

ATH Repal N150
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ANCIENT MONUMENTS LAB REPORT NO 4150

THE SLAG AND OTHER TECHNOLOGICAL FINDS FROM CAISTOR-BY-YARMOUTH, NORFOLK

A total of just over 40 kg of slag was examined and identified. The vast majority of it was smithing slag though there were also small quantities of fuel ash slag, hearth lining and odd pieces of metallic iron. Some of the smithing slag was in the form of roughly plano-convex 'buns' which had collected at the bottom of the smith's hearth; they ranged in size from about 7 to 12 cms (maximum diameter).

All the types of material identified could have been produced in a blacksmith's hearth. This is the sort of collection one would expect to find in an area where a smith had been at work.

In addition to the ironworking there was some slight evidence for the working of copper alloys and silver - sherds from crucibles and solidified pools and dribbles of molten metal. All were analysed qualitatively by x-ray fluorescence (XRF).

Two sherds (AM 840017 and 840019) were from crucibles that had been used to melt leaded gunmetals (copper alloys containing lead, tin and zinc). Both had a highly vitrified extra outer layer of less refractory clay, a common feature of Roman crucibles, while one (AM 840019) also had an extra internal lining suggesting it had been used more than once. The dribbles (AM 840020-22) may have been split from crucibles as the metal was being poured into a mould of some sort or they could be the remains of objects that were accidentally remelted. Their compositions are very variable, the three being respectively leaded gunmetal, brass containing a little lead and bronze containing a little zinc.

A third crucible sherd, a base (AM 840016), contained many droplets of corroded silver trapped in a thin green glassy layer on its inside. XRF detected lead, copper and a trace of zinc in addition to silver. Most of the copper (and zinc) are probably alloyed with the silver while the lead is likely to be mainly in the glassy layer. Refining silver to remove base metals such as copper was carried out by cupellation, a process involving lots of lead; this crucible deposit may be the result of melting incompletely refined silver.

The final sherd (A M 840018) was not originally a crucible but part of a fairly fine-fabric pot. The vitreous deposit on it contains much lead, some copper and a trace of zinc. Similar deposits have been found on both purpose-made shallow dishes and on re-used sherds of late Saxon date from a number of sites which it is thought may have been used for small-scale cupellation or assaying. However, this interpretation is a little suspect as many of these 'heating trays', like the example here, appear reduced fired while cupellation has to be carried out in an oxidising atmosphere. Whatever its precise function, this sherd was definitely re-used in some metallurgical process.

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