

Honorary
Tide Mill
President:
Nigel Barratt

TIDE MILL MUSEUM[®]

Patrons of the
Tide Mill:
Lord & Lady
Framlingham

Celebrating 850 years



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PHOTO: © RICHARD FERRIS IMAGES 2016



www.woodbridgetidemill.org.uk



EDITORIAL

And so it goes on.

Few of us expected to still be suffering under the restrictions necessarily imposed in the attempt to limit the spread of COVID-19 throughout the populace into the autumn – and those few who predicted it were suspected of being scare-mongers, if not actually accused of being so. But, here we are, and no-one can deny that the situation is only very slowly improving.

Someone said to me, the other day, that they are not going to add the year 2020 to their age, because they haven't used it! I know it was just a joke, but it is a shame if anyone feels that way. We must make use of the opportunity to do some of those things that we never found time to do previously, in 'normal' times. One typical example of this is visiting local places of interest, in the way we tend to do only when we have visitors. Showing a visitor around often means we see local fascinating things that we had taken for granted hitherto.

Such as our Tide Mill.

If you receive this newsletter, you have probably visited recently, but now is a good time to bring, or send, along friends who may not have been as lucky as you.

You/they will always be welcome and glad.

VIEW FROM THE BRIDGE

by John Carrington

Very little to report that hasn't already been reported, so this month's message from the bridge is,

“Steady as she goes”.

NOTICE

Coincidences occur everywhere, but usually for a reason that is not obvious. We have now just had one that has a very clear motivation.

An editorial decision had been made, independently, that the usual eight page format for this newsletter will be relaxed during C-19, rather than make the reader suffer the additional cross that has been replacing real news. It had become increasingly difficult for your editor to find relevant, or even interesting, copy with which to interest you every month – as you will undoubtedly have noticed, if you are still bravely facing every issue.

Meanwhile, the Tide Mill Management Team were elsewhere debating the fact that the newsletter, in its present form, has served its time and should be put out to grass, as they say. These days we all get too much 'stuff' through our letterboxes and into our inboxes, from various organisations that creep into our lives – we emphatically do not want you to groan when you get something from us.

So, this is the plan: This newsletter (or something recognisably similar) will henceforth have just three digital editions: Christmas, Spring and Autumn. The Christmas edition will be mostly fun and the other two will bracket the main season. In addition, every month the Tide Mill publicity machine will issue, also digitally, a fliersheet, or news update, just to keep things simmering, so to speak.

However, not this month – read on...

CONTACT US

Here are live links to send emails to the contacts needed for those readers who want to contribute to the life of Woodbridge Tide Mill by volunteering for one or more of the various interesting, and fun, jobs that need doing...

If you want to put something in the newsletter (or comment on it):

[Ed.](#)

If you want to be a Guide:

[Wendy](#)

If you want to be a Miller:

[Dan](#)

If you want to be a Flour Bagger:

[Brian](#)

If you want to be a Warden:

[Dan](#)

If you want to be an Engineer:

[John W](#)

If you want to be an Leafleteer:

[John W](#)

If you want to help with Marketing:

[Simon](#)

If you want to help with something we have not thought of:

[Dan](#)

If you would like to contribute to our Collection or Archive:

[Fraser](#)

If you want to contact our Chair of Trustees:

[John C](#)

If you want to be a Friend of Woodbridge Tide Mill:

[Be A Friend](#)

IT'S FUNNY BEING A MILLER



MY DAD ALWAYS KNEW I WAS GOING TO BE SOME SORT OF A COMEDIAN. WHEN I WAS BORN, HE SAID, 'IS THIS A JOKE?'

Curators Coruscations

By Fraser Hale

In the Interest of Balance



Grain has, for centuries, been measured by volume. The unit of this measure, the bushel, was first formalised in Britain by Henry III's 1266 *Assize of Bread & Ale*. The actual quantity of grain represented by a bushel has changed a little over the years, but the concept has

remained. Grain, however, can be a slippery commodity and no one wants to carry it around in heavy open topped containers. A more practical, and widely adopted method of the containment and portorage of grain was the sack.

