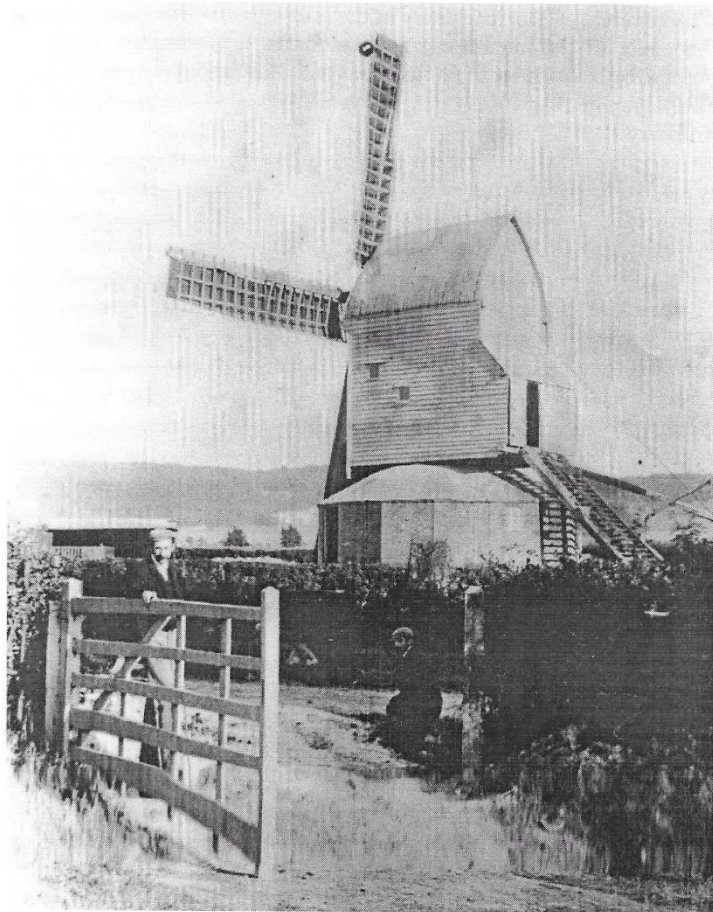


History of milling in Chinnor
C. Grenville

The History of Milling in Chinnor



By C. Grenville

Introduction and acknowledgements

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Chinnor villagers will be well familiar with the windmill in Mill Lane on the edge of the village. Some remember when the mill was operational early in the 20th Century, and the subsequent steam milling operations, whereas others will only be familiar with the rebuilding works on Whites Field near to the original site since 1980.

White’s field and the windmill are owned by Chinnor Parish Council, and the mill is being rebuilt by members of the Chinnor Windmill Restoration Society (CWRS), all of whom are volunteers. The project has received funding and support from Chinnor Parish Council, South Oxfordshire District Council, the “UK 2000” fund and numerous individuals.

This history and guide is intended to be a definitive document on the past and present of the mill, with some notes on the future. It combines numerous other documents on the subject with some additional information. In particular, this work draws on the Chinnor Windmill “booklet” which was produced by Adrian Marshall in 1996, and also from T.S. Blay’s university paper entitled “Chinnor Postmill”. We are also indebted to the many photographers who over the years have provided images that have been vital in reconstructing the missing parts, and any other persons whose works we have made reference to but have inadvertently omitted to mention.

Because of the technicalities of milling, it is necessary to offer some more general information to aid understanding for the non-miller. However, much has been written by other authors on this subject, notably Stanley Freese and Wilfred Foreman (see Bibliography). Accordingly, I have tried to keep details as specific to Chinnor as possible without the work becoming too difficult to read.

As with all histories, particularly those that are early editions, there may be inaccuracies. For these we apologise in advance and would welcome your comments to help us to improve the bank of knowledge on the mill.

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October 2000

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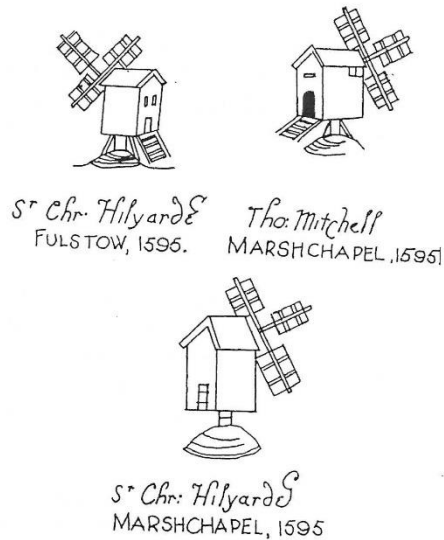
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Chapter One Milling in Chinnor before 1789

The first windmill recorded in the Chinnor area appears as far back as the 13th century when one Adam de Chinnor was known to have a mill at Wainhill¹. In 1270 the millers were William and his son Henry². Another mill was recorded in Henton in 1289³ and one in Chinnor in 1336⁴.

All these early windmills were probably sunk-post mills, that is to say a mill with its central post deeply embedded in the ground like a gatepost. Generally the sunk-post mill varied little outwardly from the more modern open trestle post-mill, except that the body was usually closer to the ground. Originally, the body was a simple square, single floored arrangement and in some early illustrations there are no “quarter-bars” or supporting props to take the main post.



Early drawings of “sunk-post” mills taken from a 1597 map of Fulstow and Marshchapel, Lincs.

1 Victoria County History of Oxfordshire. p68. H.M.S.O

2 Ibid.

3 Ibid.

4 Ibid.

To put Chinnor in context, there are three main types of mill to consider:

Post Mills (e.g. Chinnor Mill; Brill Mill; Pitstone Mill)

In this type of construction, the main body of the mill – the “buck house” - is mounted on a fixed central post. The mill can then turn on this post to face into the wind. This can either be done manually by the miller or it can be “luffed” automatically with a fantail linked to gears to drive the tail around a track on the ground.

