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Ancient Monuments Laboratory
Report 8/93

CRUCIBLES AND MOULDS FROM COOK STREET, SOUTHAMPTON (SOU 254), HAMPSHIRE

Justine Bayley

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Summary

Fourteen clay piece mould fragments and about forty crucible fragments of Middle Saxon date were examined. The crucibles were probably all thumb pots, some with thicker walls than others. Both copper alloys and silver were melted. The moulds were too fragmentary for the objects being cast to be identified. Both upper and lower valves are represented.

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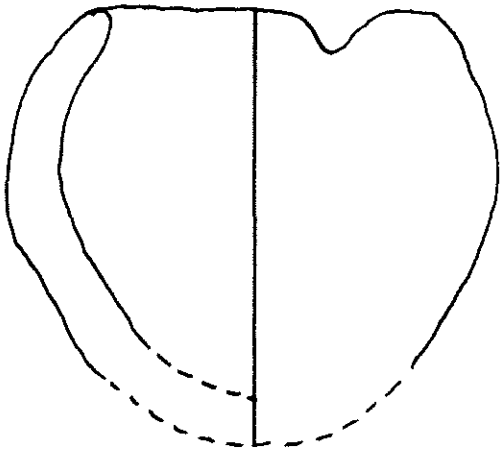
Twenty four contexts, mostly of Middle Saxon date, produced sherds from crucibles and/or clay piece moulds. The fragments from post Conquest contexts are indistinguishable from the earlier finds and are most likely to be residual. Many of the crucible fragments were very small (under 5 mm, marked * in Table) and appear to have been collected from samples that were wet sieved; their coloured and vitrified surfaces were easily recognised by those sorting the residues. There are no corresponding small mould fragments, probably because small lumps of fired clay were not picked out. The relative quantities of crucibles and moulds in the Table thus represent those finds identified and collected, rather than those that were present on the site.

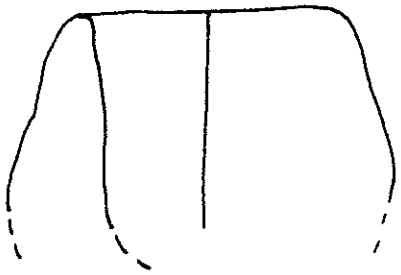
Crucibles

All the crucible sherds showed some vitrification and in some cases the overheating had led to bloating of the ceramic. About half the sherds showed areas of red coloration in the vitrified surface, indicating the presence of copper as a component in the metal being melted. The only crucible where a form could be determined was 1303 which was a globular thumb pot with a maximum diameter of 60-70 mm, c.60 mm high, with walls 6-8 mm thick. One non-joining rim fragment suggests it had a pinched out pouring lip. This form is similar to that of previous finds of crucibles from Hamwih (eg, Addyman and Hill 1969, Fig 25) so, although it is dated stratigraphically as pre Middle Saxon, there is nothing to suggest it is significantly earlier. Some of the other rim sherds (eg 1873), which are probably also from thumb pots, suggest crucibles with walls up to 15 mm thick.

X-ray fluorescence (XRF) analysis was carried out mainly on those crucibles where corroded metal droplets could be seen. This gives a better estimate of the composition of the



1303



1873

Sketches of crucibles

metal being melted than the crucible slag where zinc and lead levels are always enhanced. The results are given in the Table where elements are listed in order of XRF signal strength; those written within brackets gave only weak signals. Item 1303 had been used to melt silver while the other analysed crucibles had been used to melt copper alloys. Those where the XRF signals were strong enough to be diagnostic were all bronzes.

Moulds

The moulds are in many ways more interesting than the crucibles as they are the first clay piece moulds that have been recognised from Middle Saxon Southampton and are one of only a small number of groups of clay moulds of this period known from England (Bayley 1991). Some of the fragments definitely come from the lower valve of a two-piece mould while others which are less massive and have a convex rather than flat outer surface come from the upper valve. Several pieces are from the in-gate (sprue cup), one of which (in Item 2321) is definitely part of a mould valve; the others may also be parts of valves or may have been added to the two-piece mould assembly together with the luting clay which sealed the valves together. Massive traces of the metal poured into the mould survive on the in-gate fragment 2390.

