

The last of these was in 1843, when they were paid £1 10s. "for ringing a Dumb peal on the burial of H.R.H. the Duke of Sussex 6 men @ 5s. each (commenced at 8 o'clock morning, finished 2 o'clock afternoon)."

III

Whitechapel Bell Foundry

BY WILLIAM WHEATLEY, M.A.

ON 11th April, 1949, a party of members visited the bell foundry of Messrs. Mears and Stainbank, 32-34, Whitechapel Road. This foundry was first established in 1570 on the north side of the road opposite the church of St. Mary Matfelon and was moved in 1728 to its present site, where formerly stood the Artichoke Inn.

Bells, in one form or another, have been used from time immemorial, both for religious and domestic purposes. The earliest bells were made by riveting together shaped pieces of iron which were afterwards braced with strips of brass till the metals intermingled. These were gradually superseded by bells cast in one piece, but of a shape longer in body than the present-day pattern. This work was practised largely by the monks, but later by the artificer, who would be described as a *brasiarius*, i.e. a coppersmith, or *ollarius*, i.e. a tinker or potter in metals. When the trade became more specialised, the term *campanarius* was used or, later still, *bellyetere*. Thus between the years 1236 and 1464 we have documentary evidence of at least 19 bell-workers who had acquired this surname by virtue of their occupation. In London the bellyeteres congregated between St Andrew Undershaft and St Botolph, Aldgate, which, as is evident from various wills, were pre-eminently the bell-founders' churches. This is the origin of the name of Billeter Street.

The trade diminished after the Reformation, but revived in Elizabethan times. It flourished until the Civil War and again from 1660 to 1750, when there were over 30 bell-founders in England. By 1800 the number had diminished to about 15 and during the nineteenth century only three or four names are worthy of note. The Whitechapel bell foundry is probably the oldest established firm in England and was founded by Robert Mot in 1570. It was developed by Richard Phelps, who acquired the present site in 1728, and has traded under the name of Mears and Stainbank from 1865 to the present day.



[Photo by H. E. Chiosso

FRONTAGE OF MEARS AND STAINBANK'S BELL FOUNDRY,
WHITECHAPEL ROAD.

Among the famous bells cast in this foundry are two at Westminster Abbey dated 1583 and 1598, the great hour bell of St. Paul's Cathedral, recast from the original Great Tom of Westminster, the bells of Bow Church, and Big Ben, which was recast in 1858. Robert Mot made cannon to repel the Spanish Armada and between 1914 and 1918 Messrs. Mears and Stainbank made gun cradles as munitions of war.

Bell metal of the present day is an alloy of tin and copper varying between 16 and 23 per cent. of tin according to the size and purpose of the bell required, though church bells may contain as much as 27 per cent. of tin. Contrary to the popular belief the addition of silver does not improve the tone, which depends upon the shape rather than the composition of the metal used. Only within certain limits may the composition vary: too much copper would produce a softer alloy and too much tin would make it brittle, so that the bell would easily crack.

At the Whitechapel Bell Foundry the metal is melted over a coke furnace and poured into the mould prepared from a mixture of London clay, hair and horse manure. The mould consists of two concentric parts (*a*) the inner mould or cone, and (*b*) the outer mould, cope or mantle. The shape of the bell is determined by a sort of rotating templet called the "strickle." The strickle used in the making of Big Ben is still preserved and frames the doorway to the works. Considerable skill and experience are required in the preparation and finishing of the moulds and the procedure is too complicated to describe here in detail. When, however, the work is complete, the moulds are re-assembled, the molten metal is poured into the intervening space and sufficient time allowed for the metal to cool and harden.

At this stage the bell is ready for tuning. This involves the removal of metal from the interior surface until the required note is obtained. In former days the metal was chipped off by means of a hammer and chisel, later it was removed with a revolving tool worked by a donkey, but now the bell itself is turned as in a vertical lathe. This procedure flattens the note, whereas, if the note is already too flat, a most unusual occurrence, metal is removed from the edge of the rim. The work of the Rev. A. B. Simpson (1896) has, however, revolutionised the art of tuning for, whereas formerly it was almost an empirical process, it has now been reduced to mathematical accuracy, and absolute precision can be obtained. A good bell,

correctly tuned, should give out three distinct notes (*a*) the fundamental note or tonic, (*b*) the octave above or nominal, and (*c*) the octave below, or hum note.

Finally, the bell founder has to consider the structure of the belfry or bell tower, which type of frame will be most suitable, and whether the frame should be made of wood or steel. In spite of obvious defects oak is still largely used, especially in manufacturing districts where the polluted atmosphere would accelerate the corrosion of metal. Periodical tightening is essential, however, for wood, where a properly made steel frame requires no further attention than an occasional coat of paint.

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A NOTE ON WEST DRAYTON PARISH CHURCH BELL-COTE

MEMBERS of the Society visited West Drayton parish church in April, 1948, and many of those present climbed the stone newel stair in the tower, from the top of which this photograph was taken.

The tower itself was originally constructed in the thirteenth century and was remodelled when the body of the present church was built in the fifteenth century, but there seems to be no record of the date when the timber bell-cote was added. Some consider that it shows traces of fifteenth or sixteenth century origin, but the church has undergone many restorations and the excellent state of preservation of the bell-cote suggests that it was not there very many years ago.

The small bell which it contains has not been used since 1932, in which year the large tenor bell within the tower was re-hung. For some time before then the small bell was rung for every service.

H. E. C.