Ancient Monuments Laboratory
Report 11/2000

A REASSESSMENT OF CRUCIBLES FROM ARCADIA BUILDINGS, SOUTHWARK

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Summary

This Roman site produced the remains of a maximum of 23 crucibles which were Iron Age in style. They were analysed to confirm that they were not used for the melting of brass or gunmetal.

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A Reassessment of Crucibles from Arcadia Buildings, Southwark

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The assemblage of crucibles from Arcadia Buildings represents a continuation of native technology in a Roman settlement. The crucibles appear to be Iron Age in style; generally being triangular-shaped. When originally analysed by Rod Clough at the Institute of Archaeology, London, the crucibles were thought to be used for manufacturing small cast brass objects, due to the presence of zinc (Dean 1980, 369).

Re-analysis of the crucibles was undertaken using XRF (X-ray Fluorescence) to see if they had indeed been used for melting brass. The results are presented in the Appendix. This work was undertaken as no Iron Age style crucibles used for the melting of brass are known, so a positive result would change our understanding of the development of metal technologies in Britain.

The re-analysis of the crucibles shows that there is zinc present in some of the crucibles. There are four crucibles with no traces of zinc detected and these can not have been used for melting brass. The remains of three crucibles; <341>, <533> and <913>; had high levels of zinc detected. However, these were in areas of the crucibles where no metal remained. In the case of <341>, at other points of the crucible where metal does survive, very low levels of zinc were detected. Recent research shows that zinc levels detected in crucible walls can be enhanced over 1000 times compared to copper, relative to the original alloy in the crucible (Dungworth and Bayley, forthcoming, 3-6). This is the probable explanation for the high levels of zinc detected in the crucible walls.

The XRF results show that some of the bronze in these crucibles contained minor amounts of zinc, but not enough for the metal to be classified as a gunmetal or brass.

References

Dungworth, D. and Bayley, J. (forthcoming) Crucibles, moulds and tuyères from Mucking, Essex. Ancient Monuments Laboratory Report Series

Dean, M. (1980) Excavations at Arcadia Buildings, Southwark, 1977-79. *London Archaeologist*, **3/15**, 367-373.

Appendix

Table shows elements detected using XRF

Identification number	Description / notes	Detected elements
341	metal area	Cu, Sn, Pb, (Zn)
341	non-metal area	Cu, Sn, Zn, Pb
341	metal area	Cu, Pb, Zn, Pb
341	base	Zn, (Cu), (Pb)
526		Pb, Sn, Cu, Zn
527	vitrified surface	Pb, Sn, Cu
530		Sn, Cu, Pb
535	large fragment	Cu, Pb, Sn, Zn
538		(Pb), (Zn), (Cu)
523		Sn, Pb, Zn, (Cu)
525		Cu, Sn, Pb, Zn
534	rim	Sn, Cu, (Pb), (Zn)
534	rim	Sn, Cu, (Zn), (Pb)
534	base	Sn, (Pb), (Cu), (Zn)
361		Cu, Sn, Zn, Pb
528		Cu, Sn, (Pb)
524	large fragment	Pb, Sn, Cu, (Zn)
531	large fragment	Sn, Cu, Pb
533	porous fabric	Zn, Sn, (Pb), (Cu)
913		Zn, (Cu)
31		Cu, Pb, Sn, Zn
42		Cu, Sn, Pb, Zn
342		Cu, Pb, Zn, (Sn)
522	hearth lining	
532		Pb, Zn, Sn, Cu
529	no original surface	(Cu)
536		Sn, Pb, Cu, Zn
537	mould fragment	Sn, Pb
537	mould fragment	Pb, (Zn), (Cu)
689		Cu, Zn, Sn, Pb

Key to elements detected

Cu copper
Pb lead
Sn tin
Zn zinc

All elements are listed in order of decreasing XRF signal strength. This does not directly relate to their original abundance.