictated the building form, the parallel-sided tower being more easily constructed.

### **FELTON ST 515649**

This is one of the few windmill sites north of the Mendips, the tower standing on Broadfield Down, an exposed location above the 600' contour. The tower is of early 19th century date and worked until the 1880's when it was converted to a dwelling by the addition of a kitchen and a conical tiled roof. It is a short, thick tower now some 20' in height.

### **HUTTON ST 361589**

A windmill was recorded in the parish in 1309, but the tower mill was probably built early in the 19th century. In 1817 William Hookway is recorded as the occupier and he built the windmill cottage and enclosed part of the hill as a garden. In 1845 Samuel Sargent advertised the property for sale as a lucrative milling and baking business, but the mill stopped work about 1864.

In the 1920's the tower was very derelict and was much rebuilt to a height of 18' in the 1940's. It has parallel sides and an internal diameter of 12'6".

The mill is impressively sited with views over Weston Bay and the Mendip Range and in the early 19th century it would have been possible to see windmills at work at Uphill, Worle Vale and Worle Hill from Hutton Mill.

### **KENN ST 411696**

An inscribed stone built into the tower dates this mill from 1821 and it appears to have been the first Windmill to occupy this site. By 1883 a steam engine was in use to supplement the wind-power and it is likely likely that the mill was situated too low on the Levels to be successful by wind alone. The tower was truncated and thatched by 1900 and out of use as a windmill. During the second world war it was used as a Home Guard Lookout.

The tower is about 17'6" high, 14'4" inside diameter with 2'6" thick rubble walls. A heavy beam was originally in place across the diameter of the tower at first floor level, supporting the weight of the



machinery above. At ground floor level there is an open fireplace, the flue of which goes up to the curb within the thickness of the wall, a not uncommon feature in Somerset mills.

