Kent County Association of Change Ringers



Report on the Bells of

St Mary the Virgin

CHALK

in the



Diocese of Rochester

August, 1984

1.0 THE TOWER

The tower is roughly square and situated at the West end of the Church. It is constructed of flint with rag stone quoins, with one buttress in the South-West corner. The structure appears sound and has obviously undergone an extensive restoration within that last twenty years or so.

The tower is in four stages as follows:-

1.1 Ground Floor - this is used as the main church entrance and is partly occupied by an organ gallery.

1.2 Ringing Room

1.3 Belfry - Containing a ring of three bells, housed in a timber frame designed to hold six bells.

1.4 Roof - of lead covered timber.

Access to all levels is by means of a stone newel staircase in the North-West corner of the tower.

The extreme cleanliness of the tower was noted; an example which could well be followed by towers with larger numbers of bells and active bands of ringers!

2.0 THE BELL FRAME

The bell frame is constructed of oak and was designed to house six bells. It appears to have been constructed in 1922, when the bells were rehung, but contains much older wood from the previous frame. It consists of sills, braces and heads, the foundation of which rests on tower set off and is built into the walls.

The timbers all appear sound, but whilst of just sufficient size to be rigid enough to stand the strain of bells rung in full circles are rather slight in proportion. The entire structure has been braced with vertical tie-rods for stiffness.

3.0 THE BELLS

The bells form an interesting and historic ring of three in the key of C minor, with a tenor, or largest, weighing about 6 cwt. Contrary to the note in the Church Guide the bells were *not* recast, merely rehung. The oldest of the trio was cast in about 1348 by Thomas de Weston of London and is a very rare specimen of the work of this founder. The other two were cast in 1634 by John Wilnar of Borden, near Sittingbourne. The smaller of these two is merely inscribed with the date, but the style of these letters and the shape of the bell prove that it was cast by the same founder as the tenor.

The bells are clean castings and all appear sound, but are only fair for tone and tune - a considerable improvement could be

effected by careful treatment on the tuning machine.
It is to be regretted that all three bells lost their canons (see nomenclature sheet appended) as these formed an intrinsic part of the bell's historic interest. These canons were cut off during the 1922 'restoration'. The bells all retain their cast-in crown staples, from which the clappers were suspended. *These staples are the frequent cause of bells becoming cracked in the crown and should be removed during the course of a restoration.* False staples have been fitted to accommodate the altered plane of swing of the clappers after the bells had been quarter turned. Quarter turning is carried out to bring a fresh surface of bell under the blows of the clapper . The amount of wear at the points at which the clappers now strike averages about 1/32", which is by no means excessive.

4.0 THE BELL FITTINGS

The bell fittings are those supplied by Alfred Bowell during his restoration of the ring in 1922. They generally are showing little sign of wear. They consist as follows:-

4.1 Headstocks - these are of elm and in good condition.

4.2 Gudgeons - these are of the plate type and are hardly worn.

4.3 Bearings - these are plain bronze in iron housings and whilst dirty are showing little sign of wear.

4.4 Wheels - these are of a traditional pattern, the spokes are in excellent condition, but it was noted that the shrouding had been joined by means of steel tongues, which have corroded and expanded, bursting out of the timber.

4.5 Stays and Sliders - these are of a traditional pattern and are in good condition.

4.6 Rope Pulleys - these are of timber in wooden boxes and are showing signs of attack by wood boring insects. They are also stiff, showing that the bearings are in poor condition.

4.7 Clappers - these are of fair size and proportion and have a top end joint of a design by Bowell. 'Roll' (latteral movement of the clapper) is minimal.

4.8 Ellacombe Chime Hammers - these are in fair condition.

Further details of the bells and their fittings may be found on the appended data sheets.

4.0 CONCLUSIONS

As can be seen from the remarks herein the bell installation is in generally good condition and with certain renovations will

continue to give good service for a number of years to come.
The bells require their cast-in crown staples removing *at an early opportunity* to alleviate the risk of cracking in the crown. A centre hole can then be drilled through the bell to accommodate a modern independent staple and clapper assembly.
The wheels are in need of re-shrouding with new timber with either non-ferrous or timber tongues.
The pulleys require complete replacement before the wood boring insects spread to other timber components.
It is understood that there is some interest in augmenting the ring by the addition of up to three bells. In order that this be entirely satisfactory, it is strongly recommended that the bells be carefully tuned into a more musical relationship with each other. There may well be some redundant bells available which would fit in with the proposed ring, which would be in the key of B-flat major.

6.0 RECOMMENDATIONS

6.1 Essential Work

6.1.1 The cast-in crown staples should be removed from the heads of the bells by a competent bell hanger.

6.1.2 The wheels should be dismantled and re-rimmed with new shrouding *not using steel tongues*.

6.1.3 The pulleys should be replaced with new moulded nylon pulleys, mounted in hard wood boxes and running on sealed ball bearings.

