



Established 1570

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Ref. AH/CB

Mrs Margaret Cartledge, RIBA  
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Bristol BS1 6UB

19 July, 2001

Dear Madam

re: NORTH NEWNTON, WILTSHIRE - CHURCH OF ST JAMES

Following our visit on Tuesday 3<sup>rd</sup> July to inspect the church bells we now report our findings.

#### The Bells

The church possesses a ring of four bells in the approximate key of F<sup>#</sup> as follows:

| Bell            | Diameter                           | Strike Note                                                                    | Weight  | Date  | Founder                    |
|-----------------|------------------------------------|--------------------------------------------------------------------------------|---------|-------|----------------------------|
| Tenor           | 3'-2 <sup>3</sup> / <sub>8</sub> " | *374 c.p.s.                                                                    | 10-2-14 | 1862  | John Warner & Sons, London |
| 3 <sup>rd</sup> | 2'-0 <sup>1</sup> / <sub>8</sub> " | 409 <sup>1</sup> / <sub>2</sub> (11 <sup>1</sup> / <sub>4</sub> <sup>b</sup> ) | 8-0-0   | 1616  | John Wallis, Salisbury     |
| 2 <sup>nd</sup> | 2'-9 <sup>1</sup> / <sub>4</sub> " | 470 (2 <sup>1</sup> / <sub>2</sub> <sup>#</sup> )                              | 7-1-0   | C1400 | Salisbury Foundry          |
| Treble          | 2'-6 <sup>1</sup> / <sub>2</sub> " | 501 (2 <sup>1</sup> / <sub>2</sub> <sup>#</sup> )                              | 5-1-0   | 1616  | John Wallis                |

F<sup>#</sup> International Pitch = 370 c.p.s.

F Old Concert Pitch = 381 <sup>3</sup>/<sub>4</sub> c.p.s.

The Council for the Care of Churches lists the 2nd bell, as well as the bellframe, for preservation.

Bank: Barclays Bank plc., The City Business Banking Team, 54 Lombard Street, London EC3P 3AH.  
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NORTH NEWNTON, WILTSHIRE - CHURCH OF ST JAMES - continued

All the bells appeared sound but are only fair for tone and tune. The 3<sup>rd</sup> bell has been "chip tuned". That is to say metal has been chiselled away from the inside of the bell with the purpose of lowering its strike note. The 2<sup>nd</sup> bell has been "skirted". That is to say metal has been chiselled away from the lip of the bell with the purpose of raising its strike note. The tenor was tuned on a tuning machine at the time of manufacture. The treble bell is uncut. As can be seen from the table above the strike notes are only very approximately in tune with the 3<sup>rd</sup> being well flat and the 2<sup>nd</sup> and treble being slightly sharp. The poor tonal qualities of the bells are due almost entirely to the fact that their hum notes are sharp and their second partials are flat; both with respect to the strike note. Full details of the harmonic structure of the bells is given on a separate sheet of paper.

The bells were made with canons, or supporting loops, and these remain intact. Similarly, they were made with cast in clapper staples and these also remain intact with the exception of that upon the 2<sup>nd</sup> which has broken off flush with the crown. A "false" staple has been bolted to the crown to replace the broken staple and carry the clapper.

Cast in clapper staples, being of iron, are often the cause of old bells becoming cracked due to their rust and consequent expansion. In the event of our undertaking any work to the bells we would reckon to cut away these staples, drill stress relieving centre holes, and remove as much of the iron from the crowns as possible.

None of the bells has been turned to bring a fresh surface to the clapper and as might be expected all bells are now very well indented where the clappers strike.

The Ringing Fittings

The bells are equipped with the remains of fittings intended for swing chiming and these are now in an exceptionally poor and dilapidated state. From their appearance, we believe that most of the equipment dates from either the 17<sup>th</sup> or early 18<sup>th</sup> centuries.

The bells hang from hardwood headstocks, probably Elm, with hoop gudgeons running in plain gun metal bearings let in to the top timbers of the bellframe. These headstocks are variously weathered, knarled, and twisted but virtue of their sizes we believe that they are safe for the present time. The bells are secured to their headstocks with forged wrought iron straps which, on the 2<sup>nd</sup> and 3<sup>rd</sup> bells are held in place with tapered keys and on the tenor and treble bells with coarse threaded nuts. All this ironwork appeared nominally tight, is slender and heavily corroded, but appears safe for the present time.

The clappers are of wrought iron, crudely forged, and with exceptionally long flights. That on the tenor incorporates a baldrick top end wherein a leather liner, held captive by a U-shaped metal strap, runs upon the staple hinge pin. The remaining clappers have "spade handle" top ends and are supported by C.links looping around the crown staples. All clappers are corroded and well worn both at the points of swing and impact.

## NORTH NEWNTON, WILTSHIRE - CHURCH OF ST JAMES - continued

Originally, wheels were in place as were stays, sliders, and runner boards however these have all been removed so that the bells cannot be swung. Indeed, we would recommend against any attempt to swing any of the bells under any circumstance. M

A simple Ellacombe type chime hammer has been fitted beneath the tenor bell so that this bell may be chimed from the ground floor. The hammer is in a perfectly workable state however it does not conform to the current Code of Practice for the Care and Conservation of bells and bellframes issued by The Council for the Care of Churches. The Code calls up a hammer designed in such a way that the hammer cannot be held in contact with the bell. In this particular case, the hammer can be held in contact with the bell and it is important that the bellringer releases the rope as soon as the hammer was struck. In this way the bell may vibrate freely, and sound at its best, and at the same time the chances of the bell becoming cracked due to the misuse of the hammer are minimised. //

### The Bellframe

The bellframe is of Oak, and is designed to accommodate the four bells upon one level. The structure has been set diagonally within the tower in order to make use of the space within the sound openings. The tenor, 3<sup>rd</sup> and 2<sup>nd</sup> bells swing diagonally from the north-east to the south-west whilst the treble swings diagonally from the north-west to the south-east.

