Ancient Monuments Laboratory
Report 73/86

EXAMINATION OF FIVE ITEMS FROM MALDON, ESSEX.

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Summary

Two pieces of "slag" and three objects from Maldon were examined and, where appropriate, analysed using qualitative energy dispersive x-ray flouresence or powder x-ray diffraction. One piece of slag was waste from copper melting. The shoulder plates on a knife were found to be brass, a copper hinge fitting was mercury gilded and the red deposit on a bone comb handle was found to contain, almost certainly, both red iron oxides and mercury sulphide (vermillion or cinnabar).

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Examination of Five Items from Maldon, Essex

Five items from medieval or post-medieval contexts at Maldon were examined. Elemental analysis was carried out as appropriate using qualitative energy dispersive X-ray fluorescence (XRF), and a sample of the red deposit on the bone handle was analysed using powder X-ray diffraction (XRD) to identify the crystalline compounds present.

AM8650643 (small find 145) - Copper, gold, mercury and traces of lead were detected in a gilded area of this hinged fitting using XRF. The fitting was mercury gilded and the base metal was essentially copper although it probably also contained a trace of lead.

AM8650644 (small find 3) - A high level of iron and a low, but significant, level of mercury was detected by XRF in an area of this bone handle which included the red material. XRD of a sample of the deposit showed that mercury sulphide (vermilion or cinnabar) was present. The high level of iron suggests that the red material contained red iron oxides as well as mercury sulphide, but they were not sufficiently crystalline to be detectable by XRD.

AM8650645 (Find No. 359) - Copper, zinc and (at trace levels) lead were detected in the shoulder area of this iron knife. The non-ferrous metal shoulder plates visible on the X-ray were therefore brass (copper-zinc alloy).

AM8650646 (Find No. 132) - This sample consisted of copper alloy attached to fuel ash slag, which is the result of a high temperature reaction between fuel and silica-rich material such as sand or clay. The copper alloy was rich in tin and also contained some lead, and was therefore bronze. This item was almost certainly the result of spillage of a drop of bronze in the furnace while it was being melted. It was not connected with copper smelting.

AM8650647 (Find No. 363) - This was similar to AM8650646, except that only copper and a trace of lead were detected. This item was almost certainly the result of spillage of a drop of copper in the furnace during melting. Again, it was not connected with copper smelting.