All Saints Church
High Wycombe
Buckinghamshire

Recording of Bell Frame

July 2012

Client: PPC All Saints Church
Issue No: 1
OA Job No: 5238
NGR: SU 8656 9309
All Saints Church is a Grade I listed building which has remained an important religious and historical focus within High Wycombe since the Norman period. The church has had a set of bells, almost certainly since the medieval period, which has been replaced or augmented at intervals but in recent years cracks have appeared in the walls of the tower housing the bells and since 2008 it has not been possible to ring the largest four bells for structural reasons.

Investigations were undertaken which concluded that the current structure was failing, particularly the wall-plates which were infested with death watch beetle, and needed replacing. A reinforced concrete ring beam would effectively tie the tower together and a new bell frame was needed so that the bells could be orientated differently to reduce the stresses on the south wall. Many of the bells were of poor tonal quality, so it was decided to take the opportunity that these works presented to replace the entire ring with a new set of 12 bells plus 2 semi-tones.

Prior to this work Oxford Archaeology undertook recording of the bell frame and this was followed by further limited recording during the dismantling works. The main bell frame was constructed in 1909 for a peal of 12 bells although minor alterations were undertaken in 1963 to allow for the insertion of a 13th bell. The frame is a typical structure from this date constructed of oak and cast iron members. The main foundation beams in the clock room below also appear to date from 1909 but the wall plates within the walls are older and almost certainly survive from a previous arrangement.
INTRODUCTION

1.1 Background

1.1.1 All Saints Church in High Wycombe is a Grade I listed building and Oxford Archaeology (OA) has carried out the recording of its bell frame prior to a programme of structural strengthening works.

1.1.2 In 2007 cracks were first noticed in the walls of the bell tower and an infestation of death watch beetle was identified in an oak wall plate beneath the bells. The structural problems appeared to have been exacerbated by the design of the bell frame, with the two largest bells (30 and 21 cwt) swinging in the same direction, and it was then decided to cease ringing of the largest four bells. These four bells weigh 3.5 tonnes and they last rung in January 2008.

1.1.3 Structural assessments were undertaken and it was agreed that the only way to enable the bells to ring again was to insert a new reinforced concrete ring beam to hold the tower together.

1.1.4 An appeal was started and proposals prepared for the insertion of the new ring beam, on the inside of the tower, just above the clock room and below the bell chamber, as well as for a new bell frame. This work necessitated the removal of all the bells and it was decided to take this opportunity to replace all the ageing bells with a new set of 12 bells plus two semi-tones.

1.1.5 In May 2011 an application was made for a Faculty for the works and this was subsequently approved with the condition that the existing bell frame was archaeologically recorded. In July 2011 Graham Pledger, Senior Conservation Engineer from English Heritage, wrote an outline brief for recording the bell frame prior to the works.

1.1.6 Previous OA work at All Saints Church

1.1.7 OA has undertaken several previous projects at All Saints Church including an investigation in January 1993 of three 18th-century burial vaults beneath the chancel floor (OAU 1993). The vaults cover virtually all the available space under the chancel floor and contain the remains of the Welles, Smith and Rotton families. Further work in 1998 comprised the recording of the exterior of a post-medieval brick vault located in the churchyard with two triple-shelled wood and lead coffins with textile covering of probable mid-19th century date.

1.1.8 In 2010 OA carried out an archaeological watching brief at All Saints Church in advance of the installation of new toilets and kitchens. The watching brief revealed three internal brick-built burial structures of post-medieval date. The vaults contained triple-shelled wood and lead coffins. Small assemblages of disarticulated human remains, medieval tile, metalwork, animal bone and shell were recovered.

1.2 Acknowledgements

1.2.1 Oxford Archaeology would particularly like to thank Patricia Newton from All Saints Church for arranging access to the tower, providing valuable information and supplying a number of photographs of the structure during the works. Some of these images have been included in this report.
1.3   Aims and objectives
1.1.1 The principal aims of the current work have been:
ì to enhance understanding of the nature of the structure;
ì to clarify and communicate in an easily understandable form which of the frame members survived from 1909 and which were altered in the 1963 works.
ì to record for posterity the frame prior to its replacement
ì to make the record publicly accessible through a report (a public document) and a project archive deposited with a public institution.