6.2 Rehanging and Augmentation

In the light of the suggestion of augmenting the ring, it may well be worth considering a more complete rehang of the existing bells, which would include the use of new cast-iron headstocks, modern ball bearings etc. This restoration would also enable the bells to be carefully tuned. As has been mentioned above there may well be a possibility of being able to find at least one redundant bell which would fit in with the ring, or even redundant bell metal which could be recast into a suitable bell.

A sample specification for the type of rehang outlined above is given in Appendix A.1.1. Any additional bells to be cast should be cast from purest bell metal and accurately tuned to match the existing ring.

7.0 GENERAL

7.1 The bell foundries capable of carrying out the skilled and important work of bell restoration are:-

The Whitechapel Bell Foundry Ltd.,
32 - 34, Whitechapel Road,
LONDON E1 1DY.

John Taylor & Co (Bell Founders) Ltd.,
The Bell Foundry,
Freehold Street,
LOUGHBOROUGH,
Leics., LE11 1AN.

Both firms will be glad to inspect and give estimates for any of the work outlinedabove (usually at a nominal charge to cover travelling expenses).

7.2 In the past The Kent County Association of Change Ringers has helped in two ways with bell restoration work. Firstly, grants are made from the Association's Bell Restoration Fund (application to the Hon. Treasurer) and, secondly, by means of practical assistance. Members offer their skilled labour free of charge to churches, thus making considerable savings on the labour costs involved with the dismantling, removal and rehanging of bells. There may well be some members willing to help with any work undertaken at Chalk.

7.3 Work of the nature outlined in Section 6.1.1 and 6.2 requires the authority of a Faculty from the Diocese before it can be undertaken.

7.4 None of the above mentioned work should be undertaken without first informing the Church Architect.

I trust that the foregoing will be of assistance and interest to you and if there is anything further I can do to help, please do not hesitate to contact me.



Richard C. Offen
Kent County Association of Change Ringers
Bell Restoration Sub-Committee.
Hon Consultant on Bells to the Diocese of Canterbury.
St Mary the Virgin, CHALK.
Report No 7/84. August, 1984.

INSPECTION OF BELLS

DATE 26TH JULY, 1984	CHURCH	DEDICATION
COUNTY KENT	CHALK	ST MARY THE VIRGIN
DIOCESE ROCHESTER		

TOWER

Plan Square Western	Material Flint with rag stone quoins
No. of Buttresses One S-E corner	Level at top of buttresses first stringcourse
Permanent access to bells & roof stone newel staircase to all stages	
Roof material & state lead covered wood - good	
Battlements safe yes	
Lightning conductor yes	Any cracks some slight in ringing chamber
Louvres fitted yes	Openings wire netted yes with plastic covered mesh
Signs of dampness none	Any intermediate chambers single
Dimensions inside at frame level - E-W x - N-S (not noted)	
Opening to Nave ceiling yes in intermediate chamber	Is it fireproofed yes
Clock no / Maker -	Date -
Any lumber none	Any twigs etc. none
Bells rung from first floor	Any boiler fuel in tower no
Strong direction of tower East-West	Internal chimney no
Flag Pole no	Weather vane no

Tie bars none

Tower kept in extremely clean condition.

No trap door noted under bells, but access may be by means of lifting short floor boards.

Organ occupies part of ground floor, which is the main church entrance.

BELLS

No. of bells Three	Ring of Three	Way rung Full circle
Ellacombe hammers Three	Clock hammers none	

State of ropes fair for present

Peal boards none

Contrary to the note in the Church Guide, the bells were not recast in 1922, only re-hung

FRAME

Material Oak (timbers of rather slight size)

Type 'A' pattern with steel x-ends along East side

Age 1922 (?) but older timber re-used

Signs of decay none

Traces of beetle no / Type -

Type of bearings plain bronze in iron housings (Bowell, 1922)

Level of bearings 6" ~~above~~/below windowsill

How supported Main foundation beams let into walls

Clamped with metal tie-rods

STATE OF

Wheels iron tongues in shrouding bursting out; spokes good

Stays good

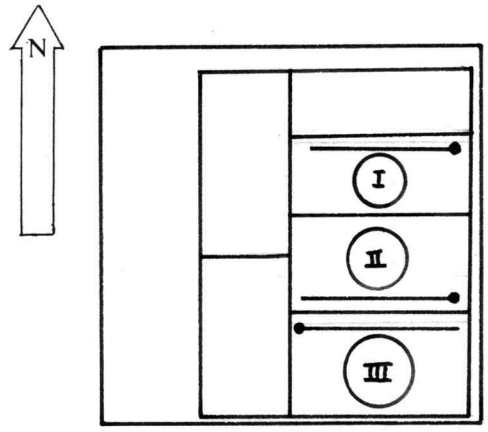
Sliders good

Ground pulleys wormy and stiff

Floor good

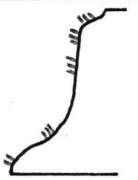
Frame beams good

Plan



Frame designed to house six bells

	REPORT No. 7/84	MAP REF. TQ683725
VISITED BY R.C. Offen: P.F. Romney	DATE 26·7·84	SHEET No. 1 of 3

