‘THE WILD MARE’

A Medieval Treadwheel in St James’ Church, Louth

Chris Marshall
‘The Wild Mare’ medieval treadwheel at St James’s Church, Louth. A 12 ft diameter clasp-arm wheel which was built in 1501 for the building of the spire.
The Spire and the Making of the Treadwheel

St James’s Church, Louth in Lincolnshire at the lofty height of 287’ 6” (or 293’ 1” to the tip of the weathercock) has the tallest medieval parish church steeple in Britain and its gloriously proportioned late-medieval architecture is also widely regarded by many as amongst the very finest anywhere in the country.

The exact date when the new tower was started is uncertain but the latest research suggests it was in the mid-1450s. The tower was finished by 1499-1500 when preliminary work was completed in readiness for the spire. From this time ‘The First Churchwardens’ Book of Louth’ records in fine detail the progress of the work that would take 15 years to complete from 1501-1515.

The height to the top of the tower is 147 feet, a considerable distance to haul up the heavy materials for the building of the new spire above. Before the treadwheel was built we only have a couple of clues to how the stone was raised in the building of the tower. In 1500 a payment of 3d is made to Rob Lamkyn for a half-day mending a ‘wyndas’ (windlass - a hand-cranked device with rope and pulley) and ‘3 wyndyls’ are included in a list of the ‘Kyrke goods’.

In 1501-2 payments appear in the accounts ‘for the feryn makyng’ these being for the construction of a ‘feryn’ or treadwheel. This term is believed to derive from the word ‘verne’ which is another name for a medieval hoisting machine. Variants of the name are verna, fernum or ferne. This was a much more efficient ‘engine’ allowing more material to be lifted at once and by less effort.

The accounts commence with the gift of one tree and the purchase of another at 3s 4d (perhaps both yew) from the Abbott of Louth Park, a nearby Cistercian House. Another 4d was spent on the felling and 6d was paid for carriage of one load by Willm Joneson, the other load being given free by Rob Ynglych, a churchwarden. Two ash trees which were gifted from the Thorpe Hall estate of John Chapman, another of the churchwardens, were transported for 3d and John Peneston was paid 3d for carrying timber from St John’s Chapel which then stood in the centre of the town. Gilis Kynyerby who appears foremost in the subsequent construction of the wheel was paid 9d for a day-and-a-half ‘chesyng and cuttyng of the said tymbyr’ and for ‘cartyng in ’met & drynke’ 3d.

In addition to the cost of the timber work the expenses for the hardware is also listed. Willm Fasch was paid 2d for ironwork and John Haeson ‘smyth’ was paid 16d for a ‘pully shife’ (pulley sheave) of brass. Thomas Tayleyor was paid 4d for 100 ‘nayles’ and Rob Beverly 13d for an unspecified quantity of nails and 2s for ‘spanych iryn’. The costs to this point are recorded in the book as 10s 7d.

Then follow the accounts for the actual construction of the wheel. Four men are named. Gilis Kynerby is paid for 16½ days work and his apprentice for 14 days; Thomas Couper (whose trade is given as a ‘wright’ elsewhere in the accounts) is paid for 13½ days and his son the same; Rob West for 16½ days and Jeffray Burscall & his fellow 3 days for ‘sawing of the said warke’.

1 

The First Churchwardens’ Book of Louth
Payments are paid over a 4 week period from the 2\textsuperscript{nd} Sunday of Lent to the 5\textsuperscript{th} Sunday which was Passion Sunday. A total of 41\textsuperscript{s} 1\textsuperscript{d} in wages are paid for the construction and along with the previous costs of 10\textsuperscript{s} 7\textsuperscript{d} for the timber, cutting, carting and hardware a total cost for the wheel of £2 11\textsuperscript{s} 8\textsuperscript{d} is given.

The winding cable or rope required for the wheel appears in the next year’s accounts perhaps due to the wheel having been constructed late in the previous year during the period of Lent –

‘\textit{It paid to Joh Norman for the gret capull 11 ston & 6 lji weyght [160 lbs]} & makyng...........................................13\textsuperscript{s} 4\textsuperscript{d}.’

