

ECP

A note on some medieval pewter spoon alloys

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Pewter was widely used for the manufacture of domestic metalware in the medieval period, as later, but very little of this early pewterware has survived. This reflects the relative fragility of the tin-based alloys but also the well-established practice of trading-in damaged or 'bruised' pewter for re-melting. Of the tiny fraction of surviving pewter from the medieval home, the greatest number of items are spoons which, through their chance rejection with the waste-water or other fortuitous events, have been discovered in fair numbers in drains, rivers and moats. Spoons therefore offer the best opportunity for insight into the alloys used at the time and have been included, where available in museums and private collections, in an analytical survey of early pewterware being conducted at Coventry (Lanchester) Polytechnic.

Basic details only of the analytical technique are given here for reasons of limited space; 10-20 mg drilled samples taken after removal of the surface oxide were subjected to XRF spectrometric analysis using appropriate standards.

It is already clear that the composition of the pewter used for spoon manufacture was extremely variable with different tin/lead ratios, probably testimony to repeated remelting and recasting. Evidently pewter was not a binary alloy and copper was widely used at the time in small amounts (1-5%) for hardening purposes. However it is not the purpose of this note to review the subject but to report the findings on two spoons from the Herbert Museum, Coventry, which have alloy compositions of interest in relation to medieval literary sources.

The Ordinances of the Pewterers of 1348¹ laid down the nature of the pewter alloys which were to be used in making the various types of metalware. The superior grade of pewter for use in making items subject to the severest service conditions including saucers and platters was to be of '*... fine pewter, with the proportion of copper to the tin, as much as of its own nature, it will take.*' Various writers have speculated on the extent of the take-up of copper by the tin but there has been no recent suggestion that medieval pewter contained more than a few percent of copper². However an incomplete spoon from Coventry (49/139/7), probably of the late 15th century, has been found to contain 20.8% copper along with 0.7% lead and

0.1% iron. It is possible that spoon alloys were exceptional since they were not mentioned specifically in the list of items in the Ordinance and perhaps such copper levels should not be expected otherwise; however this spoon alloy demonstrates the high levels which could be achieved.

Another incomplete spoon from Coventry (49/139/5), probably of earlier date than the above, contained 9.9% lead, 2.8% copper, 0.5% iron, 0.1% antimony and 5.8% mercury. The last ingredient has so far only been found in this spoon but there is historical reference to mercury being used to harden tin. Theophilus Presbyter's early 12th-century treatise on metalworking³ includes an account of the method for casting a pewter cruet with details of the alloy to be used. He instructs the reader: '*immediately melt some tin in an iron pan or in a dish and when it is time for casting add a little mercury to it in such proportions that if there is a pound of tin, there should be a quarter of mercury.*' (The literal translation of the original Latin *quadrans* is used since there is some confusion over the meaning of the term.) Hatcher⁴ has considered the matter and concluded that it meant a farthingweight per pound of tin (0.1% Hg) since other interpretations gave, in his view, unreasonably high levels of mercury (3.9% or 20% Hg). A quarter of a (Roman) ounce, the last word assumed, would lead to a level of about 2%. Thus the correspondence of mercury contents is not exact but the spoon represents an interesting example of an early approach to hardening tin in pewter manufacture.

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References

- 1 Ordinances of the Pewterers Guild, London 1348 .
- 2 R E Homer, Five Centuries of Base Metal Spoons, Private Publication, 1975 .
- 3 Theophilus, On Divers Arts: The Treatise of Theophilus, ed J G Hawthorn and C S Smith, Chicago, 1963.
- 4 J Hatcher and T C Barker, A History of British Pewter, London, 1974.