Smock Mills (e.g. Lacey Green)

Smock mills vary from post mills in that the body of the mill is a fixed timber structure. However, they have a separate cap so that only the top part of the mill (and therefore the sails) moves into the wind. The rest of body of the mill remains static.

Tower mills (e.g. Wheatley)

Tower mills are mostly stone or brick construction and generally have moving top sections to turn the sails into the wind, though a few are fixed.

Chapter Two

The origins of Chinnor Windmill

Chinnor mill may have been built originally in 1789⁵. It was sited approximately 135 metres down Mill Lane (towards Estover Way) from its current position in a location now occupied by the rear gardens of the houses numbered 43 and 45. The mill did not appear on Davis's map of Oxfordshire in 1793 although this omission does not disprove the existence of the mill at that time; Davis was not a thorough surveyor and his map shows many inaccuracies. Chinnor mill first appears on Bryant's map of 1823. No earlier map reference has yet been found.

There is uncertainty as to whether the mill was constructed and erected in Chinnor or was originally built in 1789 at Chatham Docks, Kent where it may have been in use before being moved to Chinnor later⁶. This query appears to have been initiated by Rex Wailes in "English Windmills" in the 1930's and reiterated in "The English Windmill" (publ. 1954, Routledge & Kegan Paul Ltd). Wailes lived at Beaconsfield and visited Chinnor several times. He looked at the deeds for the mill too, but the whereabouts of these is currently not known. Whether Mr Wailes' theory was his own, and was subsequently instilled in the millers' understanding is not known. It may equally be that the then millers (the Wilkinson family) passed this theory to Mr Wailes and he then examined this possibility. One thing is certain though – that Wailes believed the mill was moved from Chatham by barge. It would have had to have been moved between 1789 and 1823, a time when canals were still under construction. Accordingly, one assumption would be that it might have travelled up the Thames as far as Reading, or Abingdon even, before completing its journey by some other mode of transport.

The Kent connection has been investigated via enquiries to the Kent Mills Group. They advised that there were many mills around Chatham in the eighteenth century – some of which were removed prior to the mill first being positively identified in Chinnor on Bryant's map of 1823. However, none of these are adequately described in local records in Kent to enable us to positively identify one mill that could have been moved to Chinnor. It seems improbable though that Chinnor mill would have been transported such a distance although an alternative theory would be that a millwright from Chatham could have constructed the mill in Chinnor. Confusion over the years has may have changed the *millwright from Chatham* to the *mill from Chatham*⁷. It is unlikely that we will ever resolve this query unless we can find documentary sources that confirm Chinnor Mill was on site in the village between 1789 and 1823.

In the past the re-siting of windmills was quite common, for example, a smock mill was transferred from Watlington to Nettlebed, Oxon. c.1825.

.....
5 Source – date carved on the main post, and reference to Smith. J.C. Oxfordshire and Buckinghamshire Windmills

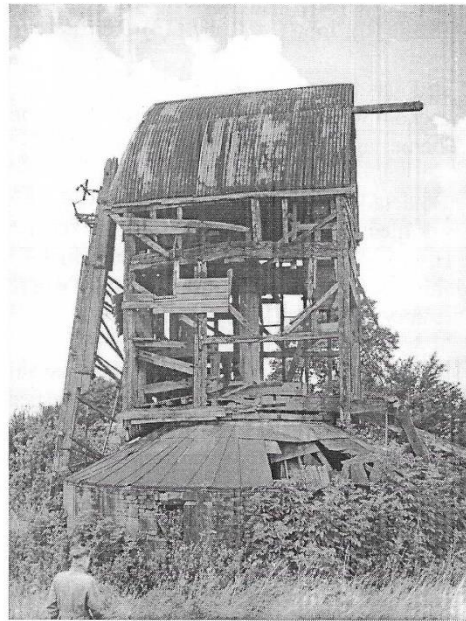
6 Source – Wailes. R. English Windmills p.169. Routledge & Kegan Paul 1954.

7 Source – Foreman. W. Oxfordshire Windmills 1982.

By 1903 the mill had been modified to include the latest technology. It had “patent sails” which had a series of linked shutters that blew open and sprung shut to compensate for gusts of wind. This helped to keep the millstones turning at a regular rate and therefore prevent overheating of the milled products. Additionally, a fantail was fitted, mounted on a large rolled steel joist, to automatically turn the mill to face the wind. This not only helped ensure there was adequate wind in the sails to turn the gears, but also helped to guard against the sails from being “tail-winded”. This danger has led many a post mill to be blown over in a storm since many post mills were free-standing structures, relying on their own mass to hold them on the ground.

In 1923¹⁰ the steam mill took over milling operations completely, and the windmill ceased work after having been severely damaged in strong winds. Over the next 44 years the windmill was left to decay, but many local enthusiasts and residents took photographs as it fell (or was pulled) apart. The steam mill remained in operation until 1938.¹¹

In 1967 the remains of the mill were pulled down to make room for the new housing estate. The old mill house remains in Mill Lane.



Chinnor Mill, 1954

10 Source – Kelly's Directory of Oxfordshire, 1923 Edition

11 Source – Kelly's Directory of Oxfordshire., 1935 Edition

Chapter Four The millers of Chinnor

Benjamin Britnell

The first miller we have record of at Chinnor was one Benjamin Britnell in 1828¹². By 1851 the Census makes no mention of Benjamin though at that time there were some twenty-six other Britnells listed in the village spread over seven households. Four of these have their occupations listed as “Baker” or “Bakers wife”, though of these, Lancelot Britnell had the added distinction of being described as “Grocer and baker”. Presumably these were all direct relations to Benjamin. Though we have no proof of this, baking would be a logical allied trade to milling so it seems very likely. Benjamin was a tenant holding strips of land around Oakley in 1844 and again noted in 1849¹³.