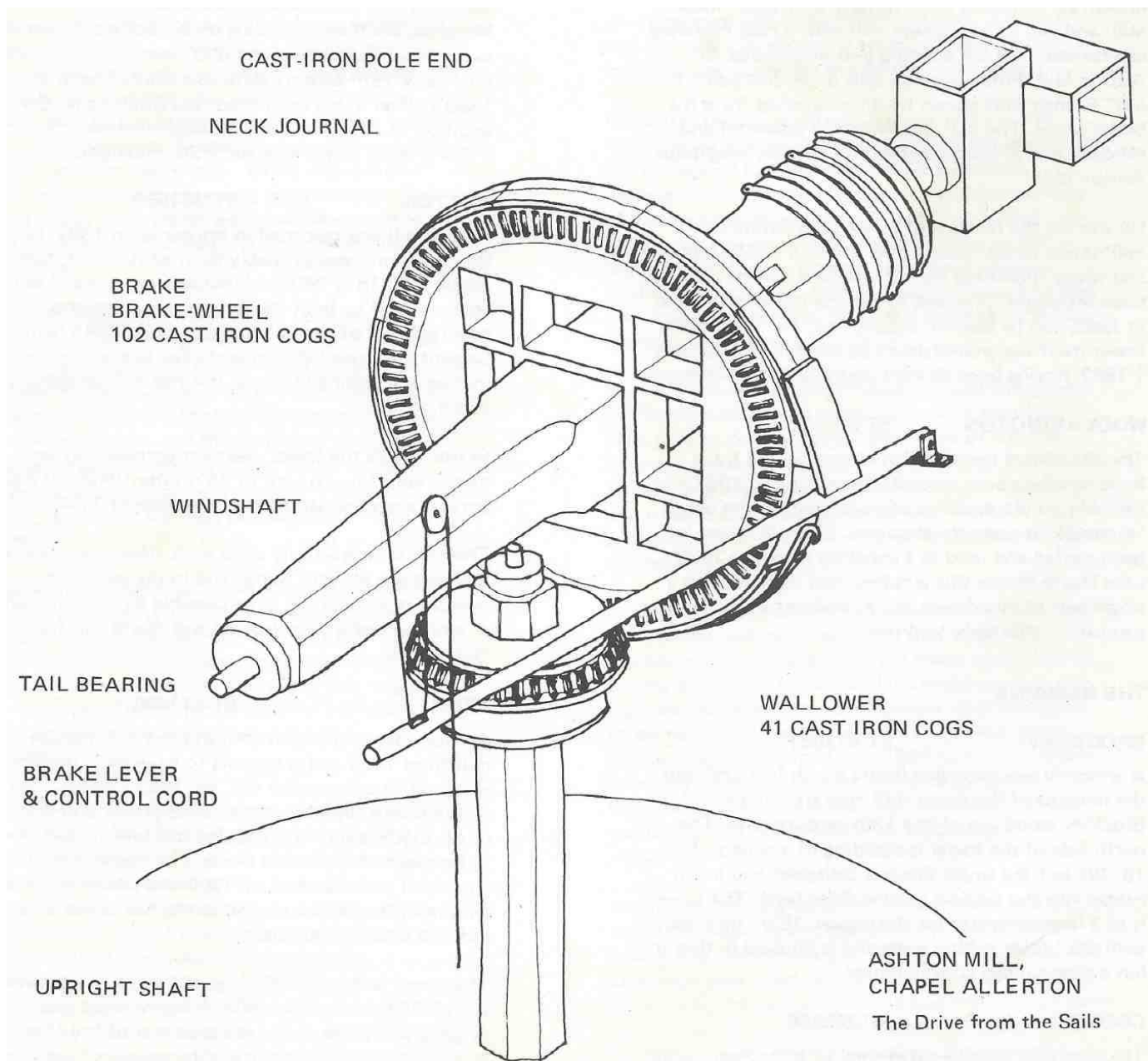
# **PORTISHEAD ST 458767**

Portishead windmill was built on land belonging to Bristol Corporation in 1832 by one John Nesbitt, miller, who leased it at a rental of £3 per annum and it was apparently intended to compensate for the loss of the tide mill in the town. By 1846, however, the windmill was out of production, being unable to pay its way against competition from a steam mill set up in the town, and in 1848 permission was applied for and granted to remove the machinery and turn the mill tower into a two storey dwelling to provide additional accommodation to the tenant of the mill cottages. In 1908, when the golf links were laid out the tower was incorporated into the clubhouse.

Perhaps because of its strange history and the fact that it was the last windmill to be built in the country, Portishead Mill is not typical in form of other Somerset windmills. The tower is 22' high and has a straight taper of about 5°; it has an external diameter at the base of 21'.

# **SHAPWICK ST 425374**

Although the Polden Hills provided some of the earliest windmill sites in the county, visible evidence is scarce and the only tower mill remains are at this site where a 4' high coursed lias block wall built into a mound can be seen. The original diameter of the tower at ground level was 15' internally. Windmills are recorded at Shapwick from the early 1330's and a post mill site is known on the opposite side of the road junction close to this mill. The tower mill appears to have been at work, but using steam power only, late in the 19th century.





## **STONE ALLERTON      ST 406515**

This stone tower mill, known originally as 'Weare Mill', was built in 1760 and worked until the end of the 19th century. The tower is of similar size and structure to Ashton Mill, but is raised on a 5'6" high circular mound 33' in diameter. This gives more height to the tower and the sails could be set or furled from the platform which also prevented animals or children straying too close to the sails when the mill was at work. The tower and the nearby miller's cottage were incorporated into a new dwelling built in 1910-11 and a 4'6" diameter French Burr stone has been used as a front doorstep.

## **UPHILL                      ST 317583**

The truncated tower of this 19th century windmill is now used as an observation platform, its exposed site giving good views over Weston Bay and the Bristol Channel. The parallel-sided tower is built of random coursed limestone blocks, is 17' high to present parapet level, 12'4" inside diameter with 2'6" thick walls. This mill does not appear to have been at work after the 1850's.

## **WALTON                      ST 462352**

A stone inscribed IT 1792 was rebuilt into a fire-place in the tower when this mill was converted into a dwelling by the Vicar of Westonzoyland in 1926. The mill was one of two which worked solely by wind into the 20th century, finally stopping work sometime between 1906 and 1910. The last miller was Charles Phillips, who ran the mill with a bakery and grocery business from about 1890.