1.4   Methodology
1.4.1 The recording was undertaken to the outline brief specified by Graham Pledger. Further discussion on the requirements was had with the DAC archaeological advisor (Julian Munby) and he confirmed that although the existing plan with later annotations provides a good basis for the existing record there was a need for this to be supplemented by further photographic recording and descriptive notes on the form of the bell frame prior to the works.

1.4.2 The main recording was undertaken on 20 December 2011 prior to the start of removal works and this was followed by a further visit on 28 March 2012 after the removal of the bells and some of the frame. Some further digital photographs during the works were also sent to OA by Patricia Newton the Tower Captain at All Saints.

2   HISTORICAL BACKGROUND
2.1   All Saints High Wycombe
2.1.1 As the current work has focused entirely on the bell frame it is not necessary to provide a detailed account of the history and development of the church. However, a short outline summary, largely taken from a previous OA report on the site, would be of use.

2.1.2 The original Norman church was consecrated by the visiting Wulfstan, Bishop of Worcester in 1086 and was extended during the reign of Henry II, when the church was bestowed on the Abbey of Godstow (All Saints, online). The church was rebuilt in 1275 (ibid.).

2.1.3 In the mid-fifteenth century the roof was removed, the pillars remodelled and the clerestory windows added. The central tower was taken down in 1509 because of structural problems. The present West Tower was constructed in the 1520s, while the pinnacles were added in 1755 (All Saints, online). The wrought iron churchyard gates are Grade II listed and were authorised by the vestry in 1772.

2.1.4 The church contains the Shelburne memorial, carved by the Flemish sculptor, Peter Scheemakers in 1754. It also contains the vault of William Petty, 2nd Earl of Shelburne, who was prime minister of England from July 1782 to April 1783. In 1761, having briefly served as MP for Wycombe, he succeeded his father as Earl of Shelburne. Following his resignation as Prime Minister he was created Marquis of Lansdowne and Earl Wycombe. He was buried in the family vault in the North Chancel Chapel on the 14th May 1805. (All Saints online).

2.1.5 The church was restored between 1873-5 by George Edmund Street, whose furnishings include the gothic-style font (Pevsner 1960, 161).
The Bells and Bellframe at All Saints Church

It is believed that the former central tower contained six bells and that five of these were moved to the new west tower in the 16th century. In 1711 a new peal of eight bells was installed and subsequently a further two bells were added. In the 1870s a chiming clock linked to the bells was installed and in 1909 a major overhaul was undertaken when the bells were rehung and increased to a peal of 12 bells.

The new frame, which survives today, was of cast iron and oak and was constructed by the Whitechapel Bell Foundry. In 1963 modifications were undertaken by Taylors of Loughborough to accommodate an extra bell and to increase the set to 13 bells. We are fortunate in that original drawings survive from both the 1909 and 1963 works (see Figs 2-4).

Further information on the bells is included at Appendix C.

3 DESCRIPTION

3.1 Introduction

The bells and frame which form the focus of the current project are located in the West Tower at All Saints Church with the bell chamber at the top of the tower directly above the clock room and the ringing room beneath this.

3.2 Bell chamber

The bell chamber is accessed from stairs at the north-east corner of the tower and it comprises a large, composite oak and cast-iron frame across the entire tower (other than the angled corner adjacent to the stairs) measuring 6.09 m north to south and 6.19 m east to west. As outlined above the main frame was installed in 1909 and minor modifications were undertaken in 1963 (discussed further below).

The main 1909 frame is essentially formed from two horizontal frames, one above the other and separated from each other by a series of struts (both cast iron and oak). The oak struts are angled and morticed into the horizontal frames while the iron struts are in the form of cast X shapes and bolted to the timbers. The top of the upper frame is 1.3 m above the bottom of the lower/sill frame and while the members of the upper frame are 24 cm in depth the lower ones are 30 cm deep.