Henry Batten / George Battin / William Batten

Henry Batten is first known of in the 1841 census (fiche 1- ref H0107/0883). Aged 40 and described as miller, he was married to Rebecca, aged 35, whose occupation appears to be “lacemaker”. Six children are listed: James (14), a chairturner; Sarah (12), a lacemaker; William (10); John (8); Robert (6) and Rachel (1).

In 1851 the census¹⁴ still lists Henry Batten aged 52 as miller, a man born in Ascot, Oxon. In the same household were Rebecca, 46, described as “domestick” and two children Rachel and Thomas aged 11 and 9 respectively.

The Census in 1851 also details George Battin as miller. George’s age is given as 26 years and his wife, also called Rebecca, is distinguished as “millers wife” aged 35. Rebecca was born in High Wycombe. The household also included Fanny Beckett, George’s niece, aged three years at the time of the census. George subsequently appears in Kelly’s Directory as “Batten”.

In the census of 1861 George is confirmed as head of his household in Mill Lane. George and Rebecca were now described as ages 36 and 42 respectively (microfiche Ref. RG9/0863). Note that there is not a ten year age difference for Rebecca so her age given in this, or the previous census (or even both) is wrong. Also in Mill Lane, in a separate household, the head of the house is given as a William Batten, 31 years, Miller, born Chinnor. His wife, Ellen was a 31 year old dress maker who was born in Eynsham, Oxon. They had three children at that time: Louisa, 5; Emma, 3; and Elizabeth aged 7 months.

It appears there were therefore at least three Battens working the mill around this time, unless one was working an another nearby mill. However, census returns for surrounding parishes also list plenty of millers. Sydenham parish lists George Attkins, James Hollier, James Foster and John Foster. Aston Rowant lists Henry Monks if I have interpreted the enumerator’s handwriting correctly.

12 Source Blay T.S: Chinnor Postmill, 1977

13 Source – village history notes from Myra Bell – maps of Oakley.

14 Source – sheet 7, Fiche 4- ref H0107/1720 – microfiche at Chinnor Library.

By 1864, Kelly's Directory was listing George Batten as miller and grocer, and in 1876 as miller, grocer and baker too.

The 1871 census confirms some earlier details (fiche RG10/1409 – Chinnor Library) and adds a few more. George Batten now described by the enumerator as “miller & grocer”, born in Chinnor. Rebecca is now aged 52 (confirming age as at 1861 census) but her place of birth is given as West Wycombe rather than High Wycombe

In 1871 William Batten is head of his household (again, fiche RG10/1409), aged 40, a miller born in Chinnor. His wife Ellen, 41 is still described as a dressmaker. However, the listing of children has changed somewhat. Emma and Elizabeth are still in the home, aged 13 and 10 respectively, but Louisa is no longer listed. A further two children are now mentioned too – Henry, aged 6 and Sarah aged 3.

Edgar _____?

The 1881 census (Fiche 4- Ref RG11/1470, sheet numbered 67) lists in the village of Chinnor a person described as “miller, corn”, aged 57 who lives in a household of three persons. He appears to be called Edgar, but the surname is particularly indecipherable but could perhaps be something like “Witsey” or “Witby”. Nothing else is known about this person.

John Juggins

Kelly's Directory lists Mr Juggins as “wind and steam miller” in 1887. We do not know at this stage whether the steam mill was actually installed by Juggins as the new miller or whether it was part of an upgrade undertaken by George Batten prior to his departure. Nothing else is known of John Juggins at present.

W H Harrison

The 1895 edition of Kelly's lists W H Harrison & Co. as wind and steam millers. Nothing else is known of them at present. However, since we currently only have firm dates in 1887 and in 1895, it is possible that Harrison could have taken over the mill at any point in between, though the Wilkinson family was believed to have come to Chinnor in the 1890's

Charles Thomas Wilkinson / Charles William Wilkinson / Horace Horton

The Wilkinson family had milling in their blood for many generations. The last miller's daughter, Joan Coombes, recalls that her great grandfather built a tower mill in Lincolnshire at Old Leake. Her grandfather ran a water mill at Aswardby in Lincolnshire until asthma, and the doctor's advice, moved him to run a bakers and confectioners shop in Seven Sisters Rd in London. At some point he became aware that Chinnor Mill was “available” and subsequently returned to milling in the village in the 1890's. Here he concentrated on milling and the supply of milled products without the added diversion of baking as other Chinnor millers had.



The first mention we have of Charles Thomas Wilkinson is in Kelly's Directory in 1899. He is listed simply as "miller". By 1915 the same publication lists only Charles William Wilkinson but provides his trade as wind and steam miller. In fact, both the wind and steam mills were operational at the time the Wilkinson family took over the business. We know that at one time there were five persons working at the mill, including at least two Wilkinsons, Horace Horton and a Mr Joe Bateman who looked after the three horses that were used for deliveries.

Left - Photograph believed to be of Horace Horton & one of the mill horses.

By accounts, Mr Wilkinson senior was disgusted that the windmill still had "common sails". He set about a series of improvements to the mills including; installation of "patent" sails, the demolition of an old pigeon loft adjacent to the steam mill, and the replacement of the steam mills iron chimney with a new brick one. This must have been a substantial investment.

In 1923 the windmill ceased production. By this stage, steam mills were cheaper to run and repair than old windmills in need of hours of a skilled millwrights time. As other millers turned to steam power and roads and transportation became easier, it is easy to imagine the economic forces of competition stacked firmly against wind-milling.

By 1939 all milling on site had stopped and Charles William Wilkinson appears to have formed a new business with Horace Horton, operating as Wilkinson and Horton Haulage Contractors, The Mill (Kelly's Directory). Nearly 150 years of milling at that site in Chinnor were over.

Photographs of Joe Bateman, the Wilkinson family and Horace Horton appear also in "Chinnor in Camera", reprinted June 2000. Horace Horton appears in the photograph of Chinnor Silver Band in 1928.

