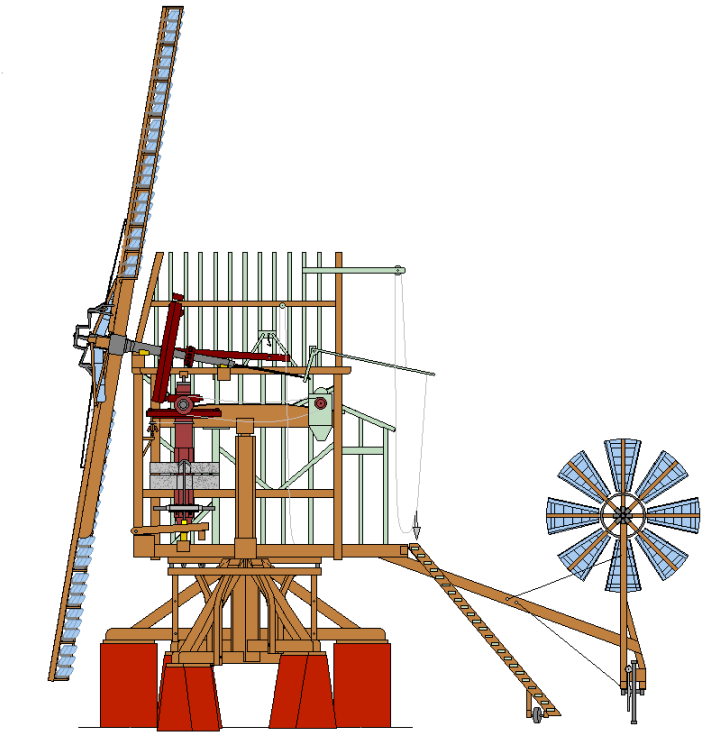
BUILT:
Chinnor mill was built in 1789 but there have been mills on the site since 1270. In 1901 it had cloth sails and was run by the Wilkinson family:

DESIGN OF CHINNOR MILL
Chinnor mill is a post mill where the whole mill body (or 'buck') is mounted on a post and can be turned by hand so that it faces into the wind.
The mill is unique in being the only surviving mill with 6 feet and a supporting ring held on arches to give extra stability.



The mill contained two sets of stones at the front of the mill, driven from a single vertical shaft which was geared to the 'brake wheel' on the wind shaft which carries the sweeps and sails.

The construction was mainly oak using mortise and tenons and other fitted joints which are then pegged with oak dowels. The design of these joints is such that they are generally, self-tightening.
Curved beams such as the supporting ring were made from elm as the more knotted grain prevents splitting.
Some wrought iron was used for strengthening and repairs, and some of the wooden gears were replaced by cast iron ones.
The sweeps would have been made from pine, and the wooden gear teeth from fruit woods or elm.

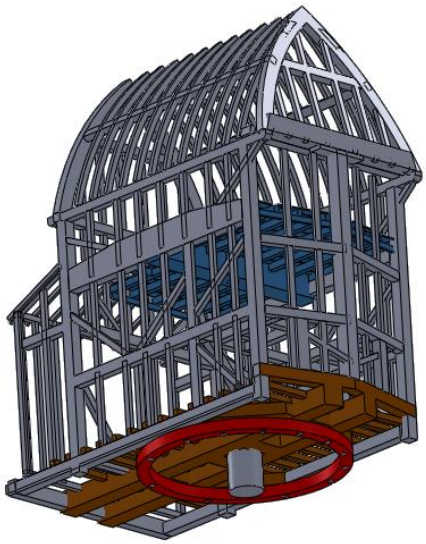
MODIFIED:
At the turn of the last century it was progressively ‘updated’ to include the latest technologies;
It was first fitted with 'patent sails' which could be set automatically to cope with varying wind strengths and spill any heavy gusts, then a fan tail which automatically turned the mill to face into the wind, and by 1903 it had an additional rear loading stage for getting grain into the mill, and getting the milled flour back onto a cart.

ABANDONED:
In 1887 the miller purchased a steam mill to supplement the windmill, and this took over completely in 1923 and the mill was abandoned.
In 1967 the mill was finally declared unsafe and its remains were pulled down and the site bulldozed to make room for a new housing estate.

RECOVERED:
Following the demolition, some of the pieces were saved by a millwright who took them to Essex.
And these parts were 'rediscovered' in 1980 by a group of volunteers who initiated plans to rebuild the mill in Whites Field about 150 yards from its original position.

REDRAWN:
About half the mill survived in one form or another, or put another way, half had to be made from scratch, so detailed drawings were needed, but of course the original millwright’s 200 year old plans haven’t survived.