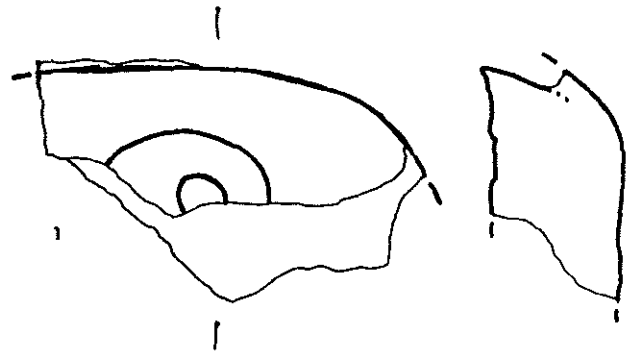
As is normal with piece moulds, the pattern in the lower valve is deep, with a less substantial impression in the upper valve. No complete impression of the object being cast survived; all that could be seen with any certainty were impressions of perforated circular discs on nos 1, 2 and 10 (see sketches of mould pieces). All the mould fragments are reduced fired all through.

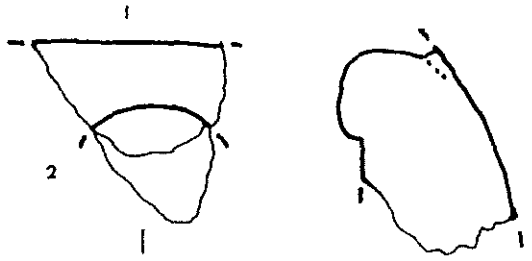
XRF analysis of clay moulds is usually uninformative. The slight traces of zinc and lead detected on the modelled area of the lower valve in 2293 show that it had been used, but provide no information on the composition of the metal being cast. The metal-rich deposit on in-gate 2350 indicates a copper alloy, though the presence of zinc and absence of tin

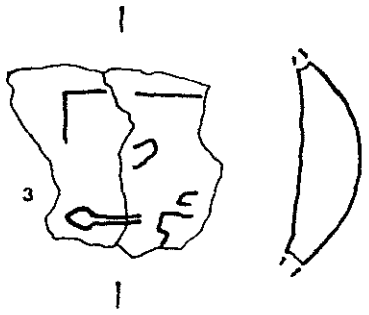
Sketches of mould pieces

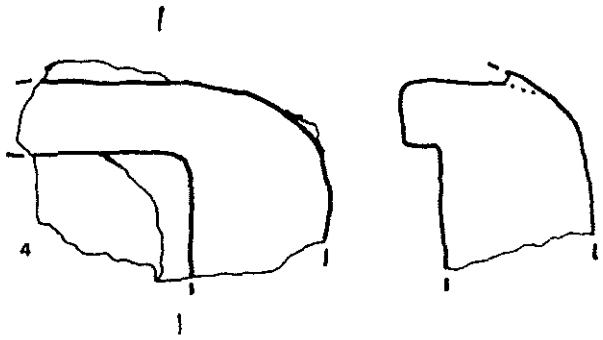
1-3: 2293, 4-7: 2315,
8: 2321, 9-10: 2322

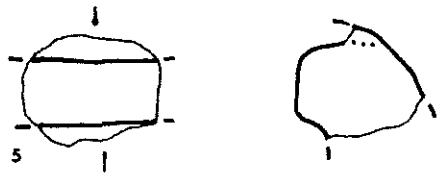
upper valves:
1, 3, 7, 9, 10*
lower valves:
2, 4, 5, 6, 8*
*=in-gate

