Ancient Monuments Laboratory
Report 70/86

EXAMINATION OF TECHNOLOGICAL MATERIAL FROM VARIOUS SITES EXCAVATED BY THE DEPARTMENT OF GREATER LONDON ARCHAEOLOGY OF THE MUSEUM OF LONDON

Paul Wilthew

Ancient Monuments Laboratory Report 70/86

EXAMINATION OF TECHNOLOGICAL MATERIAL FROM VARIOUS SITES EXCAVATED BY THE DEPARTMENT OF GREATER LONDON ARCHAEOLOGY OF THE MUSEUM OF LONDON

Paul Wilthew

Summary

Small amounts of material related to both ferrous and non-ferrous metalworking activities from six sites were examined. Where appropriate, they were analysed elementally using qualitative x-ray fluorescence. The analytical results and identifications of each sample are reported, and the results discussed.

Author's Address :-

Ancient Monuments Laboratory
Historic Buildings & Monuments Commission
23 Savile Row
London
W1X 2HE

01 734 6010

Examination of Technological Material from Various Sites Excavated by the Department of Greater London Archaeology of the Museum of London

Small quantities of material thought to be associated with metalworking from six sites were examined. The samples were identified and, where appropriate, analysed elementally using qualitative energy dispersive X-ray fluorescence (XRF). The results are discussed by site below. The analytical results are given in the discussion, and each sample is identified in the appendix.

Discussion

Note : In the discussion "iron smithing slag" includes hearth bottoms.

West Tenter Street (Late Roman) - The sample from this site was the flat base of a reduced fired crucible with a thickness of about 5mm. As only the base was present the size of the crucible could not be determined. The fabric contained some silica but was quite heavily vitrified. Small corroded metal drops were attached to the crucible and XRF analysis indicated that the metal was a copper alloy containing zinc, tin and lead. This suggests that the metal being melted was gunmetal (copper-zinc-tin alloy), although it was not possible to determine the relative proportions of zinc, tin and lead.

Westminster Abbey (10th-11th C) - This material (total weight 2.4kg) included small amounts of iron smithing slag. However small quantities of similar material are found on most Iron Age or later occupation sites and so the presence of this material is not very significant. It does suggest that small scale blacksmithing probably took place on or near the site. There was no evidence for iron smelting.

Great Newport Street (Mid-Saxon) - The same comments as were made about Westminster Abbey apply to the material (total weight 2.5kg) from this site.

Jubilee Hall (Mid-Saxon) - Two samples of iron smithing slag were found, but such a small quantity (the total weight of material was 650g) is not significant. A lead-rich lump which also contained traces of copper was also identified. This suggests non-ferrous metalworking and possibly precious metal refining.

Maiden Lane (Mid-Saxon) - A very small quantity of iron smithing slag (the total weight of material was 340g) was identified, but again such a small quantity is not significant.

Tower Hill West (Post-Medieval) - The material examined was largely iron smithing slag and included one large hearth bottom (12kg+) but the latter did not appear to be in situ in a hearth. Iron smithing almost certainly took place in the vicinity of the site but the site probably did not include the smithy itself.

Glossary of terms as used in this report :

Iron smithing slag - this material is an iron rich slag produced during blacksmithing. Its presence indicates that blacksmithing took place in the vicinity of a site, but it should be remembered that it can be intrusive or residual, and that small quantities are found on most Iron Age or later settlement sites. It is not related to the production of iron in the smelting process.

Hearth bottom - this comprises iron slag and other material which collects at the bottom of a blacksmith's hearth. Again, its presence does not indicate production of iron, only working of it.

Hearth lining - the vitrified clay lining of a hearth used at high temperatures. It is often, but not necessarily, associated with metalworking.

Fuel ash slag - the result of a high temperature reaction between ash and silica rich material such as sand or clay. It is often associated with metalworking, but it can be formed in any sufficiently hot fire.

West Tenter Street (WTN 84)

562 912 Crucible, probably used to melt gunmetal

Westminster Abbey (WST 86)

392	Two samples, both iron smithing slag or hearth bottoms
364	Hearth lining and fuel ash slag
364 32	Fragment of a hearth bottom (weight 600g)
403	Probably corroded iron
414	Fuel ash slag

Total weight 2.4kg

Great Newport Street (GTS 86)

5	Iron smithing slag or hearth bottom
6	Hearth bottom with hearth lining attached, also some fuel ash slag

Total weight 2.5kg

Jubilee Hall (JUB 85)

107	Two samples. One was hearth lining, the other was a lead rich lump which also contained copper. It was almost certainly from a process involving oxidation of lead, such as precious metal refining.
154	Fuel ash slag
168	Fuel ash slag
167	Iron smithing slag, fuel ash slag
287	Iron smithing slag

Total weight 650g

Maiden Lane (MAI 86)

171	Iron smithing(?) slag
176	Iron smithing slag
177	Fuel ash slag
178	Burnt ironstone
181	Fuel ash slag (or hearth lining)
186	Fuel ash slag
199	Fuel ash slag
214	Hearth lining
215	Hearth lining
220	Fuel ash slag
226	Burnt clay
232	Burnt clay
234	Burnt clay or soil
241	Hearth lining, fuel ash slag
282	Two samples, fuel ash slag (possibly including hearth lining)
297	Fuel ash slag or hearth lining

Total weight 340g

Tower Hill West (THW 85)

54 Ferruginous concretions, possibly formed round iron. Concretions included hammer scale and were probably debris from a smithy (3kg)

9 Very large hearth bottom (12kg) (6.2kg of similar material was not examined)

36 Vitrified material but probably not metalworking slag. Possible destruction debris

69 Iron smithing slag

73 Iron smithing slag and other burnt material