BELL		Tenor	Second	Treble	
DIAMETER ~~(inches)~~		2'-8 1/8"	2'-5 1/8"	2'-3 5/8"	
SOUNDBOW THICKNESS (inches)	UNWORN	2 5/16	2¼	2 1/8	
	WORN	2 ¼	2 7/32	2 3/32	
	AT ELLACOMBE	negligible	negligible	negligible	
WEIGHT ℄ (approx.)		6	5	4	
ORIGINAL CROWN STAPLE		Cast-in + independent	as tenor	as tenor	
TURNED		eighth	eighth	eighth	
TUNING MARKS		none	none	none	
NOTE		C	D	E♭	
HARMONICS		-	-	-	
TONE		fair	fair	good	
CRACKED		no	no	no	
VISIBLE CRACKS		none	none	none	
No. OF CANONS		removed	removed	removed	
ARGENT RETAINED		-	-	-	
LIP TO SHOULDER (inches)		-	22	-	
SHOULDER CIRC. (inches)		-	51½	-	
CASTING QUALITY		good	good	good	
FOUNDER		John Wilnar	Thomas de Weston	John Wilnar	
DATE		1634	c. 1348	1634	
MOULDING WIRES					

FITTINGS					
	HEADSTOCK	Elm - good	Elm- good	Elm - slight worm	
	STRAPS	2 prs bell bolts	as tenor	as tenor	
	BELL LOOSE ON STOCK	no	no	no	
	GUDGEONS	plate - good	as tenor	as tenor	
	WHEEL	traditional	as tenor	as tenor	
	STAY	shaped	shaped	shaped	
	SLIDER	traditional	as tneor	as tenor	
	CLAPPER - type	wooden block bolted to top end, through which extended bell bolts act as pin.			
	CLAPPER - correct length	yes	yes	yes	
	CLAPPER - roll (inches)	1	1	1	
	PULLEY	Single - wormy	double - poor	as tenor	

INSCRIPTION

bell tenor

✦IOHN✦WILNAR✦MADE✦ME✦1634

letter sizes: 7/8"

bell second

x XPE : PIE : FLOS : MARIE x

letter sizes: (see sheet 3 for full size drawing of this inscription)

bell treble

1634

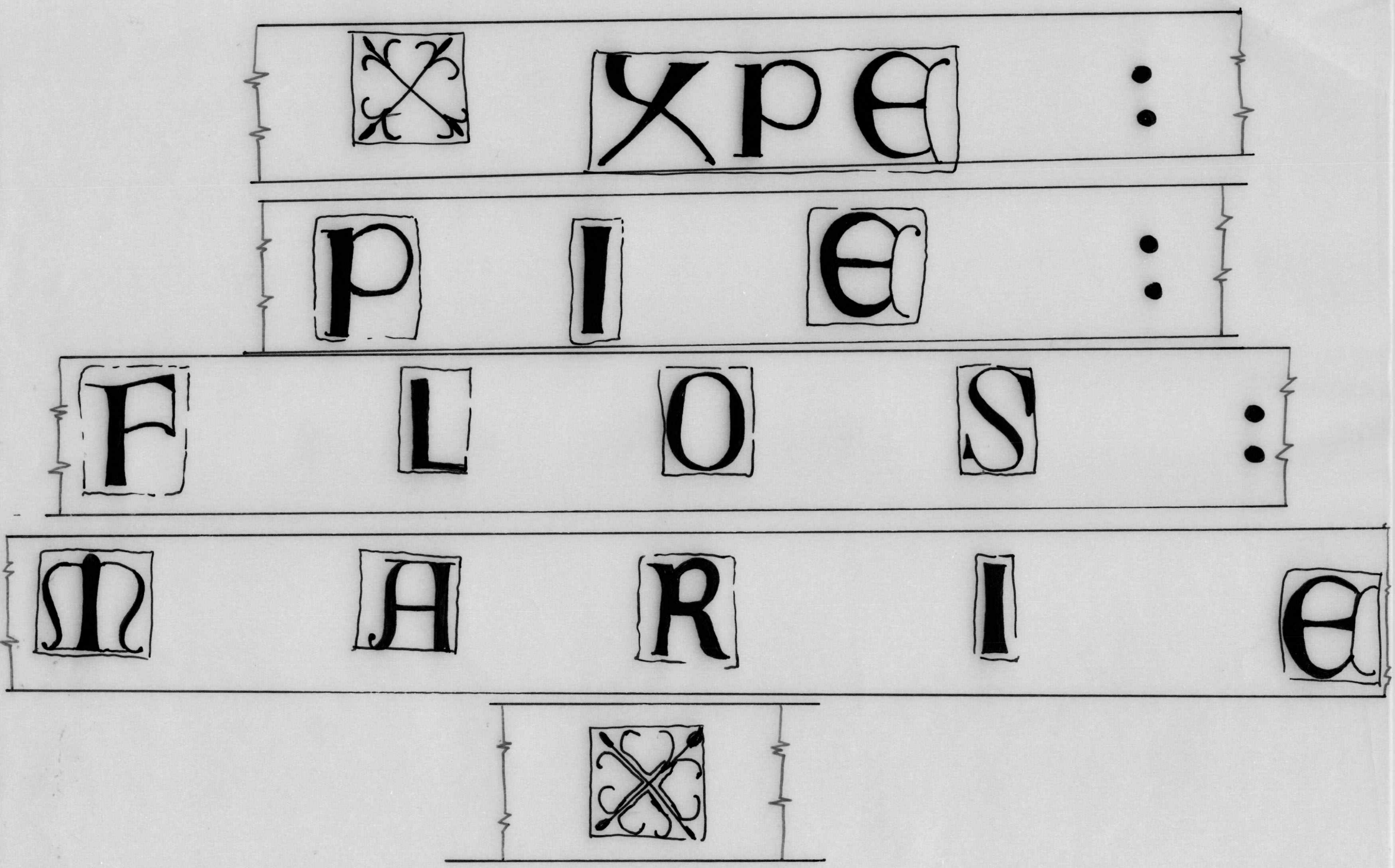
letter sizes: 7/8"

