



YORK ARCHAEOLOGICAL TRUST

CONSERVATION LABORATORIES

Burdale, BUR06

Report on the investigative conservation of selected iron small finds for

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ABSTRACT:

This report describes the analysis phase investigative conservation of three iron small finds from the site of Burdale. Please also refer to the assessment report dated 2nd August, 2006.

1. AIMS AND OBJECTIVES

This report aims to meet the requirements of MAP2, Phase 4, Analysis, (English Heritage, 1991). The work carried out has been the investigative cleaning of the objects submitted. Following radiography and assessment the objects were authorised for treatment. Once the artefacts had been treated they would be packed appropriately for return to the client and for archive storage.

2. DESCRIPTION

Below is a table listing the objects selected for investigative conservation as per the assessment report dated 2nd August, 2006. Recommendations for further work were those made in the assessment report and are included here for ease of reference.

X-ray	SF	Context	Description	Assessment
6633	70	1046	Fe Awl	Minimal soil and corrosion covering, traces of mineralised organic remains around tang. <u>X-ray</u> : good solid core of metal surviving, some areas of mineralisation. Recommendations: investigate and identify organic remains
6634	157	1000	Fe Object	Unidentified object with minimal soil and corrosion layer, although some areas of orange/brown corrosion crust. Surface pitted in places. <u>X-ray</u> : reveals possible non ferrous wire wound around one end (14 turns) and good solid core of metal remaining. Recommendation: investigate possible wire around object.
6634	200	6194	Fe Knife	Covered in stony soil and areas of hard orange/brown corrosion products. Traces of mineral preserved organics on tang. <u>X-ray</u> : thin core of metal survives, blade edge and parts of tang mineralised. Overall condition is fair. Recommendation: investigate and identify mpo
6633	201	6197	Fe Pin	Pin appears in good condition with minimal surface corrosion and adhering soil. <u>X-ray</u> : solid core of metal surviving, pin head appears spherical, although to naked eye looks faceted. Recommendation: investigate head shape
6634	203	6199	Fe Object	Possible bell, encrusted with soil with charcoal flecks and orange/brown and dark brown corrosion products. <u>X-ray</u> : areas of well preserved metal and areas of mineralisation. Possible plating along one edge. Recommendation: investigate possible plating
6633	204	6197	Fe Knife	Appears in good condition, minimal corrosion products on surface, possible mineral preserved organic traces on tang, and traces of grass/straw on blade. <u>X-ray</u> : Good amount of metal core surviving, incised groove parallel to back of knife. Recommendation: investigate and identify mpo on tang.
6633	205	6197	Fe Knife	Covered in soil and large lumps of orange/brown corrosion products, and traces of possible mineral preserved organic remains on tang. <u>X-ray</u> : tip and edge of blade corroded. Recommendation: investigate and identify mpo.

6633	209	6196	Fe Implement?	Thin soil and minimal corrosion products although there are several larger lumps of orange/brown corrosion. <u>X-ray</u> : solid core of metal surviving with corrosion on edges. Overall condition is good. Recommendation: reveal cross sections to aid identification
6634	211	6199	Fe Plate	Fragment of plate with thin covering of stony soil and dark brown corrosion products. <u>X-ray</u> : shows much of the object has mineralised with very little sound metal remaining. Possible perforation and ?nail attached to plate. Recommendation: investigate possible perforation and nail.
6633	215	6196	Fe Knife	Probable leather worker's knife, slicker, with minimal corrosion and adhering soil. Traces of possible mineral preserved organic material along back of blade. <u>X-ray</u> : good condition with corrosion confined to blade edge. Recommendation: investigate and identify mpo.

3. METHODOLOGY

All objects were cleaned selectively using the air abrasive with 29 micron aluminium oxide powder. Cross-sections were selected on each object to give information about the shape of the core below the corrosion products. In several cases mineral preserved organics were investigated by cleaning of the soil only. In all the cases of mineral preserved organic remains there is not enough material to warrant species identification.

