

# **CHURCH OF ST MARY MAGDALENE**

# **HUNTSHAW**



## **REPORT ON THE CONDITION OF THE BELLS, BELL-FRAME AND FITTINGS**

Inspection carried out on Tuesday 7<sup>th</sup> March 2017 by David Hird (Assistant to the Exeter DAC Consultant on Bells and Clocks) and Ian Campbell and Ian Smith (Bells and Belfries Advisors to the Guild of Devonshire Ringers), assisted by Robert Franklin; met by Peter Denard (Church Treasurer). This report also makes reference to the findings of Prebendary John Scott, former Bells Advisor to the Diocese of Exeter, from his visit in December 1979.

## **HISTORICAL**

The small hamlet of Huntshaw lies some three miles north of the town of Great Torrington, to the west of the B3232 Torrington to Barnstaple road, the church standing at an elevation of just under 400 feet above sea level. The church dates from the early 14<sup>th</sup> century, though was reconstructed in the 15<sup>th</sup> century, probably in or after 1439 when Bishop Lacy granted an indulgence in aid of the rebuilding of the fabric. It was later much restored in 1862.

Three bells are listed in the Inventory (Survey of Church Goods) of 1553, one of which, the tenor cast by Thomas Geffries of Bristol c.1500, still remains. The present treble bell was cast in 1634 and is one of a group of eight bells in the county bearing the letters "W.K." as the founder's initials. It has not been possible to identify who "W.K." was, though he may have been an apprentice to the Penningtons of Barnstaple, the inscriptions and decorations he used bearing marked similarities to those used by the Penningtons. The present second bell was cast by John Pennington of Exeter in 1665. All three bells are "Listed" by Churchcare as being particularly worthy of preservation.

It is not clear when the bells were last rehung. The fittings would indicate early 19<sup>th</sup> century, though could be earlier. The bell-frame is certainly of an earlier date.

## **TOWER**

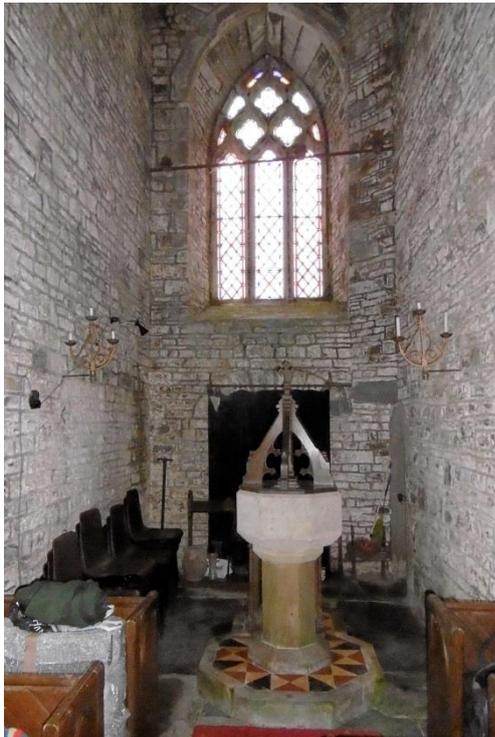
The west tower, of coursed slatestone rubble with ashlar dressings, approaches 60 feet in height. It is diagonally buttressed at all four corners to just below the parapet, the corners being surmounted by slender octagonal pinnacles. There is an internal stairway with four light openings built into the NW corner and reaching to belfry level.

Each face of the tower is pierced centrally at belfry level by twin-light square-headed sound exit louvres. Additionally the W face is pierced by a low arched doorway with a three-light window in Reticulated style above; the E face appears to be pierced by a small window at approximately two-thirds height, though it is in fact blocked; the N and S faces are otherwise unpierced. A lightning conductor descends at the W end of the N face. Water from the roof is discharged through a spout above the louvres on the N face.

The tower is of three stages, the lower stage comprising the ground floor chamber/former ringing room together with the lower part of the intermediate chamber; the second stage

comprises the upper part of the intermediate chamber; and the upper stage comprises the bell chamber and roof.

The **Ground Floor Chamber** measures 8 feet 9 inches square (with a further 3 feet eastwards under the nave arch) and is 23 feet in height. The walls are of roughly dressed stone and the floor is stone-flagged. The S wall is unpierced; the W wall is pierced centrally by a deeply recessed arched doorway to the outside with the three-light W window above; the N wall is pierced at its W end by a doorway to the tower stairs; the E wall comprises a tall unmoulded archway through to the nave. The doorway to the outside is curtained. The E side of the chamber is occupied by the font, its raised plinth being paved with encaustic tiles.