bell

letter sizes:

Parish of St Mary the Virgin, Chalk | Diocese of Rochester

Signature RCO:PFR | Date 26•7•84 | Sheet 2 of 3 Sheets



CHALK, St MARY - Full size detail of inscription on second bell - Thomas de Weston c.1348.

R.C.O. 26·7·84.

Appendix A.1.1

SPECIFICATION FOR REHANGING BELLS WITH MAINLY NEW FITTINGS

A.1.1 Dismantle the bells and fittings and lower them to the ground. Place all unwanted fittings neatly in the churchyard for disposal. Send the bells and any fittings to be reused to the bell foundry.

A.1.2 Drill a centre hole through the crown of each bell and carefully cut out the cast-in crown staples. Neatly grind off the canons of bells which are not considered of antiquarian interest (usually bells dated before 1700).

A.1.3 Carefully adjust the note and chief harmonic tones of each bell on the tuning machine.

A.1.4 Provide new and reconditioned fittings consisting of:-

Hollow section cast-iron headstocks, with steel gudgeons turned in accurate alignment; OR, Fabricated steel canon retaining headstocks, with steel gudgeons, turned in accurate alignment (these headstocks for bells with canons considered worthy of retention).

Heavy duty, double row, self aligning ball bearings, housed in totally dust proof housings.

Hardwood insulation pads to fit between the bells and headstocks.

Adapt and rerim the existing wheels and supply angle-iron wheel braces.

Independent clapper staples with stainless steel spindles.

Correctly proportioned clappers of ductile cast-iron, with resiliently mounted bushes at the point of swing, incorporating the staple spindles.

Rope pulleys of moulded nylon, running on sealed ball-races and housed in a hardwood box.

Stays and sliders of ash; hardwood runner boards; fabricated steel slider pins for fixing to the bell frame.

Floor and ceiling bosses of hardwood.

All necessary bolts, washers, nuts and lock nuts.

Bell ropes of best quality flax with close woven wool sallys.

Properly proportioned clock hammers (if required).

A.1.5 All iron and steel to be properly prepared and painted with three coats of best quality paint.

A.1.6 All timber to be treated with a suitable wood preservative.

A.1.7 Deliver the bells and fittings to the church and hoist up into the tower. Fit up and hang the bells, turning them to present an unworn surface of bell to the blows of the clappers. Leave the bells 'true struck' (striking evenly at each stroke) and ready to use.

Additional work (where necessary):

A.1.8 Drill the bell frame through its entire depth and fit tie-rod with nuts and large washer plates. Tighten the frame as much as possible and leave level and square.

A.1.8.1 Fit steel corner plates to loose joints and tighten as much as possible.

A.1.9 Adjust the height and refix existing clock hammers to suit the altered height of each bell in its pit.

A.1.0 Lighting in the belfry is often skimped and this leads to poor conditions for carrying out maintenance. At least one six foot fluorescent tube light should be fitted in the belfry and also the facility for connecting up a 'wander lamp'.