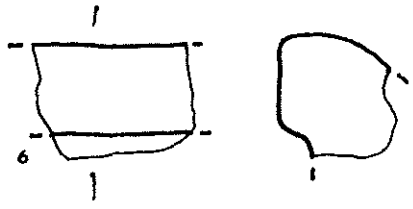


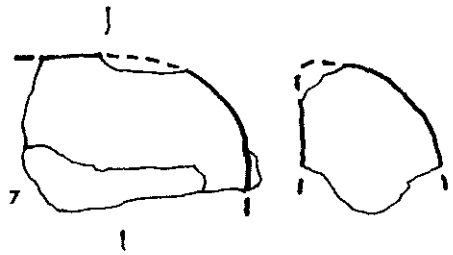


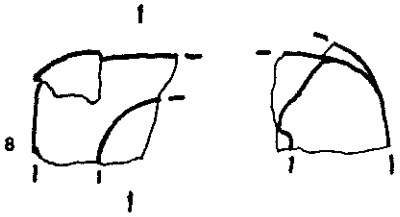


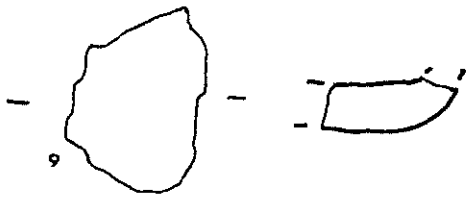


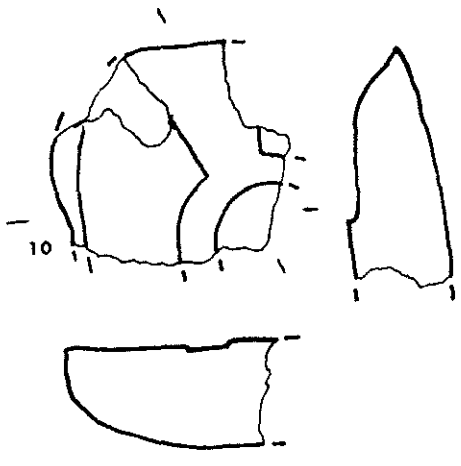












in detectable quantities is probably not significant.

References

Addyman, P and Hill, D (1969) Saxon Southampton: A review of the evidence. Part II: Industry, trade and everyday life. *Proc Hants Field Club*, **26**, 61-96.

Bayley, J (1991) Anglo-Saxon non-ferrous metalworking: a survey. *World Archaeology*, **23**(1), 115-30.

Table of finds examined

Context	Item	Crucible / Mould	Comments
Pre Middle Saxon			
2780	1303	13(7 join)	Half a vessel XRF: Ag Cu Zn Pb
Middle Saxon			
1874	2378	1 *	XRF: Cu Sn (Pb Zn)
2846	3057	1 *	
3451	1870	1 rim/lip	XRF: Zn (Cu Pb)
3535	2548	1 *	
3547	1873	1 rim	XRF: (Cu Zn Pb)
	2145	1 rim/lip?	XRF: Cu Zn Sn Pb
	2484	12 (1 rim)	
3865	2390	1 rim	XRF: Zn Cu Pb Sn
	2465	2	
	2485	4 *	
4107	2963	1 *	
4110	2191	3(join)	XRF: Cu Sn Zn Pb
4401	2293	3 (1 rim)	
		3M	edge of 1 lower and 2 upper valves XRF: (Zn Pb) on lower valve, modelled area only
	2698	2 *	
4403	2294	1M	fragment from upper valve
4432	2315	2 (1 rim)	
		4M	2 edges and 2 corners of lower valves
4442	2321	1M	corner of lower valve with ?in-gate
4443	2322	3M(2 join)	in-gate and fragment, both from upper valve
4444	2699	12 *	
4451	2964	1 *	
Post Conquest			
361	2962	4 *	
1910	2388	1 *	
1936	2777	1 *	
2205	2464	1 *	
2510	2778	1 *	
3073	1290	2 *	XRF: Zn (Cu Pb)
	2389	2	
3120	2697	1	XRF: Cu Pb Sn
4174	2350	1M	in-gate XRF: (Zn Pb Cu)

Key:
* = very small fragments, M = mould fragment(s)
Ag = silver, Cu = copper, Pb = lead, Sn = tin, Zn = zinc