Chapter Five The Steam Mill

The steam mill was an entirely separate milling process in a building near to the windmill, rather than a simple power unit to provide auxiliary drive to the windmill during unfavourably calm weather. Wilfred Foreman in "Oxfordshire Mills" made the mistake of assuming the steam unit was an auxiliary drive but to be fair he was collecting data for his book after the windmill had been demolished.

The addition of the steam driven mill in (we believe) 1887 made milling in Chinnor a more viable occupation, particularly in periods of prolonged calm weather. Nothing is known yet of the peak production rate of the steam mill, although approximate production rates for windmills are known. Stanley Freese asserted that most corn-millers drive their sails at 12-15 revolutions per minute, if the wind will do it, with production of some 3-5 bushels an hour. A bushel is a variable quantity, being 63 lb of wheat, 56 lb of barley, 42 lb of oats or 77 lb of beans. The addition of improvements to the basic millstone configuration could potentially yield up to 6-10 bushels an hour, though this does not appear to have been the case at Chinnor¹⁵. Best practice suggests that mill stones should turn at between 75 and 140 rev. per minute depending on the stone type and diameter. We are told that the steam mill drove mill stones rather than rollers¹⁶, so there is no reason to suggest that outputs from the steam mill would be much different from the windmill running in good wind.

Steam was raised using water drawn from a well on site and from a tank that was used to collect rain water – there being no mains water on site at this time. Mains water did not come to Chinnor until the 1950's. The well is believed to have been a brick lined shaft some 40 feet deep.

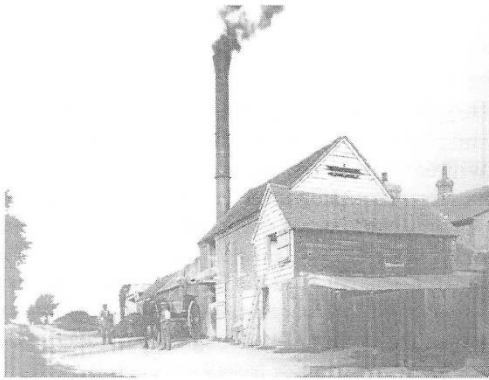
The Womens' Institute history of Chinnor produced in 1929 stated that the miller "is now dependent on an oil engine". However, Joan Coombes, daughter of the last miller recalls collecting coal from the railway for the mill. It appears that the boilers were originally coal fired but the Great Strike left the mill without coal for some period, and grist work had to be taken to Sydenham water mill instead – the windmill having ceased production by this time. This situation continued until an oil engine was purchased to provide an alternative power source.

A picture (shown below) from circa 1895 shows the view looking up Mill Lane towards the Bird in Hand end with the mill belching black smoke from what appears to be a segmental iron flue. However, another later view looking down Mill Lane shows a square shaped brick chimney. This clearly demonstrates that the mill was subject to regular improvements and changes.

After production ceased parts of the steam mill were sold to a merchant for scrap, though whether the engine survives now is not known, but probably unlikely.

15 Source - Freese. S. Windmills & Millwrighting David & Charles 1974

16 Source - J Coombes.



**Chinnor Steam Mill, circa 1900.
The pigeon loft is the small building in the foreground with the ladder leaning against it. The main steam mill building still fronts Mill Lane, albeit substantially altered.**

**Chinnor steam and wind mills some time after 1900
Note patent sails and fantail on windmill, and brick chimney on steam mill house**



**Chinnor steam mill some time after 1900.
The boiler/engine was housed on the nearest side of the chimney.
Coal was stored in this low building too.
In the foreground was the office with a store room behind it.
The feed hoppers were in the roof of the main steam mill building nearest the chimney.
The Mill House is the white building to the rear of the steam mill.**

Chapter Six

The rebirth of the windmill

Recovery of the mill

It is easy to see why people can become enthusiastic about windmills in particular. Those of an engineering bent will find the construction and operation of the mill and its machinery of interest. Those of a more romantic disposition cannot help but be awed by the sheer power of the elements as they drive the mill, notwithstanding the inherent interest on a purely historical basis.

In 1950 the Mill site was sold to a property developer Hawtry. The mill itself was subsequently sold to a Mr. Philip Barrett-Leonnard for £5. He took it to his Essex home where he intended to rebuild the mill but this in fact never happened. The dismantled mill was divided between Mr. Leonnard and his millwright partner Mr. John Lawn. The main structural timbers and the wooden gears were transported to Caston Mill, Norfolk – John Lawn’s home where they lay in a field. The iron gears, windshaft and a few other timbers remained with Philip Leonnard at Rickley, near Saffron Walden.

Whilst the survival of the mill was still known, the plans for reconstruction were not hatched until the team that restored Lacey Green mill completed their works. The team were looking for a new challenge and Mr. Chris Wallis, who had headed the reconstruction of Lacey Green smock mill, approached Chinnor Parish Council to see if they would agree to the re-erection of the mill in Chinnor. To this they totally agreed and on 2nd September 1981 the structural timbers were transported back to the village followed by the ironwork on 18th October 1981.

The pieces that returned to Chinnor were stored in an old shed that had previously been used by the Canadians during WW2.

Re-developing the mill

About half the mill survived in one form or another, and not much of that was usable for reconstruction. Put another way, about half the pieces were missing and details were therefore required to enable the team to design replacements. The only source of information was local photographs taken during the mill’s life.

A computer program called “Photomas” was used to assist with interpreting the photographs available. Each image was digitally scanned into a computer, and the perspective and camera lens distortion removed. The individual beams could then be identified and measured.

By processing a number of photographs from different viewpoints we were able to recreate all projections of the mill. These were then combined to “virtually recreate” the mill in a three-dimensional computer image. This was then checked back against original photographs for accuracy. A small-scale model of the mill was built to help identify the best sequence and form of construction.

The design of the “new” mill is an awkward issue. Purists might say that the “original” design be used – but which original design. The mill was active from 1789

to 1923, some 134 years, during which the design was constantly modified, upgraded, repaired and otherwise reconsidered. The approach taken with the reconstruction follows this spirit.