Joh[n] Norman appears many times in the accounts for repairing and replacing various ropes in connection with the bells and along with the absence of costs for carriage in the accounts it appears that this rope was made locally by him.

The original cable or rope sufficed with some repairs until 1509 when it became necessary to purchase a new one. The entry appears thus –

‘\textit{Paid for greet capull to wynde up ston 3 score 4 fathome bought at [Kings] Lyn......16\textsuperscript{s} 4\textsuperscript{d}. careage by water to Ingomels......3\textsuperscript{s}. and for a man wagis & cost......2\textsuperscript{s}. and careage to Louth......16\textsuperscript{d}.}’

The 64 fathoms of rope was 384 feet in length which was very nearly 100 feet more than the height of the combined tower and spire - 1 fathom equalling 6 feet.

The new wheel was put to immediate use for on the following (Palm) Sunday a payment of 6\textsuperscript{s} was made between Thomas Garbara, Joh Gybson, Rob Wildman and Joh Oldman each receiving 18\textsuperscript{d} for 6 days work for -

‘\textit{wyndyng up stone to the brooch’}.

A platform might also be required on which to place the materials to be hoisted up - stone and mortar for the building and wood for the scaffolding etc. There are several instances of a ‘carre’ (sometimes spelt ‘care’) mentioned in the accounts and this is likely to be for the hoisting car or cage. In 1507-8 Rob Horn a ‘smyth’ was paid 2\textsuperscript{d} for ‘iryn warke aboute the care’ and in 1510-11 Thomas Couper, wright was paid 20\textsuperscript{d} for 3½ days work making ‘a baro and new care’. Other costs appear from time to time including in 1507-08 -

‘\textit{It paid to the said care nayls and 3 plaunkys [planks]....4\textsuperscript{d}.}’

Finally, an overhead frame would be needed with pulleys through which the rope passed to haul up the loads. The brass pulley sheave listed amongst the original costs may have been part of this mechanism. The frame is referred to as a ‘verne’ or ‘falcon’ in other medieval documents but in our accounts the term ‘feren hede’ is used. In 1512-13 Thomas Couper, wright and Thomas Garbara are paid 5\textsuperscript{d} for half a day ‘takyng doune feren hede’ and in 1515 after the work on the spire had finally been completed Laurence (Lemyng - a mason) is paid 4\textsuperscript{d} for ‘setyng up feren’ and 8\textsuperscript{d} for ‘stryking feren hede’. 
Treadwheel references from the First Churchwardens’ Book

1502 - William Fasch is paid 10d for ‘helpyng’ or mending the carre and for bolts of iron about the wheel. A payment for the great rope also appears in the same year and payments are made for 24 days of winding stone at 3d per day.

1503 - The ‘carre’ is again mended and there are payments for a total of 26 days for winding stone. Labourers are now paid 4d a day for this work.

1504 - Thomas Couper is paid 16d for mending the wheel for winding stone and William Fasch 4d for mending the ‘coyan & soke’ [rod & socket].

1505 - Maintenance costs include 2d for ‘sope’ to the great wheel (for lubrication), 2d for iron work about the wheel, and 6d to Thomas Couper for one day working about it. There are many payments in this year for men winding stone and payments to Thomas Couper for both setting up and striking scaffolding from the ‘broch’ (spire) and for striking scaffolding from the ‘erchbotons’ (flying buttresses). These payments were made on the 2nd Sunday of Advent after which the masons stopped work suggesting construction to the top of the corner pinnacles was probably completed by the end of this year.

1509-10 - There are substantial payments to Thomas Couper for 10 days making ‘flours’ (floors) and payments totalling 11s for setting scaffolds and the feren (5 days - 3s 4d), ‘aboute sayd feren’ (6 days - 4s) and ‘aboute the said feren settyng up’ (11 days - 7s 4d). The great cable was also purchased at this time.

The current position of the wheel may not necessarily be where it was located during the construction of the spire. If it was dismantled and moved around as work dictated (as seems likely) then these larger payments may be an indicator of that process. Realignment or carpenter’s marks that are still visible on many of the scarfed joints would aid the subsequent reconstruction of the wheel.