Sacks, it must be said are amorphous beasts, and are tricky things to fill by volume exactly and consistently. This is why the bags of your favourite breakfast cereal are filled by weight (the box is just to make the packs easier to stack on the shelves).



Now, a sack might contain many, many bushels of grain. How to discover the exact content? Empty the sack contents, bit by bit, into a bushel measure? Not on your life, the pub's are open in half an hour!

Enter the **chondrometer**, or grain balance to you and me.



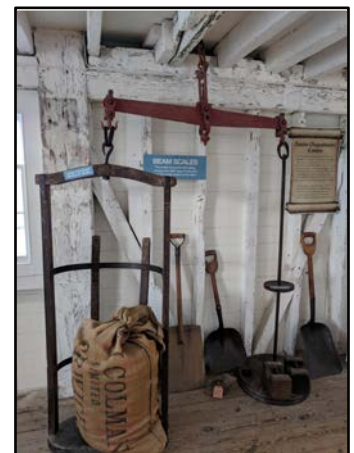
A chondrometer is a simple but accurate balance scale. At one end is a small container made accurately to hold an exact fraction of a bushel - typically one two-hundredth. On the other side of the balance beam is a sliding weight. This is moved along the balance beam until it, er, balances.



A sample of grain from a sack was placed into the chondrometer's container.

The beam is made to balance. On the balance beam is inscribed a scale. Once the beam was balanced the scale indicated the weight of grain in each bushel.

Once this piece of information was known, all that was left to do was to weigh the sack. Weighing the sack in pounds could then, with a simple piece of arithmetic, yield the exact number of bushels contained within each sack.



How to weigh a sack? Well you upscale the chondrometer...

The beam scales are the grain balance's heavy duty, bigger brother. One end is fitted with a sack cage, it's purpose being less than a challenge to divine. On the other end is a two-tiered weight platform. This allows larger weights to be placed on the bottom platform and smaller weights on the upper platform.



This, despite its rustic industrial appearance, means that the balance scale is every bit as accurate as its smaller team-mate.



So, the chondrometer and the beam scale – balance – the link between volume and mass in the miller's world.



Mo Ling

(From Wikipedia, the free encyclopedia.
For direct access to the full article go to: [St Moling](#))

Saint **Mo Ling** (614–697), also named **Moling Luachra**, was the second Bishop of Ferns in Ireland and has been said to be "one of the four great prophets of Erin". He founded a monastery at St Mullin's, County Carlow. His feast day is 17 June.

According to a manuscript in the Royal Library, Brussels, Mo Ling was descended from Cathaoir Mór, King of Leinster. He is said to have been the illegitimate son of a wealthy landholder called Faelán the Fajr, son of Feradach, and of Faelán's sister-in-law, Émnait. Ashamed of the pregnancy, Émnait fled home, traveling by night. She arrived at Sliabh Luachra in the midst of winter when the snow was said to be so deep that it reached men's shoulders. She gave birth to a son in the snow, whereupon a company of angels arrived and melted the snow around the child for thirty feet on every side.

Émnait intended to kill the child but a white dove spread its wings around the baby, keeping him warm and protecting him from attack throughout the night. They were found the next morning by monks, who took them in and baptized the child **Tairchell**. When Tairchell was about sixteen years of age, he encountered a family of spectres on the road, but managed to escape by means of three fantastic leaps.

The monk Collanach then gave him the name Mo Ling ('ling' meaning 'leap').

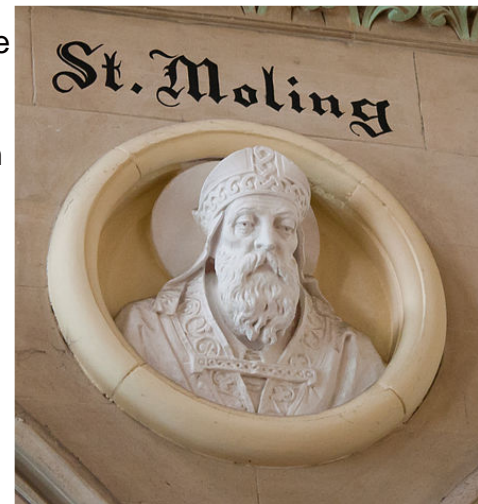
There is a tradition that Mo Ling is Saint Myllin, who travelled to Wales, baptised people at the holy well in Llanfyllin, Powys, and founded the church there.