Whilst the original timbers survived nearly 180 years before demolition, there were obviously design weaknesses which needed consideration rather than following the original millwrights errors. For example, the “side-girts” were deeply mortised into the “crown-tree”. The crown-tree carries the weight of the buck house on the top of the mill post, and the side-girts fit at either end of the crown-tree. They are therefore carrying much of the buck house weight to the “crown-tree”. The original side girts were of inadequately deep section and one was broken in two before the mill was demolished, having broken at the joint with the crown-tree. Accordingly, the new mill has side-girts of a much deeper section.

Most post mills were not anchored to the ground and consequently some literally blew over. The new mill guards against this by the provision of steel tie bars and straps which fix the six wooden feet through the brick piers and right down to the ground. Consideration has also been given to the risk of vandalism, in particular fire, in the design of the floor. The sequence of reconstruction also considers this risk by avoiding cladding the buck house for as long as possible so as not to create a cosy hideout for miscreants.

Rebuilding

The surviving usable parts were mostly from the six-footed trestle. The timbers were repaired, pressure treated with preservatives, and then assembled on new brick piers by 1992. The bricks were demolition materials from an Oxford publisher’s site. These act as permanent formwork to a mass concrete centre of the piers. Missing timbers were then re-made to dimensions from the computer reconstruction combined with measurements from surviving pieces which connected to them.

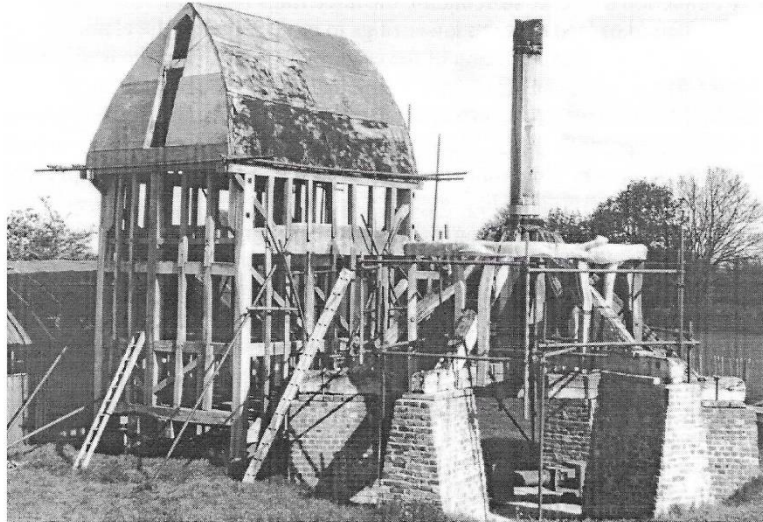
Work then commenced on the buck house using the original crown-tree and new side-girts and other timbers. They were made from well seasoned oak. Work has progressed throughout the reconstruction using manpower, ropes, chains, saws, chisels and power tools where appropriate!

Much of the original roof survived intact as the corrugated iron roof that in later years had covered the cap protected the timbers from the elements. It was first re-assembled on the ground to test fit the pieces, and then rebuilt in its final position to minimise work done high above the ground. The roof was then clad initially with thin plywood during 1994 to protect the main timbers from the rain.

The new mill site

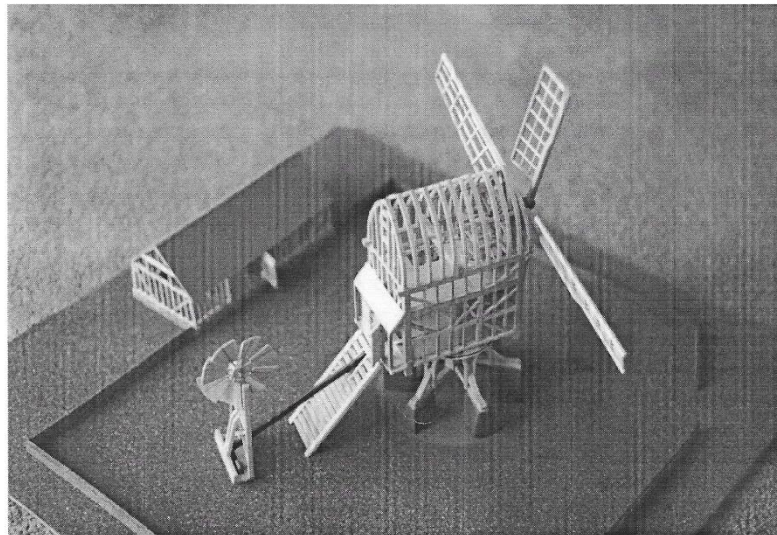
When Chinnor Parish Council agreed to the project to rebuild the mill, a site was provided as near to the original as possible. The workshop-cum-storage shed was installed and the specific location for the mill determined. By 1992, the bulk of the site was still wildly overgrown and this was gradually tamed so that by the early-mid 90’s there was some semblance of a lawn around the mill. Hedging was progressively planted around the boundary fence to help contain the site.

The boundary of the mill site was extended in 1999 when the fence on the Thame Road side of the site was moved back several metres to provide additional space for the proposed “artefacts and interpretation barn” (granary). Hedging was also moved to the new boundary.



Above - The mill in 1999, showing reconstructed trestle and main post, alongside the largely reconstructed buck-house.

Below – model of the skeleton of the mill and granary showing approximately how the structures will appear when nearer to completion.



Chapter Seven Into the third *Millennium*

2000 has so far seen

- Completion of works surrounding the three rings including
Installation of lead cover to lower rings to protect against the elements
Repair, painting and refitting of the cast iron ring on top of the lead cover.
- Installation of 7 heavy timbers to strengthen the buck and form the hurst frame which will eventually support the millstones. Whilst some of these pieces were not originally parts of the mill, these work to counter the poor condition of some of the original timbers which have been re-used, and to improve upon defects in the original mill design.
- Commencement of works on the artefacts barn (granary). Foundations are complete and stone walls have been constructed to some 60 cm above ground level. A wooden structure will sit on top of these.
- The writing of a history of milling in the village and further research to investigate similarities with other six-footed mills including Bledlow Ridge and Stokenchurch.
- Chinnor Windmill website launched in September.
- Roof felted and battened. Weatherboarding started in early October.

