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Assessment of residues from West Ruislip Golf Club (1519WRPTT)

Dr Tim Young

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Dr T.P. Young

Abstract

The submitted material comprised 31kg (335 items) of material from two contexts within ditch [2023].

Most of the collection (30.76kg; 301 pieces) was clinker in various forms. Much was present as fragments of sheet ranging from 20mm up to substantial fragments of over 100mm in thickness. The basal surface of the clinker was either planar or slightly convex, with a slight up-curve of the clinker cake adjacent to the margin. The base of most fragments contained abundant shale clasts, either as a part of a rough contact with a shale-rich ash, or as inclusions within a maroon-coloured smooth surface. The upper surface of the clinker, and of internal surfaces within the multi-layered examples, were typically formed of upward-facing glassy lobes. The clinker was variably a black glass with a maroon surface or grey and crystalline.

The size of the clinker fragments suggests their formation within a large firebox. The collection includes a slagged block of coal shale measuring 210mm x 120mm x 50mm, indicating that the firebox must have been fed with large coal. One fragment (522g from (2024)) shows contact between the clinker and a fire brick wall, the front face of which has spalled and become embedded in the clinker.

A small part of the collection (particularly from (2025)) was formed by coke (34 pieces with a total weight of 312g). These fragments are more likely to be waste remnants of incompletely burnt fuel (ash) than of fuel.

These materials are suggestive of being residues from the burning of coal within a large firebox, probably of a stationary steam boiler, although contexts are possible.

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Methods

All materials were examined visually, using a low-powered binocular microscope where required. As an assessment, the materials were not subjected to any high-magnification optical inspection, not to any form of instrumental analysis.

The identifications of materials in this report are therefore necessarily limited and must be regarded as provisional.

This assessment was conducted in July 2020 and was commissioned by Dr Rhiannon Philp of Foundations Archaeology Wales Ltd.

Description of the assemblage

Pyrotechnological residues

The submitted material comprised 31kg (335 items) of material from two contexts within ditch [2023]. The majority of the collection was from lower fill (2024), but a lesser quantity of smaller pieces was from upper fill (2025). Some of the assemblage from the lower fill bears the cut number [2023] rather than the content number (2024).

Most of the collection (30.76kg; 301 pieces) was clinker in various forms. Much was present as fragments of sheet ranging from 20mm up to substantial fragments of over 100mm in thickness. The basal surface of the clinker was either planar or slightly convex, with a slight up-curve of the clinker cake adjacent to the margin. The base of most fragments contained abundant shale clasts, either as a part of a rough contact with a shale-rich ash, or as inclusions within a maroon-coloured smooth surface. The upper surface of the clinker, and of internal surfaces within the multi-layered examples, was typically formed of upward-facing glassy lobes. The clinker was variably a black glass with a maroon surface or grey and crystalline, baring abundant shale fragments.

Both upper and lower surfaces of some pieces showed impressed coke fragments.

The collection includes a slagged block of coal shale measuring 210mm x 120mm x 50mm, indicating that the firebox must have been fed with large coal.

One clinker fragment (522g from (2024)) shows contact between the clinker and a fire brick wall, the front face of parts of two courses of which has spalled and become embedded in the clinker.

A few pieces showed a clinker accumulation of unusual thickness (well in excess of 100mm in some cases). Such a great thickness of clinker accumulation would be incompatible with the use of even a modest sized firebox – and would also have inhibited the operation of an ash grate.

A small part of the collection (particularly from (2025)) was formed by coke (34 pieces with a total weight of 312g). These fragments are more likely to be waste remnants of incompletely burnt fuel (ash) than of fuel.

Interpretation

The size of the clinker fragments suggests their formation within a large firebox. Although most fragments formed on the floor of the firebox as a sheet, some pieces probably originated on the walls of the firebox (or an immediately adjacent flue). A slagged block of coal shale measuring 210mm x 120mm x 50mm provides some indication of the large size of the coal that was employed to feed the hearth.

A single clinker fragment contained the spalled margins of a wall of fire brick, supporting the likely origin of such an assemblage in a stationary hearth, probably for a steam boiler.

The assemblage cannot be closely dated but the bricks suggest a 19th or 20th century date.

Further work

The residues are not, as simple residues from the burning of coal, capable of yielding significant further evidence if they were to be subjected to detailed analysis. No further investigation is therefore recommended. The residues may be considered as of low potential for inclusion in a deposited site archive.

Table 1: summary catalogue of submitted macroscopic materials. Weights in g.