Mo Ling was a monk at Glendalough and went on to become Bishop of Ferns. Bede describes Saint Mo Ling as a "good and wise man, excellently versed in the knowledge of the Scriptures". He died in 697 and is buried at St. Mullin's.

Saint Moling founded a monastery on the River Barrow. The monastery was said to have been built with the help of Gobán Saor, the legendary Irish builder. Over time a settlement grew up around it.

It is said that St Mo Ling established a mill there and dug a mile-long watercourse with his own hands to power it, He is reputed to have been the first person to introduce rye into Ireland. He helped his people by distributing corn and meal during a particularly inclement summer. St. Mo Ling was a skilled boatman, passing quickly up the river Barrow to visit his friend Saint Laserian at Leighlin.

St. Mo Ling is linked with the folkloric character Suibhne Geilt [Mad Sweeney]. It is related that Suibhne Geilt, who went mad at the Battle of Moira (Mag Rath) in A.D. 634, afterwards travelled to Teach Moling. He was murdered there by Mongán, Saint Moling's swineherd. He was buried with great honour within the church by its founder and patron.



Relief of St. Moling in St. Mary's and St. Michael's Church in [New Ross](#)



The River Barrow near St Mullin's

MILLER'S CHRONICLE

By Dan Tarrant-Willis

We have been back in production now for three months and I am glad to say that we now find ourselves in our normal situation regarding the supply and demand of the mills flour.

Our covid policy has become second nature and we feel safe and confident with our production and new procedures. Rod, being under 70 and out of isolation from his travels is back with the team. Ian is doing a splendid job filling Bob and Brian's shoes and Leon's keeping us all consistently grounded. On we go!

We also have now been open to the public, for the last two months at weekends, which has gone well, and are selling flour to public visitors. At the moment a procedure is being put in place

so that friends will be able to safely buy discounted flour from the mill as well.

An interesting aspect of our new Covid-19 procedures is, in common with so many other organisations, we no longer deal in cash. We now invoice all our wholesale customers and all of our visitor admission and retail transactions are by card. This may well be the start of a cashless society.

**This year's
production of our super
flour to date this year is
3,552.2 kg.**

(7,831¼ lb. or 563⅓ St. or 3½ Ton. Ed.)

BUSKER'S CORNER



On a fine summer's day one could be forgiven,
For staying outside and enjoying the weather,
But then one would miss the big wheel being driven,
And the millrace a-churn with the fast water nether.
There's plenty to see when the millers are milling,
With a Mill Guide on hand to give guidance and history,
And all who come by can learn plenty, if willing,
To go home quite proud the Mill's not now a mystery.

**WHAT IS THIS, AND
WHAT DOES IT DO?**
Answer on last page



ENGINEERING GAZETTE (1)

By Richard Bull (including image)

The Tide Mill's Water Wheel

The heart of the Tide Mill is the Water Wheel, or so some of us think. Others believe the grinding stones or other parts are the heart. But, there is no doubt that without the water wheel nothing would happen (unless you count the modern electric motor which drives one pair of stones).

The water wheel is a work of carpentry art but it is also a product of 250 years of theory and empirical and practical research. Back in 1767 Jean Charles Borda analysed water power technology (For those of you who want to read more on this I would suggest reading "*Stronger Than a Hundred Men*" by Terry S. Reynolds). Over the next 150 years various academics and engineers refined the design until we arrive at today's state-of-the-art wheel at Woodbridge. But is it?