*The Ground Floor Chamber*

The ceiling is boarded and is supported by two main beams running N/S and resting on corbels built into the N and S walls. Some of the boarding on the S side appears to be affected by damp. Three rope holes can be seen in the W side of the ceiling just inwards of the W wall. A metal rope guide with wooden inserts spans the W side of the chamber approximately 15 feet above floor level, though no ropes are present. The guide is secured into the N and S walls.

There appears to be no permanent lighting in the chamber though candelabra are mounted on both the N and S walls.



*The Ground Floor Chamber looking up, showing the Metal Rope Guide, the Rope Holes in the Ceiling, and the damp affected boards on the S side*

38 steps in the tower stairway lead to an opening into the **Intermediate Chamber**. The steps have a significant covering of dust and bird nesting material, in addition to being very worn, and present quite a slipping hazard. They should be swept clean to reduce any chance of an accident occurring.

The floor of the chamber is 6 feet 10 inches below the cill of the opening and a ladder would be necessary to access it. Currently the opening has a wooden barrier across it to deter access. If it is desired to enter the chamber at any time in the future, either to clear any dust and debris, or perhaps to feed through new bell-ropes, extreme caution would need to be observed due to the uncertain condition of the floor.

There is a noticeable offset in the N, W and S walls of the chamber at the level of the entry opening. Above the offset the dimensions of the chamber are 10 feet 2 inches N/S by 9 feet 5 inches E/W. Below the offset the dimensions are as in the chamber below. The total height of the intermediate chamber is 15 feet 7 inches. Other than the entrance opening the walls of the chamber, which are of roughly dressed stone, are now totally unpierced, though the E wall has a recess, now blocked up, which would appear to have been a window, as seen from outside the tower.



There is a large beam spanning the chamber N/S, one end resting on the offset of the S wall with the other end resting on a further shorter beam running across the NW corner. The purpose of these beams is unclear.

The ceiling of the chamber is supported by six oak beams running N/S and resting on the higher offset of the tower walls. These beams also form the foundation for the bell-frame above and several securing bolts can be seen penetrating them. We were not able to examine these beams closely and so cannot comment as to their integrity.

*The Intermediate Chamber*

The **Bell Chamber** is reached by means of a further 14 steps in the tower stairway. This chamber measures 11 feet 11 inches N/S by 10 feet 8 inches E/W and is 11 feet high to the base of the roof timbers. Each face of the chamber is pierced centrally by twin louveres with slats of slate, all covered internally by ½ inch weldmesh on a wooden framework. The mesh and framework over the S louveres had fallen inwards and was resting against the wheel of the tenor bell at the time of our visit. This should be re-secured. The louvere cills and the floor of the chamber, as with the stairs, have a significant covering of dust and other debris which



should be cleaned away. The chamber is almost totally occupied by the bell-frame which sits quite closely to the walls on all four sides.

*The Bell Chamber*

The **Roof** is supported by one main beam running centrally N/S from which rafters run up to the E and W walls. The roof is accessed by means of a wooden ladder running from the return frame head at the W end of the pit for the treble bell. The lead covered trap onto the roof is not fixed or hinged and is heavy to open. The roof is slated; one slate had slid out of

position such that light could be seen through the roof from the bell chamber. This was replaced and temporarily fixed by the rather weak clip that previously held it in position. Several other broken pieces of slate were loose in the central gully which empties to the spout on the N face of the tower.

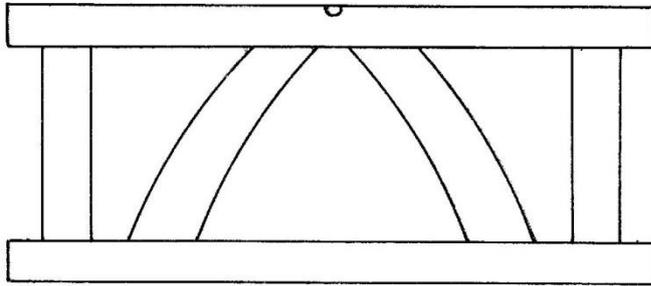


*The Roof with Access Trap Open, showing various broken pieces of slate in the central gully*

## **BELLS, BELL-FRAME AND FITTINGS**

The **Bell-Frame** is of oak. It consists of long cills and heads with slightly curved braces from cills to heads and end-posts (Pickford 6.A). The braces are mortised into the cills and heads and are trenailed with wooden pegs. The return heads are slotted onto the ends of the side frame trusses and stand slightly higher.