The parallel-sided tower is 21' overall diameter and over 30' high, although the parapet has been added, and is the largest surviving tower in Somerset. An old photograph shows the mill with a thatched cap, chain winding gear, and four common sails which are braced to each other between the stocks. 3 French Burr stones are embedded in the ground outside the mill, two of 4'6" diameter, one of 4'2" diameter, and it is probable that the mill drove at least two pairs of stones.

## **WATCHFIELD              ST 348470**

Structurally the tower of this windmill is one of the finest in the county, built of well coursed lias blocks and having a slight convex batter, giving an elegant profile. The tower has opposite doorways at first floor level, a typical regional feature which can tend to weaken the structure and cause distortion at the curb, but the windows above are spiralled around the tower to offset this. The tower is 26' high with an internal diameter at ground level of 12' and 2' thick walls.

This windmill worked continuously for at least 100 years, stopping work about 1918. For many years it was milled by John Spearing, who had worked for a time at Heath House, and in the 1890's a steam engine was introduced and his son, Frank, took over the running of the mill, by wind and steam.

## **WEST MONKTON      ST 255293**

While this tower, which has been incorporated in a 19th century house, has features typical of Somerset windmill towers there is as yet no further evidence to support its existence as a mill. The tower is 18' high, 11'11" internal diameter with rendered walls 3'6" thick.

## **WORLE HILL              ST 352632**

A windmill was recorded on this site, an exposed location on the east end of Worlebury Hill, in 1760 and in 1870 was advertised for sale or rent with a bakery business also. The windmill contained 'one pair of stones, two dressing and smut machines'<sup>7</sup> and was in complete repair. The vendor was William Rogers who had run a milling and baking business there for 30 years. It appears, however, that Miller Rogers did not find a buyer or tenant for the mill is not recorded in use after this date. It was converted to an observatory shortly afterwards, a parapet being added, and it still affords fine views over the Bristol Channel.

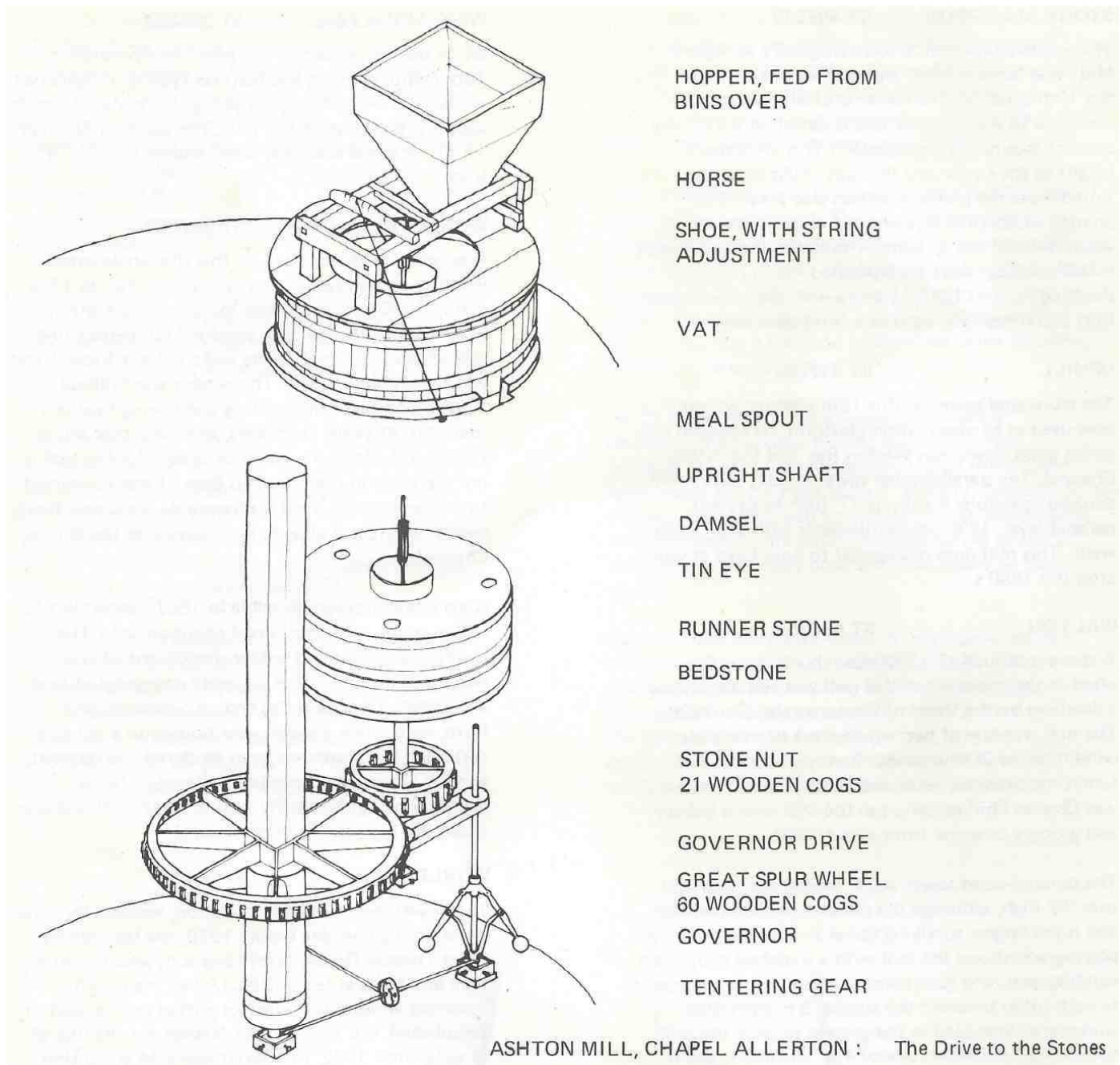
A valuable photograph made in 1867<sup>8</sup> shows Worle Mill at work with four broad common sails. The tower is parallel-sided with a short flight of steps leading up to one of the opposite doorways at first floor level. The cap is the typical Somerset gable form, with chain winding gear housed in a tail-box. Although the tower has been rendered and painted and the floor levels have been altered, it has a diameter of 12' internally at first floor level and was about 26' high to the original curb.