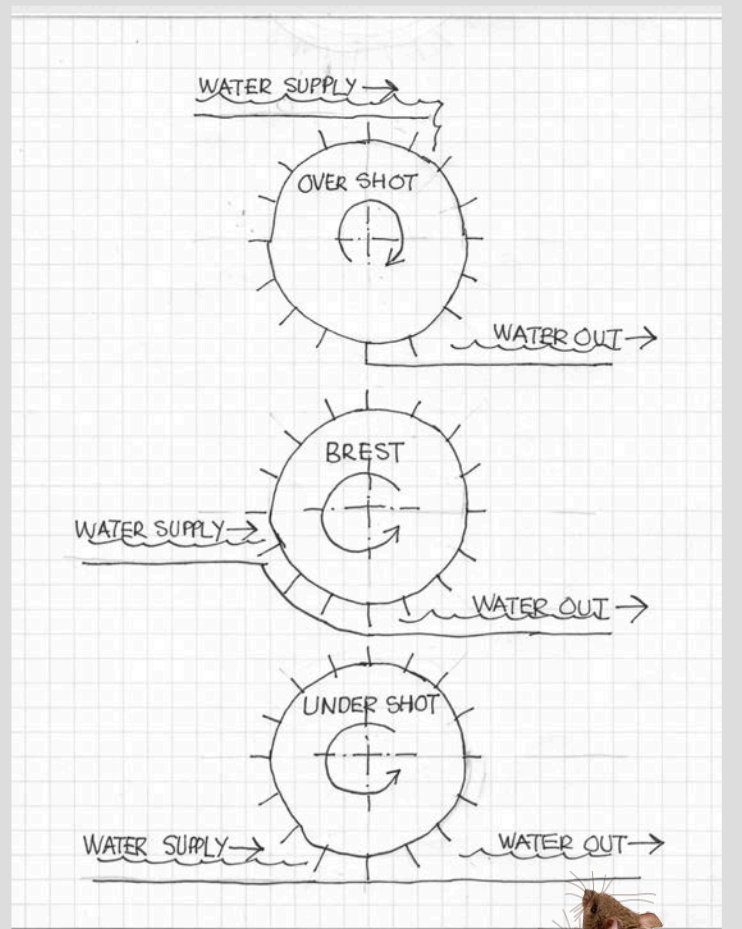
For those who don't already know, there are three main methods for driving the water wheel. Overshot, Undershot and Breastshot (see attached sketch). Now you could be forgiven for assuming that because our wheel was recently constructed it must be the most advanced design. Unfortunately, this is not correct, possibly because the last refurbishment of the Mill demanded a faithful reconstruction of the old wheel.

If you were starting from scratch designing and building a new mill, taking into account 250 years of experience, you would look at the power supply. This is the amount and height of water available.

Next you would look at how this water is to be used to drive the wheel. And, if possible, choose an Overshot wheel because this has the greatest efficiency. Sixty percent, 60%, compared with 50% for a Breastshot wheel or a measly 25% for an Undershot. Next you would look at the available materials and craftspeople. Wood would be the popular favorite, there being plenty of people with wood-working skills about. But iron would be the best choice as this would allow more intricate shapes for the buckets. Over the years it has been demonstrated that curved buckets are the best.

So why is our Tide Mill an Undershot wheel which, as stated above, offers the least efficiency? A quick look at the ground level around the Tide Mill and the water level achieved by the tide in the pond provide the answer. To achieve the maximum amount of water, and hence the maximum milling time, the Mill pond outlet needs to be as low as possible. Next consider that for an Overshot wheel, the most efficient, the top of the wheel would need to be at or just below the height of the outlet. A quick look at the relative levels of the outlet (look down the Penstock valve pit), and the top of the wheel show how deep the wheel would have had to be sunk into the ground to achieve this. Now bear in mind where this is. The Tide Mill is located alongside a tidal estuary river and it becomes clear that much of the mill would be submerged by ground water all day and even more by the tide when it rose.

So, we are stuck with the least efficient arrangement due to the height of the water to drive the wheel and the design was due to the need to replicate what was there originally.