There is significant decay in some parts of the frame; indeed part of the return head at the W end of the tenor pit broke away as we were recording it. Having said that, the frame stands well and is reasonably robust. Various strengthening measures have clearly been taken over



the years, including a rather slender king-post inserted under the S bearing of the tenor bell, and an additional strut across the W end of the tenor pit.

*Standard Side Frame Truss*

The frame is arranged such that all the bells swing side-by-side in an E/W direction (see appendix), this being the stronger direction of the tower (Pickford 3.1).

It is difficult to date the frame with any certainty without the aid of dendrochronology or carbon dating. Even then, some timbers may have been re-used from a former frame, so further confusing the issue. Whereas a professional bell-hanger would build a frame in contemporary style, if the frame had been built by a local estate carpenter – as was often the case in former times – it could have been copied from what was there before. We would guess that the frame dates from the 17<sup>th</sup> century, though must emphasise that it could be earlier, or even later if some of the timbers have been re-used.



It should be noted that, like the bells, the bell-frame is “Listed” by Churchcare as worthy of preservation, and thus any repair or alteration would have to be formally approved.

*The Frame Truss between the Treble and Second Bells*

The **Bells** are somewhat mixed tonally. We would describe the treble as being somewhat indifferent, the second quite poor, and the tenor good. All the bells retain their cannons (supporting loops), though one of the single cannons on the tenor is broken. The second bell has a crack emanating in the crown and travelling towards the waist on the N side, this contributing to its poor tone. None of the bells has been turned so as to distribute wear at the point of clapper strike, though, having said that, none are particularly indented at the present point of strike. This would indicate that the bells have not been heavily used over the years.

None of the bells show any signs of having been tuned, the founders of the day just producing bells as near as they could to the desired notes. Analysis of the notes of the bells gives the following:

Treble	1078 Hz	(C +51 cents)	+17 cents
2 <sup>nd</sup>	933.5 Hz	(A# +2 cents)	-32 cents
Tenor	847 Hz	(G# +34 cents)	(datum)

Thus, taking the note of the tenor bell as the datum, the second bell is very flat and the treble is rather sharp, with nearly an extra half semi-tone between them.



*The Treble Bell by "W.K."  
1634*



*The Second Bell by John  
Pennington 1665*

*The Tenor Bell by Thomas  
Geffries c.1500*

All the bells retain their cast-in **Crown Staples** from which the clappers hang. The presence of cast-in staples is a common cause of bells becoming cracked – as has happened here to the second bell – due, firstly, to corrosion in the staple itself and, secondly, to the differential expansion between the iron of the staple and the bronze of the bell. Whenever major bell restoration takes place it is now standard practice for cast in crown staples to be cut off and their stubs thoroughly drilled out, and to be replaced with independent clapper staples bolted through a stress-relieving hole in the crown of the bell.

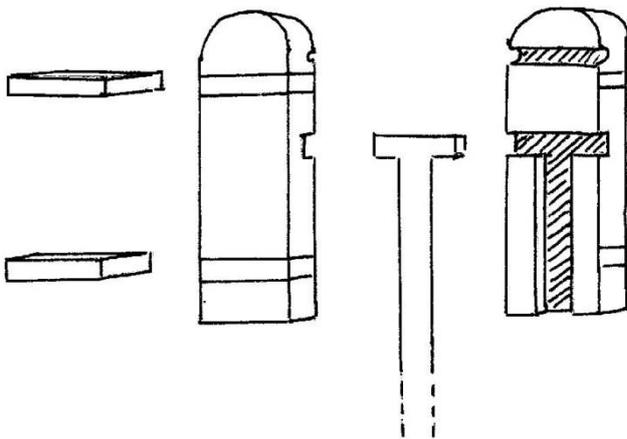
The **Clappers** are quite ancient, having T-shaped tops enclosed in hardwood boxes, the boxes pivoting on the clapper staples. The treble clapper has a square shaft and roughly square flight; the second clapper has a round shaft and flight; and the tenor clapper has a roughly round shaft and flight. All are somewhat crudely forged. The flights are all quite long, compared with modern clappers, and the balls are very squat, particularly that on the tenor. All the clappers exhibit considerable sideways play of between 7 inches and 13½ inches, indicating that the suspensions are somewhat worn.



