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Preliminary examination of
archaeometallurgical residues from
West Hoathly, Sussex

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Methods

This report presents a preliminary evaluation of archaeometallurgical residues from West Hoathly. The submitted material was a sub-sample of the material recovered during recent archaeological intervention at the site.

The material has been examined by visual inspection, including, where appropriate, inspection under a low-powered binocular microscope.

A short, summary report has been prepared according to instructions from Cotswold Archaeology. This report does not constitute a formal evaluation of the assemblage, but is intended to provide a preliminary guide to the nature of the residues to aid on-going investigations.

Results

The following is a summary list of the submitted materials:

(428)
Several small pieces of indeterminate slag. Also one larger piece of strongly vitrified furnace wall with vitrified layer up to 30mm thick. Two dense slag pieces of uncertain nature – one has good lower charcoal contact – but not clear if it is a smelting or smithing slag.

(429)
3 pieces of elongate prills, 2 pieces of probable tap slag flows, 2 more equant pieces of slag of uncertain nature. All very weathered.

(431)
Weathered slag assemblage with highly unusual lilac weathering. Three pieces are elongated prills. More equant pieces are of uncertain nature, and two of the three might possibly be smithing slags (but this is not a certain identification)

(467) <2>
Ashy concretionary slag collection. Some fired clay, some possible ore. Slag not strictly determinable.

(477) <7>
4 pieces of dense crystalline tap slag. 3 pieces of weathered indeterminate iron slags.

(481) <9>
Ashy concretionary material bearing slag debris. Slag not strictly determinable, but one piece probably a smelting slag.

(481) <11>
8 pieces of shelly iron ore

(483) <10>
Approximately 9 pieces of dense crystalline slag, possibly thin tap slag lobes in part at least. Approximately 7 pieces of black glassy slag, mostly rather sheet like, but one piece has a corroded mass of

charcoal rich material attached. Largest piece shows charcoal impressions on one side and possible sediment/ore clasts on the other. 3 pieces of fired clay and one piece of deeply vitrified material from lining

(527) <25>
1 large piece of weathered brown slag, well flowed, probably a tap slag. 5 pieces of burnt/roasted iron ore. Dark ashy debris. 2 pieces of pale clay or ash.

(528) <26>
Ashy material with charcoal, lining slag (2 pieces), tap slag (1 piece), 5 pieces of shelly iron ore.

(543)
Red, probably burnt, clay, with small amount of dark ash

Interpretation

Most pieces of slag in this collection have significant weathering, which limits the certainty of identification of some of the material. In particular, the highly unusual lilac weathering of the smelting slags from (431) may hint at an unusual chemical composition.

The assemblage is dominated by material derived from iron smelting. A few pieces might just be smithing slags (431), but there are no certain examples.

The iron smelting residues include some classic bloomery tap slags (429, 483, 527, 528), which would be entirely consistent with a medieval or earlier age.

Some of the material is comparable to the material described by Young (2004) from the site. This includes furnace ceramic with extremely deep vitrification (428), but more significantly some black glassy slags (483). Slags formed of dark glass are normally associated more with blast furnaces than bloomeries, for which the slag is normally crystalline. Dark glassy slags are sometimes recorded in early smithing contexts, but these are usually on sites where coal was employed as fuel (e.g. Caerwent Basilica, Young 2000). The small amount of material available from West Hoathly means that certain interpretation of the glassy slags is not possible. However, clarification of their origin would be highly desirable. Three possibilities might be suggested:

1. These slags are abnormal bloomery slags, perhaps influenced by a very calcareous ore, or by large amounts of melted furnace lining.
2. The slags are medieval iron making slags from a late bloomery (a high bloomery or similar), in which processes transitional to blast furnace reactions are seen.
3. These slags are post-medieval blast furnace slags (as proposed for the previously-examined material; Young 2004).

Cleere & Crossley (1995, p49) mention the occurrence of black glassy slag at Minepit Wood (a 14th century site in the central Weald), and have suggested it may indicate use of a shelly limestone in the charge of the bloomery.

The assemblage also contains a large proportion of iron ore. Where this is unburnt (467?, 481, 528), it is possible that it has entered archaeological contexts through entirely natural processes (since similar shelly ironstone is present in the local geological succession). The presence of burnt or roasted material in (527) is more strongly suggestive of material present as a result of utilisation.

References

CLEERE, H. & CROSSLEY, D. 1995. *The iron industry of the Weald*. Merton Press.

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