The lower/sill frame is shown on Fig 2 and comprises a series of principal members of various lengths divided by shorter transverse spacing members. Long principal members extend around the four outer walls of the chamber (other than the doorway at the north-east corner) and there is one other full length (wall to wall) member which is located towards the eastern side of the chamber. This long member forms a key division in the frame and divides the main square plan frame to the west from a smaller sub-section of the frame to the east. Each of the inner junctions at the corner of the frame are strengthened by right-angled iron brackets bolted to the sides of the members.

1 The Whitechapel Bell Foundry was established in 1570 and is said to be Britain's oldest manufacturing company.

2 Taylors are another of the country's foremost bell-founding concerns and have been founding bells in Loughborough since 1839 under various company names. They also form part of an unbroken chain of bell founding within the wider area which stretches back to the 14th century (info from their website).
3.2.4 The upper frame is shown on Figure 3 and is formed from both oak and cast iron members to create a series of individual openings for each bell. The northernmost two-thirds of the upper frame, in which the smaller bells are located, is largely formed from oak and broadly follows the layout of the lower frame while the two largest bells are located towards the south and this part of the upper frame is formed from cast-iron. The corners of the oak frame are braced by L-shaped iron brackets bolted to the upper face of the timbers. There is a series of bolts in the upper face of the frame which relate to iron tie rods which extend down through the raking oak struts to the lower frame.

3.2.5 At the southern end of the west side of the frame several secondary strengthening plates have been bolted to the side of the main 1909 cast-iron X-shaped upright. Patricia Newton has confirmed that this repair work to the west side of the tenor frame was undertaken following an incident on 29th April 2000 when the crown staple of the tenor broke allowing the clapper to break free from the bell. The clapper got jammed between the bell and the frame pit end member (by west wall) taking a chunk of metal out of the rim of the bell and cracking the frame in three places.

3.2.6 The frame was repaired on 31st July 2000 by Whites of Appleton by plating the upper crack with bolting plates either side of the frame and plating the two lower cracks by drilling and tapping the frame and then bolting on repair plates (P Newton pers comm).

3.2.7 The original layout of the frame created a vacant central space and although this is the area which was modified in 1963 there remains archaeological evidence of the former arrangement. A north to south oak member was removed in 1963 to allow for the insertion of three east to west steel joists which support the two smallest bells. Each of these steel joists is supported by two, slightly staggered vertical steel struts.

3.2.8 Bells: The frame supports 13 bells, a peal of 12 and a semitone 2nd bell. The bells were hung for full-circle ringing in the English style and they are from a range of dates from 1711 to 1963. Each bell is fixed to a cast-iron headstock, set on an iron bearing bolted to the upper frame. The headstock is fixed to the wooden wheel. Details of the individual bells are included at Appendix C.

3.3 Clock room and supporting structure

3.3.1 Beneath the main bell chamber is the clock room (5.5 m²) with plastered walls within which the supporting structure for the bell frame is visible.

3.3.2 The supporting structure within this room includes oak wall plates within the north and south walls and two further intermediate foundation joists which are also orientated east to west. The infestation of death watch beetle was found in the wall plates. Both the wall plates and foundation joists are directly beneath principal members of the bell-frame in the bell chamber above and long bolts extend down through the members in the upper frame and the joists below. The intermediate joists are 29 cm tall and are likely to survive from the 1909 alterations but the wall plates strongly appear to be older and to survive from a previous arrangement in the tower.

3.3.3 The character of the wall plates is less regular than that of the machine sawn intermediate joists and the suggestion that these are older is supported by two equally spaced mortices in the side of each. These would relate to pairs of former north to south binder joists which supported the floor above. It is interesting to note that the the pairs of mortices in each plate do not quite align with each other and this might suggest that there was formerly a central spine joist (replaced by the two intermediate 1909 joists) and that the pairs of binders were slightly staggered to north and south.
3.3.4 The southern plate also has evidence at each end of what would have been further wall plates on ledges in the east and west walls. This evidence consists of notches in the underside of the plates suggesting that they would have sat on transverse beams. There are now concrete pads on these ledges supporting the 1909 joists and these pads may have replaced the former east and west wall plates. As referred to above there are bolts dating from 1909 which extend down through the wall plates (as well as separate ones in the foundation joists) and presumably these bolts were added to the pre-existing wall plates. Small parts of the wall have been scraped away directly beneath the bolts in the wall plates to allow the bolts to be tightened.

