

# ANCIENT MONUMENTS LABORATORY

## REPORT

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**TITLE**

Examination of Small Finds from  
Wickford, Essex

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The material examined (AM 830734-830736) included pigments, silver objects, lead and iron from Romano-British contexts. Qualitative elemental analysis of the samples was carried out by energy dispersive X-ray Fluorescence (XRF) and the compounds present in some samples were identified by X-ray diffraction (XRD). The analytical results and identifications of the objects, which are discussed below, are given in the appendix.

The appearance and elemental analysis of the pigment samples (AM 830734) suggested that they were probably all (except Cat. 1572) egyptian blue, a synthetic calcium copper silicate used as a pigment. This was confirmed for four of them by XRD, and the others were almost certainly the same. Cat. 1572 was probably a deposit of metallic lead in a sherd, rather than a pigment, which had oxidised on the surface to give a pale red appearance.

The deposits on the iron nail (AM 830735) were all types found fairly regularly on excavated iron objects, the blue material being vivianite, an iron phosphate corrosion product sometimes produced when iron objects corrode in waterlogged (reducing) conditions.

Of the possible silver objects (AM 830736, one (357 x 850, 131) was magnetic and was in fact iron, and the other three were silver, but the silver also contained some copper in each case. Various other elements were also detected on analysing the samples (see appendix) but of these iron is almost certainly only present because of surface contamination. The silver finger ring (L14A, 2, 8.8.67) originally consisted of two silver parts, the ring itself and a decorative, roughly hemispherical 'button' soldered together by a lead-tin solder.

Appendix - Analytical results and identifications of the samples

<u>AM No.</u>	<u>Excavator's No.</u>	<u>Major elements detected by XRF</u>	<u>Compounds identified by XRD</u>	<u>Identification</u>
830734	362	Cu, Fe, Ca, Pb, Sn	-	Egyptian blue (pigment)
"	404	Cu, Fe, Ca, Pb, Sn	Ca Cu Si 0 <sub>10</sub>	"
"	3458	Cu, Fe, Ca, Pb, Sn	Ca Cu Si 4 <sub>10</sub>	"
"	4237	Cu, Fe, Ca	Ca Cu Si 4 <sub>10</sub>	"
"	4591	Cu, Fe, Ca, Pb, Sn	Ca Cu Si 0 <sub>10</sub>	"
"	4592	Cu, Fe, Ca, Pb	Ca Cu Si 4 <sub>10</sub>	"
"	4593	Cu, Fe, Ca	-	"
"	C26A, 1968	Cu, Fe, Ca, Pb, Sn	Ca Cu Si 0 <sub>10</sub>	Egyptian blue in sherd
"	Cat. 1572	Pb, Fe, Ca	Ca Cu Si 4 <sub>10</sub>	Lead in sherd
830735	Fe 279 Cat. 2258	Fe, Mn	Blue material: Fe <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> · 8H <sub>2</sub> O	
830736	L13A, 2, 1967	Ag, Cu, Pb, Fe, ?Au	-	Silver ring
"	357 x 850, 131	Fe	-	Iron fragments
"	325' 8 x 131' 4, 3	Ag, Cu, Zn, Au, Pb, Fe	-	Silver pin
"	L14A, 2, 8.8. 67	Ring: Ag, Cu	-	Silver finger ring, with silver
		Solder: Ag, Cu, Pb, Sn	-	button lead-tin soldered on