

**Notes on the examination of sediment from the sockets  
of five bronze axes collected along the course  
of the Transco W. Hull Gas Pipeline**

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**Summary**

*Sediment from the sockets of five bronze axes collected during field survey along the line of the Transco pipeline to the west of Kingston-upon-Hull were examined for plant and invertebrate remains. Only modern remains were observed and it is suggested that the sediment was mostly emplaced in recent times. Some possibly ancient amorphous organic matter was also noted in two specimens but is not thought worthy of further analysis.*

**Keywords:** BRONZE AGE; BRONZE AXES; TRANSCO PIPELINE; KINGSTON-UPON-HULL; ANALYSIS; PLANT REMAINS; INVERTEBRATE REMAINS

**Materials and methods**

Five socketed bronze axes collected from superficial deposits during survey by Onsite Archaeology in advance of a pipeline to the north and west of Kingston-upon-Hull were submitted for examination of the sediment contained within the sockets. In all cases there was a more or less coherent plug of dry clay silt or silty clay which was readily removed with a little gentle prodding with the pointed end of a wooden paintbrush handle. Any further sediment was gently extracted by brushing the walls of the socket. A brief examination of the material was then made under the binocular microscope. The sediment samples were weighed and left to soak overnight in tap water. Each was then disaggregated gently in warm water and sieved to 300  $\mu$ m. The residue remaining was checked in water under the binocular microscope and notes made concerning inclusions, biological or non-biological.

**Results**

Notes on the observations are presented in the table below. None of the material appeared to be ancient, though in two cases (SFs 2 and 4) there was some very decayed organic material which may represent traces of wood or packing (though it was not present in a layer lining the interior of the socket but was mixed with the main fill). In view of the context of these finds, it seems very likely that all the sediment found its way into the sockets in recent times.

There is probably little more that can usefully be done to pursue the nature of the minute quantities of amorphous organic matter in axes 2 and 4, but the disaggregated sediments will be dried and retained in case they are required.

Axe	Weight of dry sediment (g)	Notes
SF2	13.3	traces of modern rootlets visible in dry sediment before washing; a few fragments of copper alloy corrosion visible after disaggregation, also some fragments with a brownish colour (and thus probably an organic content); addition of dilute acid led to disaggregation of this material, releasing some ?amorphous organic material and abundant tiny spicules which seemed to be amorphous rather than crystalline
SF3	18.6	some modern rootlets amongst sediment which looks as if it has been loosely but forcibly packed in; traces of ?cinder and charcoal (to 5 mm in maximum dimension) and stones (to 10 mm) in residue
SF4	10.0	a few modern woody and herbaceous root fragments and some modern insect material, plus a small fragment of charcoal (to 2 mm) visible in dry sediment; some brownish material amongst clasts remaining after disaggregation may include amorphous organic material, as indicated by examination of a subsample disaggregated in dilute acid on a glass slide
SF5	36.9	stones (to 15 mm) amongst sediment examined dry before washing, along with modern rootlets and modern straw culm; whole plug appears packed in loosely (as if soil was forced into cavity); on disaggregation there were traces of coal (to 2 mm, ?from drift) and charred and partly-charred modern cereal straw
SF 9	14	modern straw visible, together with some modern rootlets; traces of ?cinders and ?burnt soil (to 3 mm) on disaggregation