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Ancient Monuments Laboratory
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CRUCIBLE FRAGMENTS FROM TANNER ROW, YORK.

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Summary

Seven sherds from Tanner Row, York suspected of having originated from metal - working crucibles were qualitatively analysed by x-ray fluorescence. Three of these were confirmed as crucible fragments suggesting Post-Roman working of copper alloys. One was identified as a sherd re-used as a heating tray for the working of precious metals in the Roman period.

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CRUCIBLE FRAGMENTS FROM TANNER ROW, YORK.

Seven sherds from various contexts suspected of having originated from metal working crucibles were examined and analysed qualitatively by x-ray fluorescence (XRF). The results of these analyses are summarized in the following table.

SF No.	Context	Dating	Description	Cu	Zn	Pb	Sn
500	1137	5th-12thC	Body Sherd	+++	++	+++	
197	1049	12th-13thC	Rim id=50mm	+++	+++	++	
"Slag"	1130	5th-12thC	Body Sherd	+++	+++	+++	++
1981*	2361	L2nd-E3rdC	Sherd re-used as Heating Tray	++	+	+	
977	1308	L2nd-E3rdC	Probable Mould Fragment	+	++	+	
2037	2379	L2nd-E3rdC	Overheated Pottery Sherd	+	+		
529	1140	5th-12thC	Overheated Pottery Sherd	+		+	

* SF 1981 also contained significant amounts of gold and silver.

+++ - Major Constituent
++ - Significant Constituent
+ - Detected

id - internal diameter
L - late
E - early

Three of the sherds were confirmed to be metal working crucible fragments (SF 500,197,and "Slag") connected with the working of copper alloys, probably brass in the case of SF 197 and a leaded gunmetal in the case of the fragment labled as "Slag". All three crucible fragments were highly tempered and of suitably refactory fabrics for use in metalworking. SF 197 was reduced fired to a light grey and displayed a thin vitrified layer on its exterior surface. The form of this rim sherd suggested that it may have originated from a "bag shaped" crucible, a typical early medieval form.

The "Slag" sherd and SF 500 were probably of the same dense

fabric, both were reduced fired to a medium grey and external layers of less refractory clay had been added in both cases. The "Slag" sherd also contained a thin layer of vitrified material on its inner surface incorporating a number of spherical corroded copper or copper alloy droplets.

On the basis of form it seems likely that SF 1981 is part of a sherd reused as a "heating tray". The XRF results indicate that this was used for the heating of precious metals, both gold and silver were detected by XRF, and microscopic examination has revealed tiny gold droplets on the surface of the sherd. Zinc and lead are also present in small, although probably not significant, quantities. Copper is present, but probably only as an impurity in the precious metals. The fabric is highly refractory and incorporates a well sorted quartz temper. The sherd has been reduced fired, but is partly oxidized on the under surface.

The poorly refactory fabric and sparse temper of the sherd SF 977 argue against its use as a crucible, although it has evidently been highly heated at some point producing a thick layer of vitreous material on its external surface. These observations and the weak XRF signals suggest that this sherd is more likely to be a mould fragment than part of a crucible. Some weight is added to this interpretation by the presence of a circular embossed motif, about 13mm in diameter on the internal surface of the fragment.

Both SF 2037 and SF 529 are most likely to be overheated pottery sherds since, although both show signs of heating, metal traces are significant on neither. SF 2037 is of a fairly refractory fabric with a poorly sorted quartz temper. It has been reduced fired to a light grey. SF 529 is also of a refactory fabric, with a fine quartz temper, reduced fired to a medium grey and similar in appearance to SF 197. This sherd does have some small amounts of vitreous material adhering to its outer surface, but this is probably just an accidental fuel ash glaze. The presence of vitreous material on the surface of the fracture suggests that the sherd was heated after the original vessel was broken.

The three crucible fragments provide evidence for the working of copper alloys, probably brass and gunmetal, in the Post Roman period. The heating tray sherd would suggest Roman working of precious metals on the site, but there is no definite evidence for the Roman working of copper alloys, although the presence of the mould fragment is perhaps suggestive.