4. ANALYSIS

SF70 Mineral preserved organics on the tang of this possible awl were investigated. Although some mineral preserved organics were detected these were not coherent enough to indicate that they may have been from a handle.



SF70 before treatment



SF70 after treatment

SF157 One end of this object was cleaned on one side to reveal the possible wire shown by the X-ray (X6634). An iron band with an orange/white substance inlaid into it was revealed, the orange/white substance surviving to a greater extent in certain areas. Although it is possible to say that the substance is non-metallic due to the lack of resistance to the X-rays, further analysis may be needed to identify this if required.



SF157 before treatment



SF157 after treatment

SF200 Mineral preserved organics on the tang of this knife blade were investigated by removing the adhering soil. Several areas of mineral preserved wood were revealed, but, again, not coherent enough to suggest part of a handle. Probably organic remains from the burial environment.



SF200 before treatment



SF200 after treatment

SF201 The head of this pin was cleaned to reveal the shape. It is polyhedral and is similar to a number of pins found at Coppergate from Period 4B (c.930/5-c.975) (Mainman & Rogers, p2577), although not decorated. The pin seems to have been made from one piece of iron with no evidence of soldering or other forms of join visible.



SF201 before treatment



SF201 after treatment

SF203 This object is very similar in construction to bells found at Coppergate (Ottaway, p557) although slightly larger in size. These were made from a single sheet of iron, folded over and brazed together at the seams (*ibid.*). A small section of the object was cleaned revealing a sheet of iron between two sheets of non-ferrous metal. The broken edge reveals the cross-section which shows the non-ferrous metal folded at the edge which is possibly a way of joining the two seams of the bell. The non-ferrous metal is probably copper alloy due to the green colouration in some areas but XRF would confirm this if necessary.



SF203 before treatment



SF203 after treatment; several views showing the structure of the possible bell

SF204 Mineral preserved organics were investigated by removing the adhering soil. The mineral preserved remains which are probably wood do not appear coherent enough to suggest that they were part of a handle.



SF204 before treatment



SF204 after treatment

SF205 Again, mineral preserved organics were observed and revealed by removing the adhering soil, but did not form coherent remains.



SF205 before treatment



SF205 after treatment

SF209 Four different cross-sections were cleaned to reveal the shape of the metal core beneath the corrosion products: both ends and two central areas. The working end tapers to a point and the other, flat end appears broken. The central cross-section is sub-rectangular, becoming flatter towards the tip. Possibly a textile processing spike.



SF209 before treatment



SF209 after treatment

SF211 Possible perforation and nail was investigated and this conclusion was confirmed. The nail has a large, flattened head, with the shank on the other side of the sheet fragment bent over at an angle with some smaller pieces of metal wedged beneath. Part of the thin fragile sheet became detached during cleaning and this was re-adhered using Paraloid B72 (methyl methacrylate co-polymer).



SF211 before treatment (two views)



SF211 after treatment (two views)

SF215 The mineral preserved organics observed during assessment were investigated by removing the adhering soil. Substantial amounts of wood can be seen running along the back of the blade and extending upwards to the curved tips. These are coherent enough to suggest that the blade would have been set into a wooden handle.



SF215 before treatment



SF215 after treatment

SF215 after treatment showing mineral preserved wood



SF294 The terminal ends of this iron ring were investigated. The ends are slightly offset and one of them terminates at an angle. It is possible that these ends originally joined but are now broken.



SF294 before treatment



SF294 after treatment

5. RECOMMENDATIONS

The objects are stable but should be stored in a dry environment of less than 15% Relative Humidity to avoid active corrosion. The objects should be handled with care due to the fragile nature of the exposed surfaces.

6. REFERENCES

1. English Heritage, Management of Archaeological Projects, 1991.
2. Mainman, A, J. and Rogers, N., Craft, Industry and Everyday Life: Finds from Anglo-Scandinavian York, The Archaeology of York, AY17/14, CBA, 2002.
3. Ottaway, P., Anglo-Scandinavian Ironwork from Coppergate, The Archaeology of York, AY17/6, CBA, 2002.