## **WORLE VALE              ST 359617**

This tower mill, like that at Walton, worked by wind alone until sometime before 1910, the last millers being Thomas Quick, father and son, who milled at Vale Mill from at least 1870. Unlike many other Somerset windmills it was not gutted and re-used or demolished, but stood intact, except for the loss of its sails, until 1962. In 1960 it was sold at auction and fetched the princely sum of £850, with two acres of land adjoining. Views were expressed at the time that the mill could be made to work again but sadly on the 28 July 1962 the mill was gutted by fire. The tower stood derelict until the late 1960's when it was incorporated in a new dwelling house.

The mill was visually typical of Somerset tower mills being parallel-sided with a gable cap and chain winding. The cap was covered with corrugated iron, presumably replacing thatch sometime towards the end of the 19th century. The mill had four common sails which drove two pairs of 4' diameter French Burr stones, underdriven by spur gearing on a pitch pine upright shaft.

The loss of this windmill in 1962 seems of much significance today for it would have stood well with Ashton Mill and Stembidge Mill to represent Somerset's windmills although it should be added that the region is indeed fortunate to possess two preserved windmills and indebted to the enlightened individuals who have ensured their survival.



ASHTON MILL, CHAPEL ALLERTON : The Drive to the Stones

## THE SURVIVORS

### STEMBRIDGE MILL, HIGH HAM ST 433508

This windmill, built in 1822, is now unique in England in that it alone retains a thatched cap, a feature that many windmills, particularly in Somerset, once presented. Stembidge Mill is built of random-coursed blue lias stone and stands 26' high, raised on a circular mound similar to Stone Allerton. The ground floor, which was used for storage, is entered through the mound and a short flight of steps leads up from the top of the mound to the working part of the mill, there being no internal access from ground level. The tower of the mill has a slight convex batter, being narrower at the curb, and the colour of the stone and thatch combine with this form to make this mill the most elegant in the county.