ENGINEERING GAZETTE (2)

By Richard Bull (including images)

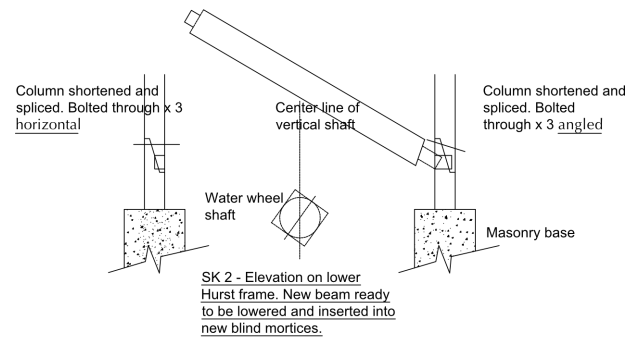
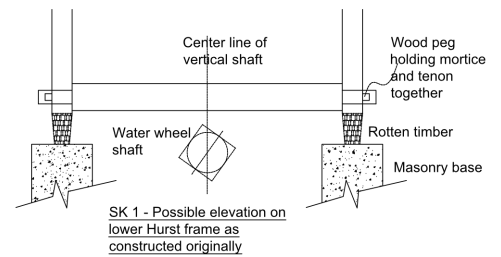
[Richard sent me two articles 'for future use', but, rather than save them, they are both presented here in this last edition of the old newsletter. Ed.]

Spliced Columns to the Hurst Frame, & Horizontal Tie Bars.

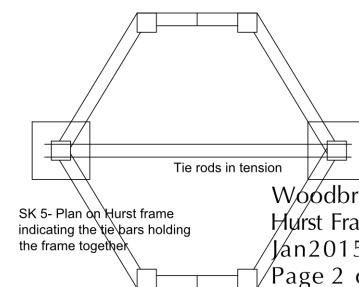
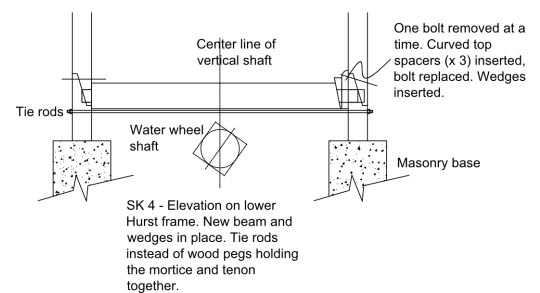
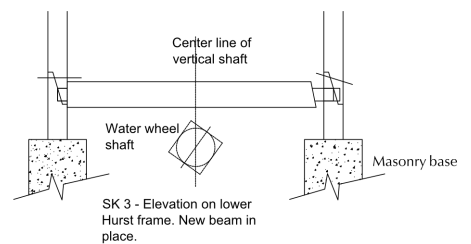
This article provides one possible reason why the Hurst Frame Columns were spliced at the bottom.

- 1 - Originally the beam supporting the vertical shaft had extended twin tenons which passed through the posts at each end and were secured by pegs. See SK 1. These pegs held the posts together.
- 2 - When the bottom of the posts rotted, see SK 1, a repair was made.
- 3 - The preferred repair was to splice in new timber just above the masonry foundations, replacing the rotten timber. See SK 2. These splices were held together by three bolts in each post. On the LHS the bolts are horizontal. On the RHS the bolts are angled up. See SK 2,3 and 4.
- 4 - The problem was how to insert a new beam, with tenons long enough to protrude outside the posts so that new pegs could be inserted?
- 5 - The answer was to shorten the beam and use tie-bars to pull the posts together instead of the extended tenons and pegs described in 1 above.
- 6 - SK 2 indicates how the shortened beam could be lowered into the right-hand post first and then the left-hand post and slid left. See SK 3. The reason why the LHS bolts could be horizontal was because the beam would miss the heads of the bolts as it was lowered, before being slid to the left. On the RHS the heads of the bolts would have fouled the beam unless they were angled up; see 3 above.
- 7 - The gap between the beam and the right-hand post was then filled with three pieces of wood. These can be seen with curved tops, see SK 4. The three angled bolts each pass through one of the curved top pieces of wood. To achieve this each bolt was removed, one at a time, and fixed through the pieces of wood with the curved tops. Thus, the splice was always held together by at least 2 bolts.
- 8 - Finally wedges were driven in to tension the beam against the tie-rod. The tie-rod could also be tensioned by tightening the nuts.
- 9 - SK 5 indicates the Hurst frame, albeit diagrammatically, in plan. This demonstrates how the tie-rod tension the Hurst frame.

