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Assessment of materials from land west of Oldfield Farm, Four Crosses (OLD/23/SME)

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Abstract

Two small fragments of pyrotechnological residues were recovered: one a small fragment of ironworking slag, the other a piece of clinker. Twelve samples (from eleven contexts) were also submitted for further investigation. Despite being dominated by grains of rock, eleven of these contained low concentrations of flake hammerscale (FHS) and two also contained rare examples of spheroidal hammerscale (SHS), while others contained comminuted slag debris.

One sample contained both FHS and a piece of possible slagged coal shale.

The results indicate a background source of iron smithing residues in the area, but probably not immediately adjacent to the sampled contexts as the concentrations were so low. If the clinker and smithing residues are of the same age, then the material might be Roman or later medieval to recent. This is, however, uncertain and the isolated smithing remains might be from any period Iron Age or later.

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Methods

All materials were examined visually, using a low-powered binocular microscope where required. This assessment was conducted in May 2025 and was commissioned by Rhiannon Philp of Archaeology Wales.

Results

Macroscopic material

A single piece of clinker bearing burnt shale (38g) was recovered from topsoil (16001). Clinker is a common topsoil find and may often be associated with the former use of steam-powered agricultural machinery. Other origins are possible, including domestic hearths, industrial processes (including boilers) as well as some metallurgical activity (coal-fuelled blacksmithing in particular).

Ditch fill (21198) produced a small fragment (26g).of a thin (12mm) slag crust, probably the lower surface of a smithing slag accumulation (perhaps from a smithing hearth cake) from blacksmithing.

Microscopic material

Twelve samples (from eleven contexts) were submitted for further investigation. Despite being dominated by grains of rock, eleven of these contained low concentrations of flake hammerscale (FHS) and two also contained rare examples of spheroidal hammerscale (SHS), while others contained comminuted slag debris.

These samples indicate that blacksmithing was undertaken in the general area. The concentrations of smithing microresidues are very low (just a tiny fraction of the submitted samples) so the smithing was unlikely to have been undertaken close to the sampled deposits.

Moreover, the very low concentrations of microresidues might potentially be product of intrusion of the grains into the sediment through worm action – and this should b considered during any interpretation of their significance.

Further work

These materials are unlikely to be able to provide further information of archaeological significance and no further investigation is proposed.

Table 1: summary catalogue. assm = assemblage of small pieces, FHS – flake hammerscale, SHS = spheroidal hammerscale.

context	sample	cut	c. notes	label	s. wt	l wt	l no	notes
16001			topsoil	slag	38	38	1	clinker with shale
21198		27717	3rd ditch fill	slag	26	26	1	thin dense slag sheet, probably iron slag, up to12mm thick, base has dimples with sediment, top smoothish, internally show tubular vesicles
14005	1	14004	pit	slag?	<1	<1	7	a mixture of burnt material mostly probably, but not certainly coal derived. Two pieces appear to be slagged ceramic - but it is unclear if they come from a hearth wall or are associated with the coal - they have a thin black glaze over white, before the grey ceramic.
14005	1	14005	pit	mag	1.6	1.6	assm	mostly burnt rock granules, but a moderate proportion of FHS, with a few spheroids (possibly SHS)
21020	2	21019	pit	mag	<1	<1	assm	mostly burnt rock granules, but also rare FHS
21022	3	21021	pit	mag	<1	<1	assm	mostly burnt rock granules, but also rare FHS
21082	7	21080	pit	FAS?	8	8	assm	burnt/coked organic material, mostly likely derived from coal. One fragment is from a weathered quartz-bearing mineral vein.
21194	31	21175	basal ditch fill	mag	<1	<1	assm	mostly burnt rock granules, but also rare FHS and single spheroid of SHS
21197	32	21176	2nd fill of ditch	mag	1.7	1.7	assm	mostly burnt rock granules, but also rare FHS and some possible comminuted slag
21214	35	21213	pit	mag	<1	<1	assm	mostly burnt rock granules, but also rare FHS and some possible comminuted slag
21359	46	21538	cremation pit	mag	1	1	assm	mostly burnt rock granules, but also very rare FHS (just two possible flakes?)
21289	71	21288	dich	mag	<1	<1	assm	mostly burnt rock granules, but also rare FHS and comminuted slag
21571	84	21570	pit	mag	1.5	1.5	assm	mostly burnt rock granules, but also rare FHS and comminuted slag
21419	89	21417	upper fill of pit	mag	<1	<1	assm	mostly burnt rock granules, but also rare FHS and comminuted slag.1 piece of slagged white shale (?)clinker

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