Context	item wt.	item no.	notes
Box1			
2023	1200	1	large block of clinker with wedge section, probable top (?) is rusty black glass, possible inclined side is rough and dark with striated glass surfaces, up to 180mm thick, side at 70 degrees?
2023	950	1	90mm thick clinker piece, 1 surface is dense and slightly concave, other parts are loosely lobate, way up is uncertain
2023	1140	3	irregular blocks of porous clinker with no clear structure
2023	596	2	irregular fragments of sheet of approximately 40-50mm thickness, both porous and fairly low density
Box 2			
2023	2340	1	large multi-layered sheet of clinker, base smooth, red, with large fuel dimples; slightly curved base, thinning from 80mm towards margin, resembles 812g block above
2023	1020	1	abuts above piece, 120mm thick, two main layers each with lobate top, upper with large rounded masses like the the 1710g block above
2023	1590	1	extremely complex clinker block of lobes with large voids between, probably steep margin with inward-facing very large glassy lobes (cf. 476g block above) and the crude lobate sheet-like masses facing forward - but orientation may be incorrect
2023	278	1	slightly concavo-convex lump of clinker, with maroon smooth base and upward facing black glassy lobes
2023	890	9	small lower density clinker fragments
2023	98	1	dense but vesicular black glass, with few shale clasts
2023	204	1	variable lobate clinker with dull dimpled base with shale, rough red upper and black glassy parallel raised lobes/ridges
Box 3			
2024	812	1	flow across slightly dished floor, lobate edges, some raised flow lobes on top, good glassy slag with shale inclusion on top, crystalline below
2024	698	1	45mm sheet, large coke clasts embedded in top.
2024	242	1	clinker fragment
2024	522	1	45mm thick sheet slightly upturned at edge - which shows contact with coarse-grained firebricks. Top of one row just below top of slag - lower row apparently etched back below intact face of upper row
2024	680	1	slightly bowl-shaped slag mass, irregularly lobate flows, thins towards raised margin but precise orientation not determinable
2024	564	1	dense multi-layered clinker to 65mm thick, upper 15mm particularly dense
2024	372	1	sheet with uplifted thinner margin, top with slightly deformed flow lobes with maroon surfaces and shale clasts. Base of this piece smooth, non-wetted. Not ashy
2024	488	1	clinker in sheet of variable thickness, tool mark/channel on base, granular (amalgamated spheroids) forming upper surface
2024	514	1	clinker sheet with irregular base with coke clasts, top very irregular with big glassy lobes, not flowed
2024	270	1	large mass of lower density clinker, bulbous, possibly formed against obstacle
2024	294	1	irregular lobate slag forming multiple parallel ridges on top, low density
2024	476	1	glassy slag with very large upper glassy lobes and rough base. Glassy lobes show asymmetry of deformation, so some possible flow (just possibly formed on wall)
2024	524	8	smaller irregular low density clinker fragments
2024	162	1	smaller fragment with lobate surfaces on two levels in low density clinker
2024	132	1	rusty clinker in 20mm sheet
2024	156	1	angular fragment of clinker bearing possible angular clinker clasts
2024	202	1	fragment of clinker with particularly pale colour to crystalline slag
Box 4			
2024	206	1	thin sheet of slag with very raised upper lobes or pinnacles, base shaley
2024	1725	1	large block of porous clinker, orientation uncertain but minimum of 130mm thick
2024	1710	1	large fragment of complex clinker, has large rounded vesicular internal masses, several contact surfaces with fuel, but orientation still uncertain, at least 90 and possibly 160mm thick
2024	848	6	small fragments of clinker, all low density, one with very large shale clast

Box5			
2024	1035	1	210x120x50mm block of coal shale, heated altered and slagged
2024	2465	1	orientation uncertain, but at least 110mm thick, possibly thinning onto margin via steeply inclined surface - similar to at least one other large block above
2024	494	1	fragment of 70mm thick clinker sheet, formed of vesicular black glass, some large voids and fuel inclusions
2024	630	1	complex block of dense clinker, multiple lobate surfaces, possibly disrupted
2024	796	5	irregular clinker fragments
2024	996	4	fragments of neat clinker sheets of up to 30mm thickness
2024	34	1	coke
2024	62	1	low density clinker with large pale bloated clasts
2024	148	1	low density clinker from margin of sheet, thinning from 40-10mm, open textured
2024	196	1	20mm sheet with flat base, 160 degree angle to rougher, thicker sheet base
2024	364	1	15-20mm sheet with 140 degree angle, base shows fine columnar structure down face parallel to angle, top face shows corrugated black glass with ridges parallel to striations on base - suggests flow down-wall?
Box 6			*sample <65>*
2025	278	33	coke
2025	236	2	20-30mm thick moderately dense clinker sheet fragments
2025	158	1	20-25mm thick sheet fragment with aligned sub-hemispherical lobes, suggestive of formation in blast in flue or on wall
2025	164	1	dense over porous clinker in 'U'-shape, 60mm thick
2025	1114	225	irregular clinker fragments

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Unit 6, Block C,
Western Industrial Estate,
Caerphilly,
CF83 1BQ

Office: 029 20881431
Mobile: 07802 413704

E-Mail: Tim.Young@GeoArch.co.uk
Web: www.GeoArch.co.uk