The mill was built to replace an earlier tower mill which stood nearby and it worked by wind until 1897-8 when the cap jammed, possibly due to distortion of the curb.<sup>9</sup> The four common sails, replaced in 1971, drove two pairs of 4' diameter stones by spur gearing from a short upright shaft, although this gear has since been removed. One pair of stones are French Burrs and the other pair, one French and one Welsh, were underdriven by steam power after the mill stopped working by wind. The steam engine drive shaft and cast iron bevel gears, one with wooden cogs, are still in place. The French stones have balance weight pockets let into their plaster backs, patented by Clark and Dunman in 1859. On the meal floor below the stone floor is a wire machine, for dressing flour.

Stembridge Mill represents mechanically two stages in the development of Somerset tower mills, containing the overdrift two-step two pair layout, although at present incomplete, and the later underdrift steam engine drive.

## ASHTON MILL, CHAPEL ALLERTON ST 414504

References to a windmill in the Manor of Allerton date back to 1492 and in 1549 an indenture was made for the 'rebuilding of a windmill'<sup>10</sup>, perhaps a post mill which may have occupied the site where Ashton Mill was built in the second half of the 18th century. A timber beam in the mill bears the date 1799, but the mill was standing before then.

Ashton Mill is typical of the parallel-sided tower form, 25' high to the curb with an internal diameter of 12'3" and 2' thick lias stone walls. The ground floor of the mill is built into a mound and is entered at this level on what is effectively the lee side of the tower. Access to the working part of the mill is by an internal ladder from the ground floor, but was originally by short flights of stone steps which led up outside the mill to two opposite doorways; these were removed when the mill was refitted early this century. The placing of doorways opposite each other and windows directly in line vertically does tend to weaken the tower, particularly if it is cylindrical, and Ashton Mill has three distinctive iron hoops binding the tower to prevent undue distortion. The function of having two doorways at the working level was that one would always be clear of the sails when the mill was at work. Before Ashton Mill was restored in the 1950's, the tower was washed white giving the mill even more a Mediterranean appearance.

The cap of the mill, although now cedar-boarded, was originally thatched, the steeply sloping rafters giving the pitch required for the thatch to shed water and turns on a curb on the top of the tower. The cap and sails were winded manually by means of an endless chain geared to an iron cog ring on the curb. This winding gear is housed in a boarded tail-box at the rear of the cap.

The four sails were originally of the common type, being set by hand with canvas, and two were notably broader than the other pair. The stocks, onto which the sail frames were bolted and clamped, were mortised through the wind shaft but were later fitted through a more substantial cast iron poll end. The last miller at Ashton, John Stevens, replaced two of the common sails with spring sails, which gave a certain amount of self-regulation, but this was an exception in Somerset, the more unsophisticated hand-regulated methods being generally used. The present sails are common type and interesting in that the stocks are of laminated construction.

The sails originally drove one pair of stones by one-step gearing but in about 1900 the mill was extensively refitted with gear brought from a tower mill at Moorlinch, which was being demolished. Moorlinch Mill had worked with two pairs of stones and

the gearing layout is consequently reflected at Ashton, where the stones are probably one floor lower than they were originally and are underdrift by spur gearing from an upright shaft. Much of the gearing is of 19th century date, the wooden cogs of the brake wheel having been cut off flush and cast iron cogs bolted on in segments. A cast iron wall-ower has superseded a wooden one at the head of the upright shaft and the spur wheel is an iron mortise wheel with wooden cogs.

The drive to the sack hoist is an interesting example of the ingenuity of mill-work, a simple clutch mechanism being used to engage a chain windlass to lift sacks of corn through the mill by wind-power. The corn was emptied into bins under the cap and fed as required through chutes into a hopper supported over the stones. From the hopper it was distributed into the eye of the runner stone by the vibrating shoe, ground by the action of the stones and finally bagged on the floor below as flour or meal. The present stones are 4' diameter cement composition stones, but a French Burr and a locally quarried mealstone can be seen embedded in the ground outside the mill.

Ashton Mill was the last windmill to work in Somerset, finally stopping work in 1927. Her last miller had for some time only ground animal feed and had been using auxiliary steam power from about 1894. The mill fell into disrepair until she was restored in the 1950's and presented to Bristol City Museum in 1966.

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