*The Treble Clapper*



*The Tenor Clapper*



*Exploded View of Clapper Tops*

The **Headstocks** are of elm, those on the treble and second bells showing considerable evidence of worm attack. That on the tenor is particularly large and shows much less evidence of worm. It could possibly be a more recent replacement. The treble and second bells are suspended from their headstocks by means of two outer sets of straps and dogs, with two central hooked bolts, one either side of the headstock. The tenor is suspended on each side of the headstock by one U-bolt and one hooked bolt. The **Gudgeons** are plate gudgeons and each secured to the headstock by means of two U-bolts.

The **Bearings** are plain bearings consisting of brass cups set in cast iron housings and recessed into the frame heads. They all appear to be in relatively good condition and would merely benefit from cleaning.

The **Stays** are of curved design and are each secured to their respective headstock by means of two single bolts. All the stays are reinforced with iron straps. This is inappropriate, as

the stay is designed to act as a safety valve, breaking under excessive force and so preventing more catastrophic damage to the crown of the bell.



*Bearings of the Treble and Second Bells*



*Reinforced Stay on the Treble Bell*

The **Sliders** and **Runner Boards** are all functional, though the runner boards are somewhat crudely made and are now suffering some decay.

The **Wheels** are in somewhat variable condition. That on the treble bell is reasonably robust though the rim is deteriorating and suffering from worm attack and the wooden wheel braces



are very loose and starting to come adrift. The wheel on the second bell appears in similar condition to that on the treble, but is distinctly more rickety. The tenor wheel is in poorest condition, and part of the upper portion of the rim has completely broken away.

*Broken Wheel on the Tenor Bell*

The **Pulleys** all consist of hardwood sheaves running in hardwood boxes. They are all in surprisingly good condition and are quite free-running.

Only remnants of the **Ropes** are still in place on the treble and second bells; that on the tenor being completely missing.

## **DYNAMIC INSPECTION**

The bearings were superficially cleaned out and oiled, and the bells were manually swung to about one-third height, it being deemed inappropriate and imprudent to attempt to swing them any higher due to the state of decay of the installation generally. The bearings were clearly functioning well and no undue looseness was detected in the fittings. The bell-frame appeared reasonably robust, in spite of its obvious state of decay, and surprisingly little flexing was encountered. We would conclude from this that the bell installation is quite safe in its static state, though it would be wise to carry out repairs at the W end of the tenor pit to negate any chance of the side frames spreading apart.

## **RECOMMENDATIONS AND SUGGESTIONS**

Normally at this point we would make recommendations as to what needs to be done to maintain the bells in ringable condition. Clearly, in this case, such recommendations would be inappropriate and we would merely make the following suggestions as to immediate steps which should be taken, mainly of a domestic nature, in order to preserve the status quo while thought is given to the future of the bell installation.

1. Clear all dust, debris and bird nesting material from the tower stairs and the bell chamber.
2. If deemed safe to do so, clear the intermediate chamber of all dust and debris, as its presence will only serve to harbour damp and encourage the proliferation of wood-boring insects.
3. Secure the mesh and wooden framework over the S louvre in the bell chamber.
4. Carry out repairs to the return frame head at the W end of the tenor pit to prevent the side frames from spreading.

We would see the options for restoration of the bells as follows.

### **Rehanging for Full-Circle Ringing**

This is what the bell installation was originally designed for. However to achieve this would be prohibitively expensive for such a small parish, especially having to take on board all the conservation issues of “Listed” status. Also it would be necessary to train a team of ringers to ring the bells, something which can be very time-consuming. Retention of trained ringers could also be difficult with the attractions of eight bells at Great Torrington not far away.

### **Rehanging for Swing-Chiming**

This would be a slightly less expensive option, and training to operate the bells in this manner need take only a few minutes. There is no doubt that the sound obtained from swinging bells is far superior to that obtained when static bells are struck, this being our next option.

## **Rehanging as a Fixed Chime**

If this approach were adopted it would place very little strain on the bell-frame and only minimal repairs would be required. The bells could be sounded with electrically operated chiming hammers using an electronically operated control panel at the base of the tower. The disadvantage would be that the bells would not be as sonorous as they would be if swung. This approach has been taken recently at Newton Tracey church and it would be worth paying a visit to see what has been achieved there.

Whichever approach is taken it would be advisable to have the old crown staples removed from the bells to reduce any chance of future cracking, and to have the second bell welded, this being already cracked.

The cost of rehanging as a fixed chime would be in the region of £9,500, with the cost of welding an additional £3,000.