2000 should also see

- Completion of roof.
- Installation of lower level flooring
- Casting of new bronze bearing which will be positioned at the top of the main post.
- Further works on cladding the mill
- Further research into the mill history.

The future

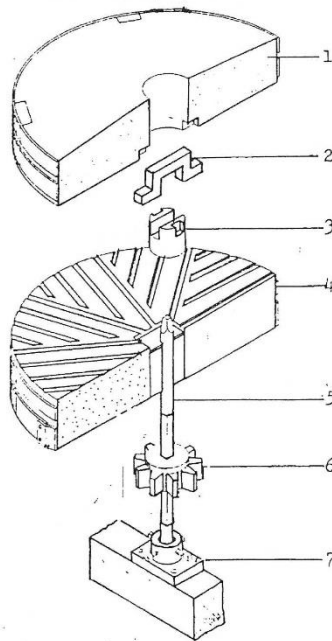
We plan to grind wheat one day, so even when the mill has been clad with weatherboard, and the sails fitted, there will be much work required to make the surviving machinery serviceable and to replace lost parts.

Chapter Eight

The machinery of the mill – an overview of main components.

In its present condition it is difficult for the non-miller to visualise where the machinery of the mill would have been. As works on the restoration progress much should become clear. Some of the original machinery was rescued and is in good enough condition to be re-used. Other components will need fabricating from scratch. Probably the first of the machinery to be re-installed will be the large components such as the windshaft and mainshaft, and the associated gears such as the brake wheel, wallower wheel, and the great spur wheel that sits below the stones at the foot of the drive shaft. It is not my intention to go into great detail in this chapter at present but to provide simple notes on a few main components. Further detail will be provided in later editions of this document.

The mill stones



Cutaway view of a pair of under-driven mill stones “Exploded”

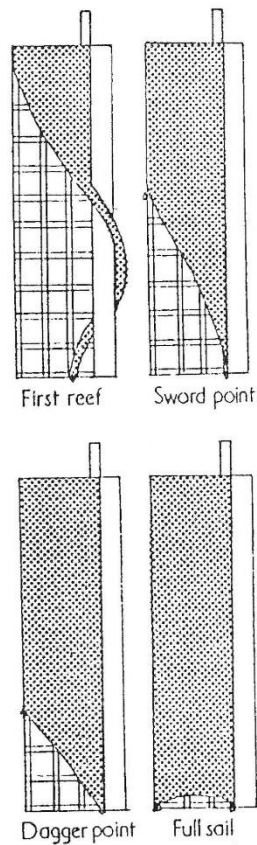
1. Runner stone
2. Gymbal bar
3. Mace
4. Bedstone
5. Stone spindle
6. Stonenut
7. Bridging box

Two original millstones (French burr stones) were recovered and the Chinnor Windmill Restoration Society has been offered two more (originally from a different mill) when we are ready for them. Grain was fed in through the eye of the top (runner) stone and forced outwards as it was ground to emerge at the periphery of the stones to be collected via a chute into sacks. From there the sacks were lifted by a hoist up to a higher floor to be cooled and loaded into the “dresser” (see below).

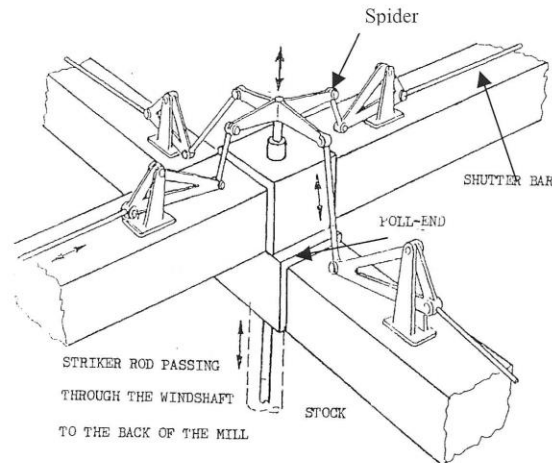
Sails

Besides the mill stones, the other highly obvious element of the mill is the sails. Chinnor was originally fitted with “common” sails that were replaced in about 1900 with the more complicated “patent” sail mechanism. Patent sails overcame the need to manually set the sails to counter changes in wind speed. There were several methods of deploying common sails to modify the amount of sail showing to the wind. These are shown below:

The positions of a (common) sail-cloth



It is assumed that the mill originally had a heavy wooden windshaft which rotted, but this may have been replaced with a cast iron windshaft in order to accommodate the striker mechanism for the automatic operation of the patent sails. The replacement of the windshaft did not necessarily occur when the patent sails were fitted though. It is possible to bore through the length of a wooden windshaft to accommodate the striker rod that is needed for the automatic operation of the sail shutters. The iron windshaft currently sits under the mill trestle, waiting the time when it will be re-fitted into position.



Above - The striking apparatus of the “patent” sail mechanism.

At the centre of the patent sail mechanism was a striking rod that was connected through the windshaft to a rack and pinion linked to a weighted chain. This weight, via the various components, countered against the wind force to balance the position of the shutters. This helped to regulate the speed of the mill and guard against overheating the stones. If the stones drive too fast, the meal may not be properly ground, or may become too hot and become rancid. Early milling was undoubtedly an exciting business.

The flour dresser

Wheatmeal, i.e. finely ground wheat which would make whole-meal bread, was usually returned to a hopper on the top floor of the mill and allowed to cool for a couple of days before being fed through the dresser. The cooling time helped the grades of flour to separate more readily. The dressing process removed the bran, leaving “millstone flour” as opposed to “wheatmeal”.