3.3.5 It is possible of course that the two surviving wall plates do originate from the 1909 works and were older, reused timbers with empty mortices from a different building. This seems unlikely however.

3.3.6 Both the wall plates and foundation joists have large battens fixed to their sides which support floor boards which extend north to south.

3.3.7 Against the east wall there is a partially glazed, partitioned enclosure which houses the main clock mechanism and this is linked to several other small levers in the room.

3.3.8 The room contains a number of pulley wheels/blocks on the floor and ropes extending down from the bells in the chamber above through to the ringing room below. Many of these ropes are supported or guarded by planks of softwood and it is interesting to note a number of empty holes from previous arrangements.

4.1.1 The ringing of the bells from All Saints has been a part of life in High Wycombe for many centuries and the church is clearly proud of its current peal of 12. However, since 2008 it has not been possible to ring the largest four bells due to cracks in the walls and concerns over structural stability of the tower. It has been decided to remedy this by replacing the entire bell frame, installing a concrete ring beam around the edge of the tower and installing a new set of 14 bells.

4.1.2 Prior to the work Oxford Archaeology made an archive record of the bell frame and this was augmented with additional limited recording during the works.

4.1.3 The bell frame was constructed in 1909 using a combination of oak and cast iron members and in 1963 minor alterations to the frame were undertaken to allow for the insertion of a 13th bell. A beam was removed in 1963 and the empty mortice from where this beam remains visible.

4.1.4 In the room beneath the bell chamber there are two foundation beams which help to support the frame above and although these date from 1909 the wall plates within the north and south walls strongly appear to survive from a previous arrangement. These plates have empty mortices from what would probably have been an earlier floor across the tower which was replaced in 1909.

4.1.5 Although from a heritage standpoint it is unfortunate that this 100 year old bell frame has to be replaced the works will ensure that it will be possible for the important tradition of bell ringing to continue at All Saints.

4.1.6 This is a good example of a type of historic structure (the bells and frame) which has a function that places such heavy stress on the building that it can only have a limited lifespan before it needs replacing. The routine use of the heavy bells was damaging the Grade I listed building and in order to maintain the tradition of the bell ringing at the church the project has been undertaken.

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All Saints High Wycombe Recording of Historic Bellframe church (which itself is part of the character and heritage of All Saints) it was necessary to replace the old structure.

Jonathan Gill
July 2012

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APPENDIX A. BIBLIOGRAPHY

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  - September 2011

Unpublished Sources

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APPENDIX B

LISTED BUILDING DESCRIPTION

Date first listed: 09-Jan-1954
818/2/24 CHURCH SQUARE 09-JAN-54 CHURCH OF ALL SAINTS

GV I
1.963 CHURCH SQUARE Church of All Saints
SU 8693 SE 2/24 9.1.54 I GV

2. Originally Norman, rebuilt 1273, heightened and altered C15. The tower, originally over the crossing, was rebuilt at the west end circa 1521-35 under supervision of a certain Roland Messenger; cornice, parapet and pinnacles added circa 1755 by Henry Keene. Restored by G E Street, 1873-5, and by J 01drid Scott 1889-9. Impressive architectural wall, monument in north chapel to lst Earl of Shelburne, 1754 by Scheemakers. Other monuments include one to Sophia Countess of Shelburne, 1771 by Agostino Carlini in south chapel, Shrimpton monument by Westmacott, 1784. The church is long with slender pillars to arcades of lofty nave. South porch of circa 1275.

Church of All Saints, Churchyard Gates together with No 2, The Antelope Public House, No 5 and No 6 form a group with Nos 1 to 3 (consec) High Street.

National Grid Reference: SU 86564 93084
APPENDIX C. INSCRIPTIONS ON THE BELLS AT ALL SAINTS, HIGH WYCOMBE (Provided by Patricia Newton, All Saints Church).