Our only source of dimensional information was the old photos taken of the decay and decline of the mill where its internal structure could be glimpsed.
Key images were scanned into a computer, and the perspective and camera lens distortion removed so that individual beams could be identified and measured. By overlaying and averaging a number of photos we were able to make ‘best guesses’ for all faces of the mill, and so produce dimensioned working drawings.



Of course none of the photographs showed the internals of the joints themselves, so mortise and tennon details had to be rediscovered from other mills or from reference books on local carpentry techniques of the time.

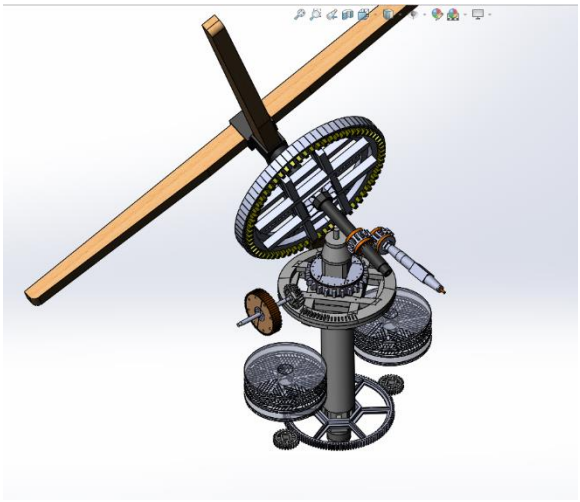
TRESTLE:
A new concrete foundation slab was laid and the 3 three pairs of brick piers were built to their different heights.
The original 'cross trees' were then laid across these and the original post lifted into position on top of them, held upright by temporary scaffolding.
The original diagonal 'quarter bars' were then fitted to hold the post vertical.

BUCK:
Next was the assembly of the 10 ton 3 dimensional jigsaw 20 feet in the air.
This was achieved with manpower, scaffolding, ropes, chains, and winches, a lot of sawing and chiselling and the use of power tools where appropriate!

The original roof survived almost complete because the corrugated iron sheltered it from the worst of the elements.
It was first repaired and rebuilt on the ground in the shed, and then re-assembled in its final position (to minimise the work done high up).

With the roof on, and covered, the internal beams to support the mill machinery and the stones were added, together with the upper floor.
A 70 tonne mobile crane finally lifted the buck onto its post in August 2011.

INTERNAL MACHINERY:
The 8 foot diameter brake wheel (which connects the sail's windshaft to the main drive shaft) appeared to have survived intact.
However closer investigation showed that it is probably too rotten to repair (it has to be strong enough to transmit the 20 or so horsepower that the sails produce), so we made a copy in the work shed, then dismantled it in order to re-assemble it up in its final position the mill.
In the winter months work continues inside with the gear train and the framing to support the mill stones being fitted, and the mill stones moved into position.



Patterns for the missing gears, bearing mounts and a speed governor have been made from wood, and then iron versions have been made by sand casting from these patterns at a small foundry near Heathrow

In the mills final years it had ‘patent shutters’ rather than cloth sails and these use a system of counterbalance weights to automatically spill any rapid gusts of wind.
About half these shutters and the operating mechanism have survived, and we’ll refurbish and make copies as necessary.

However the manufacture of 4 new 27 foot long sail ‘sweeps’ was a job for professionals, and these were fitted in 2015.

FUTURE WORK:
We plan to grind wheat one day, so even when we’ve fitted sails, there will be work to finish off the drive to the two pairs of mill stones, to reinstate a sack hoist and to recover the flour dresser, currently at Pitstone mill.

There’s also a ‘fan tail’ which is an extra set of blades that catch any crosswinds to drive a pair of wheels to automatically turn the mill to point back into the wind.

Alongside the mill we’ve re-erecting a 3 bay barn, to house a permanent exhibition of artefacts from the mill and, and provide other visitor facilities.

ACKNOWLEDGEMENTS:
Whites Field and the windmill are owned by Chinnor Parish Council, and the mill is being rebuilt by members of the Chinnor Windmill Restoration Society, all of whom are unpaid volunteers.
For many years the group of volunteers was led and inspired by millwright Chris Wallis who worked on the mill in his spare time.
Chris was also the driving force behind the preservation of nearby Lacey Green smock mill in the 1970’s and also worked on Wheatley tower mill.

FURTHER INFORMATION:
We have a website http://www.chinnor-windmill.blogspot.com which will give you the latest updates, together with links to archive material

Visitors can be shown round during our working parties on first and third Sundays of the month, and we have an open day on 'National mills day' on the 2nd Sunday of May each year.

Adrian Marshall, Project leader
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