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Metal artefacts from an evaluation at Landore Football Facility, Landore, Swansea

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Abstract

Five unstratified artefacts from a watching brief on the site of the Landore Copperworks are described here. The electrical fitting and the ring spanner are very likely to be of twentieth century date. The wrought iron rivet and eyed bolt are likely to be of 19th or 20th century date. None of these four objects is of great significance. The large ladle is problematic; although superficially resembling a copper casting ladle of the type and size recorded to be in use in Swansea in the mid-19th century (and probably used from the late 18th to early 20th centuries) for ladling the fully refined copper into moulds, the last use of this ladle for handling bitumen raises the possibility that it is a later bitumen ladle of coincidentally similar design.

Description

1. Ring spanner

Small cast ferrous ring spanner, 132mm long. The handle has thickened margins (6mm thick), a recessed centre on both sides and a suspension hole at the distal end. The handle diverged from the head of the spanner parallel to its upper surface (with a slight web in the casting bracing against the thickness of the head) and has a slight 'dog-leg' mid-length, to give total working clearance under the distal end of 13mm. The head is circular, 32mm (1¼ inch) outside diameter and 13mm (½ inch) thick, designed to fit a square 5/8 inch object. The design resembles 20th century spanners, although this style may have originated somewhat earlier

2. Large rivet

142mm long object with circular-section shaft, approximately 10mm diameter, but heavily accreted. The head is irregular, approximately 35x40mm. The top of the head is almost planar, just very slightly convex; the lower face is roundedly convex, meeting the shaft approximately 5mm below the acutely angular margin. The flattened head demonstrates that this is a rivet, rather than a bolt, fragment. The large size of the rivet suggests that it may have served a structural purpose, being sufficiently long to pass through a girder or similar.

3. Fitting – electrical connection box?

A hollow fitting, rising above a circular base plate, to a chamber with a missing cover, and with an internally threaded connection at its apex, cast from a non-ferrous metal with white corrosion products, probably aluminium. The base plate is 79mm in diameter. There are two blunt, dome headed, slotted screws with washers, 16mm long with approximately 4mm diameter shafts, passing through plate on opposite sides. The inner parts of the base have sockets for receiving screws from the outside, one with a broken stub still in-situ. The object is 112mm tall. At its top there is a $1^{1}/_{8}$ inch a/f hexagonal grip to allow connection via an internal thread to an externally threaded (probably $^{5}/_{8}$ inch) pipe. The central part of the object forms a chamber 75mm x 50mm x 25mm deep. This was originally concealed by a cover, attached via screw bosses on either side.

The object is probably an electrical connection box to allow connection of cable entering via the upper pipe to cable within the system to which the basal plate was attached. The short screws associated with this suggest the fitting was attached a thin metal sheet.

4. Large eyed bolt

Stout round bar, probably originally 1 inch diameter (25mm), formed into an eyed bolt. Bottom 3½ inches are threaded. Top forged and welded into an eye of 5 inches external diameter (125mm), 3 inches internal width (75mm) and 3½ inches (88mm) internal height (the base of the loop is slightly pointed where the tip is welded back onto the shaft). Such a bolt could have wide variety of possible uses as a structural anchor or tie.

5. Ladle

Iron ladle, overall length 1.06m. The handle is formed of 21mm diameter round bar (probably wrought iron), forged and weld into a transversely oval handle, 130mm by 90mm. The handle curves downwards to be confluent with the side of the bowl, becoming somewhat angular, almost square in section as it does so. The bowl is 230mmx210mm and 115mm deep externally. The volume of the bowl is approximately that of a hemisphere of radius 100mm, equivalent to 2094 cm^3. If used for copper, this would give a maximum (brim-full) capacity of 16.5kg (36 lbs). Close to the handle, the bowl is up to 12mm thick, but away from the handle it reduces to approximately 3mm. The side opposite the handle has a tear extending 50mm down from the lip, now with the sides overlapped probably representing a simple repair. The lip of the bowl is damaged and an area which resembles a pouring lip is probably simply damage. The inside of the bowl contains a dark residue resembling bitumen. There is no evidence for adhering slag or copper.

The ladle corresponds to the size described by Percy (1861, p326) for hand-ladling the finished copper metal into moulds. He refers to the ladles being coated in clay and says that they held 30 lbs each. He also mentions ladles being used (p325) to extract samples of copper from the final stage furnace for testing if the metal was ready. Unfortunately Percy gives no details of the design of the ladles.

The presence of a bitumen layer on the inside of the bowl of the ladle and the relatively thin metal of the bowl both give rise to considerable uncertainty over the identification of the ladle with those described by Percy. Although it is possibly a copper ladle reused for bitumen, an alternative interpretation would be that the item is a bitumen ladle. Modern ladles for bitumen are typically vertically-sided pots on long handles, quite different in form to the present example.

This element of doubt notwithstanding, this artefact should be retained and ideally offered to a museum with collections pertaining to the Swansea copper industry. It is possible that cleaning and conservation might produce more conclusive evidence for any earlier use below the bitumen layer.

Reference

Percy, J. 1861. *Metallurgy. The art of extracting metals from their ores and adapting them to various purposes of manfacture. Volume 1: Fuel; Fire-clays; Copper; Zinc; Brass, etc.* London, 635pp.

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