We append to this report a diagram of the bell-frame layout at Huntshaw, a diagram of a bell with traditional fittings, and a list of UK bell-hanging companies who may be able to assist you.

David Hird

Ian Campbell

Ian Smith

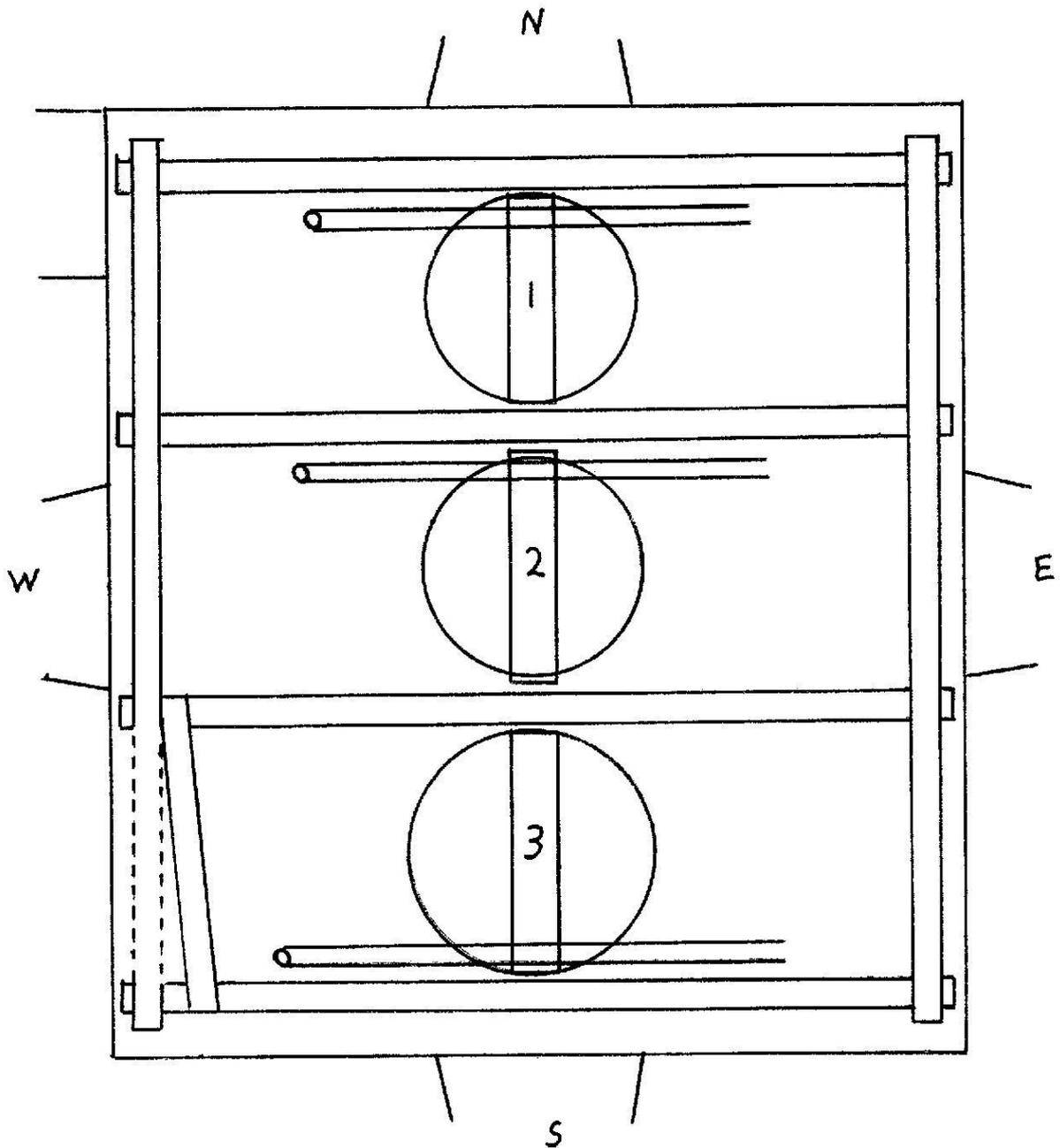
March 2017

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APPENDICES

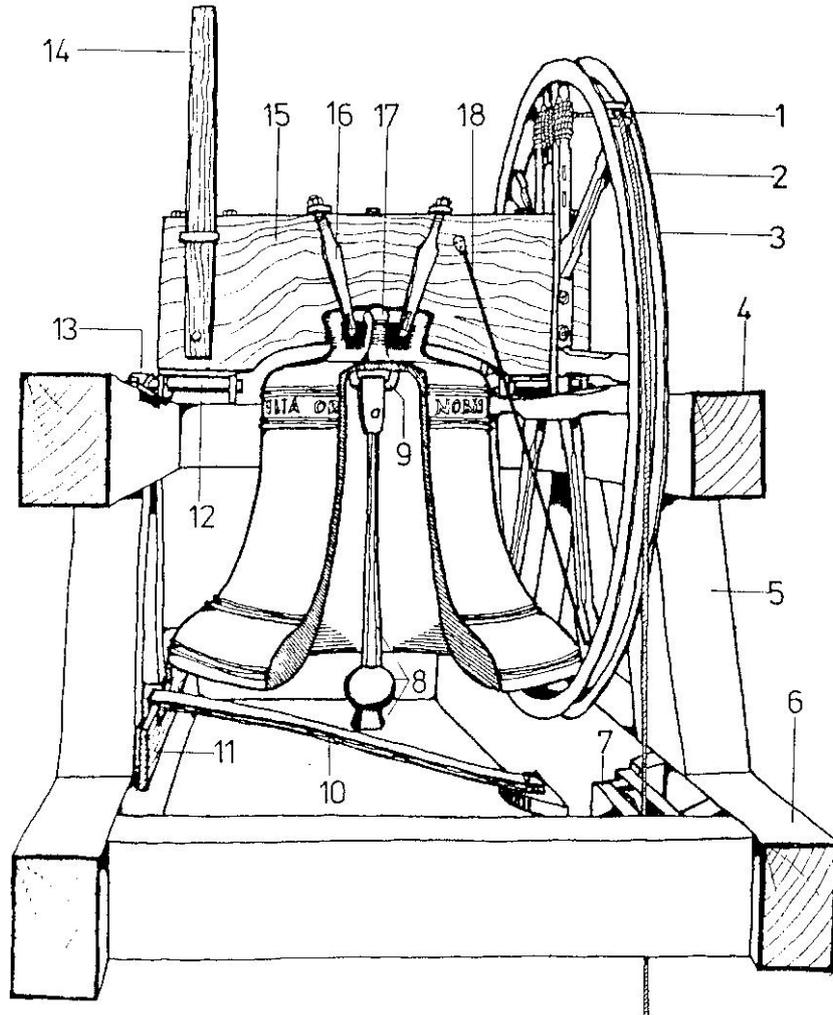
BELL-FRAME LAYOUT AT HUNTSHAW

(Not to scale)



NB. Dotted lines indicate that section of the frame head which has broken away.

## THE PARTS OF A BELL AND FRAME WITH TRADITIONAL FITTINGS



- |    |               |     |              |
|----|---------------|-----|--------------|
| 1. | Garter Hole   | 10. | Slider       |
| 2. | Rope          | 11. | Runner Board |
| 3. | Wheel         | 12. | Gudgeon      |
| 4. | Frame Head    | 13. | Bearing      |
| 5. | Frame Brace   | 14. | Stay         |
| 6. | Frame Cill    | 15. | Headstock    |
| 7. | Ground Pulley | 16. | Strap        |
| 8. | Clapper       | 17. | Canons       |
