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Ancient Monuments Laboratory
Report 141/87

IDENTIFICATION OF SLAG SAMPLES FROM CASTLEFORD, W YORKS

Justine Bayley

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Summary

A total of about 8 kg of material from Roman levels was identified. The largest sample was a 2.7 kg lump of bog iron ore. There was some evidence for iron smithing while a previous report (by Dr J Cleeland) had identified evidence for smelting.

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IDENTIFICATION OF SLAG SAMPLES FROM CASTLEFORD, W YORKS

A total of about 8 kg of material from Sites 10, 12, 13, 14 and 15 which was thought to be slag was submitted for investigation (AML No 8650251). The individual identifications are given below. A further eight samples from Site 10 and six from Site 1 (1974) had previously been analysed by Dr J Cleeland whose report describes most of them as being associated with iron making, ie smelting. The contexts which produced the slag are Roman.

Slag identifications
All the terms used below are defined in Bayley (1985)

Site 10 - Total weight 90 g
908 smithing slag
1584 (the sample tube had broken and no material survived)
1809 smithing slag

Site 12 - Total weight just over 3 kg
52 hearth lining and a pebble with a fluxed surface
53 fuel ash slag
64 iron-rich fuel ash slag and poorly fired clay
75 stone with fluxed surface
82 iron-rich fuel ash slag
87 smithing slag
104 corroded metallic iron
111 iron pan round a corroding iron object
121 corroded metallic iron
122 probably smithing slag
124 iron slag, dense in places. Could be from smithing or smelting

Site 13 - Total weight 280 g
124 smithing slag
137 fuel ash slag and stone

Site 14 - Total weight 280 g
191 fuel ash slag and stone
192 iron-rich fuel ash slag
219 iron-rich fuel ash slag

Site 15 - Total weight 4.1 kg
86 crucible fragment - see crucible report
249 probably smithing slag. Hearth bottom with a lot of wood/charcoal, 18 x 9 x 7 cm
337 bog ore, probably roasted. Fragment 20 x 15 x 10 cm (weight 2.7 kg)
381 fuel ash slag
609 hearth lining with tuyere hole of c.2 cm diameter
733 fuel ash slag and stone

The slag listed above is the sort of material one would expect to find in or around an area where small scale blacksmithing had been carried out. There are no concentrations of slag so it is not possible to attempt to locate a workshop. Indeed, the small quantities of material are only the normal 'background' levels to be expected on any Roman settlement and as such should not be taken as specific indicators of on-site industrial activity. The one piece of bog ore appears to have been roasted which might be seen as a preliminary to smelting though the burning might have been accidental. It would be interesting to know if the ore noted by Dr Cleeland in S6 from Site 1 was of the same type.

The most notable feature of the Castleford slag is the small amount recovered from the excavations which have investigated considerable areas. I would query Dr Cleeland's identification of an on-site smelting industry as this normally produces far larger amounts of slag - up to several tonnes. This is not to say that the slag identified by him as coming from a smelting furnace could not have done so, but rather that the isolated pieces recorded are redeposited material which may have come from anywhere, not necessarily very close to the excavated areas.

In conclusion, it can be said that the excavations have produced some evidence for small-scale iron smithing and a further small amount of material which may indicate iron smelting, though the precise location of either of these industries is unknown and is not likely to have been within the excavated areas.

Reference

Bayley, J (1985) What's what in ancient technology: an introduction to high-temperature processes. In: P Phillips (ed) The archaeologist and the laboratory. CBA Research Report 58.