The structure is approximately 6'-0" high and comprises horizontal top and bottom timbers with diagonal braces, king posts, and sundry jack braces between. The base of the frame is supported variously from the sills of the sound openings and beams which span the tower walls.

All timberwork, particularly that adjacent to the west sound opening, is weathered and decayed however the sections of timber employed are so massive that we believe the structure is perfectly safe for supporting a deadweight.

### The Tower

The tower is of masonry construction, and stands conventionally at the west end of the church.

Access to the ground floor is via a large arch on the east wall leading directly from the nave.

A spiral staircase in the south-east corner gives access to the first floor only which is approximately 25'-0" above the ground.

The first floor chamber is approximately 9'-0" high. A ladder gives access to the second floor belfry immediately above.

**NORTH NEWNTON, WILTSHIRE – CHURCH OF ST JAMES – continued**

Unusually, a series of timber tie beams, approximately 11" square, have been built into the tower walls both at bellframe base level, and just beneath the roof. These beams pass through the entire thickness of the tower walls and are pegged on the outside to hold them into place. Sloping masonry covers have been incorporated into the structure to keep off the worst of the weather. The two pairs of lower tie beams coincide with the base of the bellframe. The two lowest beams are set approximately 2'-0" beneath the foundation of the bellframe whilst the two upper beams pass through the frame immediately above the base. In a number of cases diagonal braces in the bellframe are jointed into the tie beams rather than into the base timbers of the bellframe. As with the bellframe, these timbers appeared well weathered however their massive sizes insures that there is sufficient sound timber left.

Much repair has been undertaken to the walls in the belfry over the years with some of it being undertaken since our last survey in 1957.

The tower is capped with a concrete roof, which may also date from the 1950s, and which effectively ties all four walls together.

In spite of the weaknesses and repairs within the tower we believe the structure to be perfectly capable of supporting the deadweight of the bellframe together with the bells and ringing fittings. Indeed, we saw no signs of distress in the masonry in the areas immediately beneath the points at which the loads from the bellframe are carried into the tower.

**Conclusions**

It is now almost 400 years since the present ring of four was formed, around 150 years since the tenor was re-cast and probably around 100 years since the bells were last swung. As might be expected, the bellframe is now very well weathered however, given its massive construction, it is perfectly adequate for the applied load. The ringing fittings are in an exceptionally poor state however they are safe for the present time bearing in mind that the bells are never swung.

The chime hammer on the tenor bell is adequate however care should be taken not to hold the hammer in contact with the bell after it has struck.

The bells are sound however their cast in crown staples remain in place and they are not particularly well in tune.

**Recommendations**

We understand that the tenor bell is regularly tolled and that there is an interest in also tolling the remaining three. The most economic way in which this can be done is to fit Ellacombe hammers, similar to that presently on the tenor, but designed so that the hammer cannot be held in contact with the bell, and for the ropes from these four hammers to be drawn over pulleys to an Ellacombe type chiming apparatus fitted at ground floor level.

NORTH NEWNTON, WILTSHIRE - CHURCH OF ST JAMES - continued

We suggest that five new hammers are provided, four for connecting to the chiming apparatus and an additional hammer on the tenor bell to replace the present tenor, and to allow this bell only to be tolled in the present manner. Quotation no. 1 covers this proposal.

Ideally, the four bells should be hung from new hardwood beams and with new supporting ironwork for stationary chiming and at the same time the cast in crown staples should be removed. Quotation no. 2 covers this alternative. A supplementary quotation covers the additional cost of tuning the four bells whilst they are at the foundry. In detail, we would propose leaving the 2<sup>nd</sup> bell, which is listed for preservation, uncut and tuning the remaining three bells to suit. In this way the pitch relationships of the bells can be accurately aligned and the musical qualities of the three bells can be improved.

In both cases, our prices cover all the work specified. They do not include the associated builder's works which are listed as an exclusion.

Finally, we strongly recommend a thorough cleaning of the belfry to remove all dust and debris from around the bellframe and in particular the beam ends and joints. In this way the ventilation of the exposed timberwork can be improved.

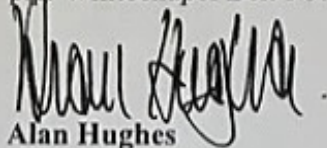
We hope that we have clearly covered everything, and correctly interpreted your requirements. If you do have any queries, or would like any further information, do not hesitate to contact us.

We enclose with this report:

- 1). A full tonal analysis of the bells.
- 2). Quotations covering the recommended works.
- 3). Information on Value Added Tax.
- 4). Information on the funding of church bell restoration.
- 5). A Code of Practice for the Conservation and Repair of Bells and Bellframes issued by The Council for the Care of Churches.
- 6). A booklet about the Whitechapel Bell Foundry.
- 7). Our account in connection with our visit.

Yours faithfully

p.A. Whitechapel Bell Foundry Limited

  
Alan Hughes

*Any chance of  
being made a being at  
be my proposition?*