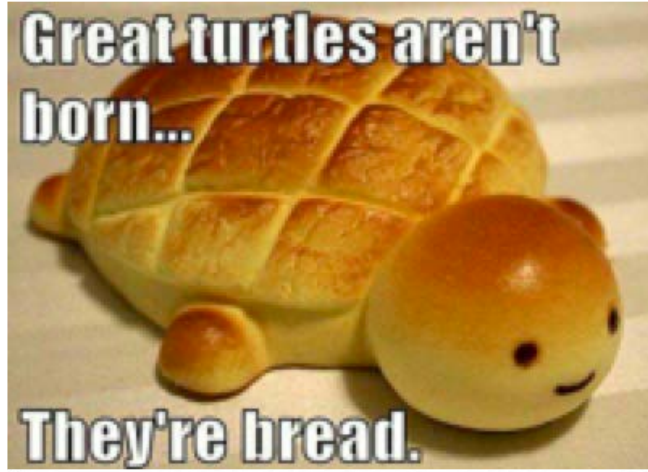
(I asked Richard where and what they are, to which he replied, "I can't do better than to quote Wikipedia "An internal framework supporting the gears and millstones. This isolation prevents damage to the building from the vibrations of the workings." As for location, it is that structure within, what you could describe as, the outer shell which provides weather protection, i.e. the white feather edge boarding on the outside." So now we all know. Ed.)



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Hurst Frame and Tie Bars Jan 2015
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Diary Dates for 2020

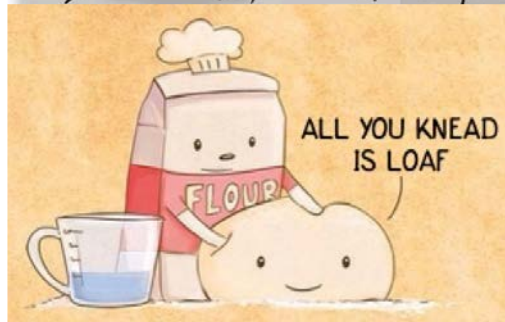
FOR THE TIME BEING, WHILST THE TIDE MILL REMAINS PARTLY CLOSED, WE ARE SUSPENDING THIS TABLE OF EVENTS, PENDING CLEAR INSTRUCTIONS LEADING TO A SAFE STRATEGY, WITH REGARD TO THE CURRENT COVID 19 CRISIS



Correspondents: all copy for the next (Christmas) edition to be sent to p.t@gmx.com by the middle of November please.



Panic stations in Heaven's bakery...



WHAT IS IT? ANSWER

This is the gearing drive for the Flour Dresser which can be found on the second floor. The Flour Dresser, although not used now, was installed to sieve out larger pieces of material which were not wanted in the final product.



PURPOSE: The purpose of this newsletter is to support and advance the objectives of the Trustees of Woodbridge Tide Mill. The newsletter provides all supporters a forum of their own, together with information about current and future events and it is hoped it will foster a sense of common interest and shared identity, encourage increased participation and entertain.

EDITORIAL POLICY: The editor has full editorial responsibility for the newsletter. Articles that appear and views expressed are not the official position of the Trustees on any subject, unless specifically noted as such. Items submitted for inclusion may be edited for grammar, style and/or space requirements and contributors wishing to be alerted of any changes prior to publication must notify the editor at the time of submission.

IMAGES: Unattributed images are by the article author or Ed.

DISCLAIMER: The p2 Glenn Miller gag cartoon is not making a comment about any real helpers at WTM.

TTFN. ED.



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