1512 - There is another substantial payment of 10s to Thomas Couper recorded as ‘toke [?]down feren in greet’ and payments were made for taking down the great rope and the feren hede. Repairs are also made at this time - 2s 8d to William Stotart for ‘tymbire to the feren’ and 2s (an ‘old deet’) for iron work. This work may signal another important point in the construction of the spire and almost certainly the wheel was moved at this time.

1515 - During the final year of construction, Laurence [Lemyng - a mason] was paid 4d for ‘setyng up feren’ and 8d for ‘strykng feren hede’. The same Laurence was paid 5s for completing the final work on the spire - ‘stopyng holys aboute the broch’ - that is filling the putlog holes in the spire into which the scaffolding had been attached. It is also likely that at this time the treadwheel was placed in the position it still holds in its own cell immediately below the spire floor.

1523 - Some 8 years after the spire had been completed Thomas Graffe is paid 5d for ‘wyndyng in gret wheyll’. This later date confirms that the wheel had been left in situ long after the final spire construction was complete. It is clear by use of the term ‘in’ that the wheel was of the same type that still exists today. Payment to one man also suggests it might be used by a single operator.
The wheel is used to lift up the Coo Bell and Lady Bell and is referred to for the first time as ‘The Wild Mare’. This is surely an allusion to the runaway danger that might ensue if a man slipped whilst under load. It was probably last used in December, 1844 to hoist up the top stone of the spire which had been damaged by lightning the previous year. The lift took 30 minutes and was accompanied by the ringing of the bells. Writing in 1873 the architect James Fowler inferred that the wheel was still being used for lifting the bells.

**Development of Treadwheels** - Treadwheels were known to the Greeks and Romans but fell out of use in Europe until their rediscovery in the later-Middle Ages. ‘Machines’ were already being used during the rebuilding of Canterbury Cathedral in the 1170s but it is not until 1331 that a treadwheel is specifically mentioned for the first time in English records. The clasp-arm type (as the wheel at Louth) also starts to appear in illuminated manuscripts from c.1380.

A treadwheel has a much greater mechanical advantage than a hand-operated windlass. The 12ft diameter wheel and 1ft axle of the Louth treadwheel gives a ratio of 12:1 compared to 3 or 4:1 for a small windlass. An 11-stone operator using the Canterbury wheel in the 1970s was able to hoist 8 hundredweight or approximately 900 lbs by himself ([Medieval Treadwheels- Matthies A.L. 1992](#)). Sometimes the wheels remained after their primary purpose was served and thus the late-15th century Canterbury wheel was still being used in the 1970s and the wheel at Beverley was only superseded by an electric hoist in 1977.

**English Medieval Treadwheels** – Survivals in churches are rare but two types of wheel are known. The simple single-wheel ‘compass-arm’ (like a cartwheel) has rungs projecting sideways through and around the outer rim. It may be that these rungs were used to tread the wheel or by grasping them a combination of pull (and push if two men) might be employed. This is the earliest of the types and is a development of the smaller hand-cranked windlass. Examples exist at Peterborough Cathedral and Tewkesbury Abbey.

The second type, as the one at Louth, is the ‘clasp-arm’ having two wheels with planking between forming a drum within which the man (or men) walked the wheel. The spokes of the wheel radiate from the two outer rims or ‘felloes’ and clasp around the central axle. This strengthens the wheel and also allows more space for the man to walk within the drum. Examples of this type still exist at Beverley Minster (believed to date from the 1720s), Canterbury Cathedral (late-15th century) and Louth (early-16th century). Another earlier example in Salisbury Cathedral (13th century) has characteristics of both types.

The Louth wheel is therefore one of only six still located within an English church or cathedral. A similar wheel was removed from Chesterfield’s church in 1947. In 1994 it was restored and is now on display in Chesterfield Museum.

At Louth in 2017 funding was obtained for new lighting and a new viewing door to the cell within which the wheel sits. This allowed visitors climbing the tower to see the treadwheel and along with the new information boards learn more about the building of the steeple.
Carpenter’s positioning marks on the felloes

Tx DAE and pentangle marks (possibly for protection) on one of the spokes

Iron collar around terminal of axle
Iron strapping and wedges around axle
Treadwheel depicted in ‘Reconstruction of the Temple of Jerusalem’

[William of Tyre - Histoire d’Outremer 1276]