Treble: RECAST BY JOHN TAYLOR & CO LOUGHBOROUGH 1963
THE REV. E. HAGUE. VICAR
F. BUZZARD
E.P. HICKMAN CHURCHWARDENS
M.B. PARRY-JONES
R. STEVENS
IN FIDE V ADE W.A.S.
MEARS & STAINBANK, FOUNDER LONDON 1909

Sharp 2nd: * JOHN TAYLOR & CO * LOUGHBOROUGH CAST TO COMMEMORATE THE VISIT OF H.M. QUEEN ELIZABETH II TO HIGH WYCOMBE ON APRIL 6th 1962
THE REV. E. HAGUE. VICAR
F. BUZZARD
E.P. HICKMAN CHURCHWARDENS
M.B. PARRY-JONES
R. STEVENS
THOMAS MEARS OF LONDON. FACIT 1802
RECAST BY MEARS & STAINBANK 1909 AT THE EXPENSE OF W.H. FUSSELL FOR 30 YEARS A RINGER

3rd: THE GIFT OF THE EARL OF WYCOMBE. ELDEST SON OF THE MARQUIS OF LANSDOWN
W.BALL
JOHN BRIANT HERTFORD. FECIT. 1788. ASSISTANTS
G.HARMAN

4th: THE GIFT OF LORD HENRY PETTY SECOND SON OF THE MARQUIS OF LANSDOWN
G.HARMAN
JOHN BRIANT HARTFORD. FECIT. 1788. ASSISTANTS
W.BALL

5th: RECAST BY THOMAS MEARS OF LONDON A.D.1802 RECAST 1909 BY THE EFFORTS OF THE CHURCH HELPERS SOCIETY
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MEARS & STAINBANK. LONDON

6th: R:PHELPS FEC.1711 EDWARD STEVENS CLARK LVKE GVRNEY .SEXTON

THROUGH MANY AN AGE DID I RING TRUE 'NEATH SHADES OF WAR MY VOICE FAINT GREW WITH DAWN OF PEACE NEW HOPES ARISE MY WOUND IS HEALED THROUGH SACRIFICE RECAST 1919

7th: MEARS & STAINBAMK. WHITECHAPEL FOUNDRY . LONDON.

THESE EIGHT BELLS WERE CAST 1711 BY RICHARD PHELPS OF WHITECHAPEL LONDON THIS BELL WAS RECAST IN THE YEAR 1890

R. CHILTON. VICAR
T.J.REYNOLDS
W.PHILLIPS CHURCHWARDENS
A.LEADBETTER
J.PARKE

8th: THOS SWAIN:MADE:ME:1756:

ARON WOOSTER:THOS WALKER:MR MEAD:CHURCHWARDENES

9th: RECAST BY THOMAS MEARS OF LONDON A.D.1802 RECAST 1909 BY THE EFFORTS OF THE RINGERS

B.PAGE F.HAYES R.COLES
H.BUTLER R.WHEELER E.MARKHAM
W.PHIPPS P.W.WITHAM F.W.BOXELL
G.WHITE G.TWITCHEN F.K.BIGGS
J.W.WILKINS J.NEIGHBOUR

MEARS & STAINBANK. LONDON.


11th: THOS MEARS OF LONDON FECIT 1802

MAY ALL WHOM I SHALL SUMMON TO THE GRAVE THE BLESSINGS OF A WELL-SPENT LIFE RECEIVE

THE REVD JAMES PRICE VICAR MESSRS RICHARD BARTON SAMUEL BATES JAMES KINGSTON & DANIEL TURNER CHURCHWARDENS

Tenor: MEARS & STAINBANK, FOUNDERS. LONDON. 1909

AD VITAM. W.A.S.
Oak members forming base of 1909 frame

Figure 2: Base frame (lower level) highlighted on 1909 plan and section showing west end of frame

Serverg....All Saints, High Wycombe jc 28.06.12

Not to scale
Oak members from 1909 works
Edge of tower
Cast iron strut members
Former member removed in 1963 works
Figure 3: Upper level of bell frame shown on 1909 plan

Not to scale
Figure 4: Plan of Bellframe from 1963 showing inserted members

Steel members inserted in 1963

Empty socket from 1909 joist removed in 1963

Not to scale
Figure 5: Section through tower looking south