The dresser at Chinnor consisted of an inclined fixed wooden skeleton cylinder lined with wire mesh of varying degrees of fineness. Down the centre of the cylinder passed a wooden shaft carrying several rows of longitudinal brushes. As the shaft revolved, driven by an auxiliary gear from the mainshaft, the brushes forced the flour and the middlings through the wire mesh into the casing and the “bran tails” out at the end. This wire machine was removed from Chinnor and refitted in nearby Pitstone Green Mill when it was being restored.

Appendix One

Timeline of significant dates

- 1789 The date Chinnor Mill was supposed to have been built.
- 1823 Chinnor Mill shown on Bryant's map of Oxfordshire.
- 1828 Benjamin Britnell recorded as miller.
- 1841 Henry Batten, miller (1841 census).
- 1851 Henry Batten/George Battin – millers (1851 census)
- 1854 George Batten, miller (Kellys Directory).
- 1864 George Batten, miller and grocer (Kellys Directory).
- 1871 George Batten, miller and grocer; William Batten, miller (Census)
- 1876 George Batten, miller, grocer and baker (Kellys Directory).
- 1881 "Edgar ____?" "miller, corn" (Census)
- 1887 John Juggins, wind and steam miller (Kellys Directory).
- 1891 Approximate date for installation of supporting rings around the mill post.
- 1895 Harrison W, H & Co. wind and steam millers (Kellys Directory).
- 1899 Chas. Thos. Wilkinson, miller (Kellys Directory).
- 1915 Chas. William Wilkinson, wind and steam miller .
- 1923 Windmill ceases operation.
- 1928 Chas. William Wilkinson, steam miller.
- 1939 [Charles] Wilkinson & [Horace] Horton Haulage Contractors, The Mill.
- 1950 The mill is sold to property developer Hawtry.
- 1967 The mill is demolished and moved to Essex.
- 1968 The last miller dies, Thame Gazette 11.6.68.
- 1981 The mill is brought back to Chinnor and the restoration society formed.
- 1981-1992 Surviving pieces sorted, measured and stored; Brick piers, and trestle re-built
- 1992-1994 Buck house frame built up to roof level
- 1996 Upper floor re-built
- 1999 Supporting rings rebuilt
- 2000 Granary / artefacts barn started. Mill roof weatherboarded. Mill website launched.
- 2001 Buck house lifted back onto post ?

Appendix Two

Index of photographs and illustrations

- 1) Chinnor Windmill 1895
- 2) Early drawings of sunk-post mills from a 1597 map of Fulstow and Marshchapel, Lincs.
- 3) Chinnor Windmill in 1954.
- 4) Miller Horace Horton and one of his horses, early 20th Century.
- 5) Chinnor Steam Mill, circa 1895.
- 6) Chinnor Steam mill and windmill, early 20th Century.
- 7) Chinnor Steam Mill, early 20th Century
- 8) The partly reconstructed mill in 1999.
- 9) Model of the mill and granary being reconstructed.
- 10) Cutaway view of a pair of under-driven millstones “exploded”.
- 11) The positions of a sailcloth.
- 12) Striking apparatus of the patent sail mechanism.

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Glossary of terms (words in inverted commas have a separate entry).

Angle of Weather	Twist on the sail to catch the wind
Backs	Arms of sails bolted to a central iron cross (not applicable to Chinnor mill).
Backstay	Wooden stays at the back with serve to maintain the weather of the sail
Balance Dish	The automatic grain feed to the hopper
Balancer-Rhind	The mounting or pivot for balancing a millstone
Bar	The lateral member of a sail frame
Barn Scoop	A wooden shovel for mixing the meal
Bay	The space between two sail-bars, usually accommodating three shutters
Bed-stone	The lower, or "nether" mill stone
Bell alarm	A bell which rings when the hopper is empty
Bin	A storage vessel for grain
Bin floor	The floor, usually at the top of the mill, where the bins are located
Black grease	Horse-fat for lubricating gears and bearings
Body (of a post mill)	The timber shell, or "buck house" which contains the machinery
Bollard	The spindle carrying the sack-chain
Bolter	The machine for dressing flour out of meal
Bolting cloth	The woollen cloth for the "bolter"
Brake	This encircles the "brake-wheel"
Brake lever	A pivoted beam used to apply the brake
Brake rope	The control for the brake lever
Brake wheel	Large diameter cog wheel mounted to the "windshaft" which drives the "wallower" wheel when the sails turn. On its rim the brake acts.
Brayer	The beam for making fine adjustments of the millstones
Breast (of a post mill)	The forward end, or head.
Breast (of stones)	The middle end of the grinding face
Breast beam	Curved beam at the bottom of the front of the buck.
Bressumer	A horizontal beam supporting an upper wall.
Bridge	Curved bar supporting the millstone on the stone spindle.

Bridge tree	A beam between the “brayer” and the millstone
Bridging box	The foot bearing on the “bridge-tree” for the stone spindle.
Brigging the spindle	Truing up the spindle set screws in the bridging box.
Canister	The iron box head of a “windshaft” which carries the sail stocks.
Cant	Part of the framing of a wooden gear wheel on which the rim is fixed.
Carcass	The body of a postmill.
Casing	The wooden case enclosing a pair of stones, also called a vat or tun.
Centrifugal governors	Governors worked on the centrifugal principle to regulate the gap between the millstones.
Cheeks	The blocks either side of the windshaft for checking it in a gale.
Chute	A wooden pipe feeding grain or meal
Clamps	Strengthening timbers attached to the sail-stock.
Clasp-arm wheel	The wheel with crossed arms encircling the hub.
Cleat	A peg to secure a furled sailcloth
Clothing mechanism	The reefing gear.
Cloth sails	“common” sails of rick-cloth or sacking.
Collar	The “girdle” encircling the main post beneath the mill body.
Common Sail	A cloth-covered sail.
Compass arm wheel	A wooden gear wheel with arms mortised through a wooden shaft.
Cross	The iron cross carrying sails without sail-stocks.
Cross-bridge-tree	A “bray” supporting the main bridge tree. Also known as cloves.
Cross Eye	The “canister”
Cross-tailed gudgeon	The bearing pin with four wings in a wooden shaft.
Cross-trees	The main horizontal beams of the substructure (or trestle) of a post mill. Chinnor, having six feet, has three cross-trees.
Crown tree	Heavy horizontal beam, which spans across the top of the main post and joints into the “side-girts”
Crown wheel	The auxiliary driving wheel on the upright drive shaft.
Damper	The spattle in a feed hopper. Also known as a “gate”.
Damsel	A three or four sided spindle which shakes the feed shoe to ensure continuous flow of grain.

