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Ancient Monuments Lab Report No 4302

SAXON CRUCIBLE SHERDS FROM BLACK LION HILL AND ST PETER'S GARDEN, NORTHAMPTON

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The sherds were all examined and the deposits on them analysed qualitively by energy-dispersive x-ray fluorescence (XRF). The analytical results and the dimensions of the sherds are given in the table.

The analyses suggest a number of distinct uses for the vessels represented by the sherds. Five (AM 840270, 840272-3, 840276 & 840280) had no traces of non-ferrous metal detectable or so had probably not been used as crucibles. The blackened surface of AM 840272 suggests it may have been used as a lamp. AM 840280 is oxidised fired and so cannot have been used to melt metals as this requires a reducing atmosphere. It contains traces of haematite (iron oxide) which could have been used as a red pigment or as a fine abrasive for polishing the metal objects being made.

The metals detected on the rest of the sherds are shown in the table in order of XRF signal strength. This is not the same order as the relative abundance of the metals as some elements fluoresce less strongly than others and so tend to be under-represented; this is particularly true of silver. The almost universal presence of zinc should not be given too much weight as this is due mainly to its chemical nature. While probably present in many of the metals being melted, it would not have been a major constituent of most of them.

One sherd (AM 840277) was from a vessel used to melt lead, four (AM 840271, 840274, 840279, and 840284) were from vessels used to melt copper or one of its alloys and five (AM 840275, 840278, 840282 and 840285-6) were from vessels used to melt impure silver. One final sherd (AM 840287) was part of a fragment of a much larger pot than the crucibles that had been reused as a 'heating tray' (cf Chalk Lane crucible report). The vitreous deposit on it contained much copper and lead as well as a minor amount of silver suggesting its use was connected with precious metal working, possibly metal refining.

In addition to the crucibles a few further pieces were submitted for examination. The deposit on AM 840269 had the appearance of hard water 'scale' and gave strong XRF signals for calcium which supports the tentative identification. The form of this post-medieval piece suggests it is not part of a domestic vessel but probably had an industrial used; wide flanges are know eg on ceramic distillation vessels. AM 840288 is, like the crucibles, Saxon in date but is a fragment of vitrified hearth lining rather than a further crucible sherd. The final sherd (AM 840463) was also from a Saxon context but had nothing to do with metal working. The temper it contained was not at all refractory and had expanded and become vitreous when the pot was fired, giving it a pimpley surface.

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Table of results

AML No	Sherd type and thickness (in mm)	Elements detected by XRF
840270	R 5	
71	B 3-4	Zn Pb Cu
72	B 5	
73	R 5	
74	Ba-R 5	Cu Pb ?Zn
75	B 4	Cu Ag
76	R 4	
77	R 5	Pb
78	B 6	Zn Ag Cu
79	R 4	Cu Zn
80	B 5	
82	B 5-6	Zn Cu Pb Ag
84	R 3-4	Pb Zn Cu
85	R 4-5	Cu Ag Pb Zn
86	R 4-5	Cu Pb Ag Zn
87	B 6	Pb Cu Zn Ag

Key:

B = body sherd

R = rim

Ba = base