



ROYAL PHARMACEUTICAL SOCIETY MUSEUM 66-68 East Smithfield, London E1W 1AW

INFORMATION SHEET: 18

MORTARS

PEOPLE HAVE USED MORTARS FOR MANY CENTURIES IN BOTH FOOD AND DRUG PREPARATION. THE MORTAR AND PESTLE HAS BECOME A SYMBOL OF THE PHARMACIST'S TRADE.

People have used mortars for many centuries to grind or mix food and drugs. They probably started as a small hollow in a rock. The Papyrus Ebers (a famous Egyptian document listing remedies or "cures" for many diseases, infections, and accidents) mentions a mortar as early as 1552 B.C. By the 1600s they had become an essential household item for grinding foods. Artisans also used them for grinding dyes, and chemists & druggists used them for preparing medicines.



Selection of mortars in different materials.

Mortars have been made from many different materials, including wood, brass, ivory, marble and stone. Bronze replaced stone for both culinary and medicinal mortars from the 1300s. Other materials including iron, wood, glass, agate and ivory were adopted for more specialist uses. However, when Josiah Wedgwood developed a new 'biscuit ware' porcelain in the late 1700s, it largely took over from bronze. Biscuit ware had the advantage above other materials that it would not contaminate the ingredients ground in the mortar.



Perhaps, the most distinctive pharmaceutical mortars are made from an alloy known as bell metal, comprised of copper and tin. The alloy melts easily and may be used again and again. They are known as bell metal mortars because they were made in foundries alongside bells. Historians often thought that mortars were made from alloy 'left over' after the casting of a large bell. Recent analysis has revealed that the copper-based alloy of most mortars contains a good deal more lead and rather less tin than that used for bells.

The method of bell founding, which was used in England for many centuries, was to prepare two moulds within a pit – an inner and outer, known as the "core" and "cope" respectively. Molten metal was run in a space between the two moulds. The core was built by laying down a hollow cone of brickwork and covering it in soft clay, calves' hair and cow's or horse's manure. The model was then dried. When it was cold, the model was well greased and another layer of clay added.

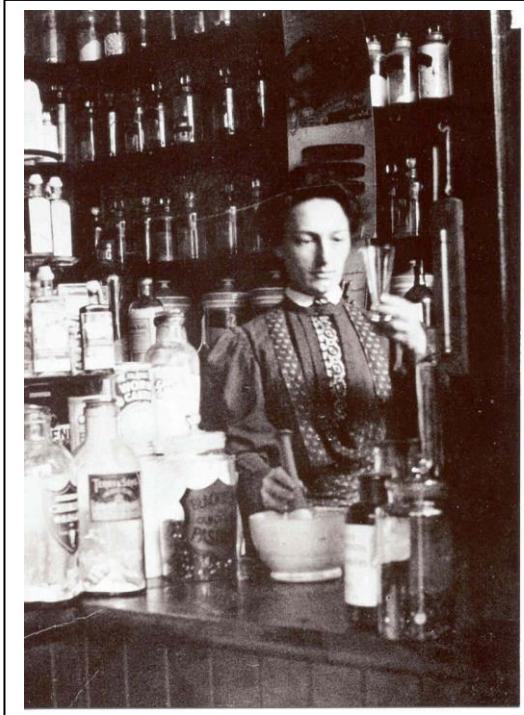
An apothecary shown with a large brass mortar, early 1700s.

This layer of clay would then have any inscription or ornamentation added to the outside in wax. When it was dry, the whole thing was again be greased. The cope (outer mould) was then built around the model, a fire lit within the core and the whole thoroughly baked. When the cope had been dried it was lifted along with the clay from the core. The clay was then broken away, leaving a clear impression on the cope. The two parts were then finally clamped together and molten metal poured between them, leaving the finished mortar inverted over the core.

In the pharmacy, mortars have been used in two main sizes. Large bell metal mortars, used for heavy work or large quantities, were mounted on a wooden block or even a section of tree trunk with a huge pestle hung on a chain from a beam. Smaller mortars in a variety of materials were used on the pharmacy counter or in the dispensary. Mortars are always made with an associated pestle used to grind the substance within the mortar. However it is very rare for a historical mortar to have survived with its original pestle.

Although mortars are functional items, they are often highly decorated with popular designs of the period and country of origin. Designs included foliage, masks or figures, shells and Tudor roses. Some mortars also have wording commemorating an event or recording the maker or owner of the mortar. Most foundries had their own individual designs and it is sometimes possible to identify particular bell founders by the decoration on their mortars.

Mortars and pestles have become a recognisable symbol for the pharmacist. They featured on apothecaries' tokens from the 1600s, on signs for pharmacy shops, as logos and trademarks for pharmaceutical businesses, and also on the coat of arms of the Royal Pharmaceutical Society. (For more information about pharmaceutical symbols, including mortars and pestles, see Information Sheet 13 *Pharmaceutical Symbols*)



Ada Richardson using a biscuitware mortar and pestle. She qualified as a Chemist and Druggist in 1906, and worked in Leicester.

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