Dead lead	Boarding instead of some of the shutters on the leading edge of a sail.
Diagonal brace	The diagonal timber in a post mill wall.
Dog iron	A hooked iron strap for holding timbers together.
Double-shuttered sail	Having shutters both sides of the shaft. This arrangement was not known to have ever been employed at Chinnor.
Dresser	A machine for dressing flour through a fine sieve to sort it into different grades such as “firsts, seconds, thirds”.
Dresser gears, cylinder and brushes.	The essential parts of a dressing machine.
Driving side of sail	The broad or trailing side which follows the shaft.
Eye of stone	A) Central orifice onto which the grain is fed B) The inner third of the grinding face
Eye of the wind	Having the mill aligned square into the wind.
False Hoop	A hoop for holding a balance weight on the millstone.
Fantail	Revolving sailed device to automatically “luff” the mill to face the wind.
Felloes	The sections of the rim of a wooden wheel.
Firsts, seconds, thirds	The grades of meal delivered from the flour “dresser”.
Flats	Thimbles into which sail slats are pivoted.
Flour	The wheatmeal dressed to remove the bran..
Fly-frame	A frame consisting of fly-posts and fly-strings for supporting the fantail of a post mill.
Fly stocks	The arms of a fantail.
Fly tackle	The complete fantail assembly and gears.
Footbrass or footstep	The bearing at the foot of a vertical shaft or spindle.
Fork iron	A rod controlling the two sail rods of a double shuttered sail (i.e. not employed at Chinnor).
Gate	The “damper” or spattle on a feed hopper.
Gimbals	A balancing ring supporting a millstone.
Glut box	The top bearing of an upright spindle
Governor	An automatic device to: A) Maintain the gap between the stones B) Regulate the speed of a machine
Grease wedge	The removable portion of the bearing round the neck of a stone spindle.

Great spur wheel	The main driving wheel for the millstones.
Gudgeon	An iron journal attached to a wooden shaft.
Hand rope	The rope controlling the sack-hoist gear.
Head of mill	The front of a post mill, particularly the upper part.
Head rail	The top rail of a post mill wall, at the eaves.
Head wheel	The “brake-wheel”.
Hemlath	The lath along the outer edge of a sail.
Hopper	A) The wooden funnel feeding grain through a chute to the stones. B) A storage vessel for grain.
Horns of the main post	Tongues of wood fitting down between the cross-trees.
Horse	The frame supporting the feed hoppers.
Hunting cog	An odd-tooth cog inserted or omitted to prevent the same cogs meeting at every other revolution of a wheel.
Hurst frame	A heavy bench supporting the millstones above a floor.
Inter-tie	An intermediate rail between the side girt and bottom rail.
“Jacking” the stones	Checking them with a tracer bar and quill.
Jack-ring	An iron frame for lifting the stone nut out of gear.
Keep	A wooden or iron block holding down the tail of the windshaft i.e. at the opposite end of the windshaft to the sails.
Lands	The flat surfaces between the furrows of a mill stone.
Leading board	A narrow board fixed to the leading edge of both common and single shuttered sails.
Levers	The pivoted central levers on the sail shutters.
Lighter screw	This passed through the bridge tree and is used to raise or lower it.
Lightering gear	The steelyard and links connecting bridge-tree to governors.
Mace	The “mil-rhynd” on top of the stone spindle for rotating the bridge of the mill stone.
Mainpost	The upright post around which a postmill revolves.
Mainshaft	The main upright driving shaft.
Middlings	An intermediate product from the flour “dresser”.
Mil-rhynd	An old term for the “mace”.
Neck-bearing	The main bearing of a windshaft, resting on a neck beam, collectively called the neckwear.

Nether stone	The lower, or bedstone of a pair of millstones.
Nip	The constricted space between the millstones. In a well-balanced pair of stones the nip was supposed to be the thickness of a piece of brown paper at the centre of the stones and the thickness of tissue at the perimeter to ensure progressive and thorough grinding of the wheat.
Open-post mill	A postmill with no roundhouse protecting the trestle substructure.
Patent sails	Shuttered sails with automatic control to regulate the mill against gusting winds.
Pollend	The “canister” on a windshaft.
Prick-post	The central post in the head of a postmill under the windshaft.
Quarter-bars	The diagonal braces of the trestle which support the “mainpost” and carry the weight of the mill down onto the “cross-trees”.
Runner stone	The rotating upper stone of a pair of millstones.
Side girts	The side sheers mounted on the two ends of the “crown-tree”. From the side girts the rest of the buck-house is built.
Spider	The iron cross on the outer end of the striking rod in patent sail control mechanism.
Stone-beam	Floor timbers supporting a millstone.
Stone nuts	Driving pinions on the stone spindle.
Striking rod	A rod that passes through the windshaft to control patent sails.
Tie rods	Long tension rods for holding parts of the mill together.
Upper side girts	Side beams supporting the tait-beam under the wind-shaft.
Wallower	A pinion on the main drive shaft which engages with the “brake-wheel” to transfer the horizontal rotation of the “windshaft” into vertical rotation of the drive shaft.
Weather beam	The main lateral beam beneath the front of the windshaft. A heavy beam which carries the weight of the sails and the “windshaft”.
Windshaft	The shaft or axle carrying the sails.