| 9. | Crown Staple  | 18. | Wheel Stay   |

## **UK BELLHANGING COMPANIES**

### **Nicholson Engineering Ltd**

Correspondence: Walton, Woodmead Road, Lyme Regis, Dorset, DT7 3AB (01297 445865).

Works: Church Bell Works, St Swithin's Road, Bridport, Dorset, DT6 5DW (01308 422264, fax 01308 427172, email [bells@nicholsonbellhangers.com](mailto:bells@nicholsonbellhangers.com)).  
[www.nicholsonbellhangers.com](http://www.nicholsonbellhangers.com).

### **John Taylor & Co**

The Bellfoundry, Loughborough, Leics, LE11 1AR (01509 212241, fax 01509 263305, email [office@taylorbells.co.uk](mailto:office@taylorbells.co.uk)).  
[www.taylorbells.co.uk](http://www.taylorbells.co.uk).

### **Whites of Appleton**

Church Bellhangers, Appleton, Abingdon, Oxon, OX13 5JJ (01865 862549, fax 01865 862969, email [bells@whitesbellhangers.co.uk](mailto:bells@whitesbellhangers.co.uk)).  
[www.whitesbellhangers.co.uk](http://www.whitesbellhangers.co.uk).

### **Matthew Higby & Company Ltd**

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