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EXAMINATION OF A MEDIEVAL "JET" CRUCIFIX FROM WINCHESTER, HAMPSHIRE

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Summary

Parts of a possible jet crucifix were examined in an attempt to confirm the identification of the jet. Simple non-destructive tests confirmed that it was highly likely to be jet, though none of these tests were entirely conclusive. The jet was compared analytically with known samples of Whitby jet and some differences were noted which may suggest an alternative source for the jet, possibly Spain. The crucifix was decorated using tin inlaid into the jet.

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Two parts of the horizontal arm of a crucifix (AML No. 891506), found in a fourteenth century context during excavations at the Brook Street site in Winchester, were examined in an attempt to confirm that it was made of jet. The crucifix had inlaid decoration which was analysed to identify the material involved.

Jet is a fossilised coniferous wood and is found in many areas of Europe, as well as in the U.S.A., Russia and India (Muller 1980). In this country jet is found in the Upper Liassic deposits around Whitby in North Yorkshire. However in the medieval period the majority of jet items, particularly religious objects, found in Europe probably came from northern Spain where the jet industry flourished in the 14th and 15th centuries.

Very little work has been done on the chemical composition of jet, though some attempts have been made to provenance samples of jet from different countries (eg Muller 1980). There is often confusion between jet and similar materials such as shale, cannel coal and lignite. Some analytical work has been undertaken to attempt to discriminate between these materials (eg Pollard et al 1981) but no large scale analyses have been undertaken.

There are a number of simple non-destructive tests which can be carried out to attempt to identify jet (Muller 1987: 131-3) and several of these were tried on the cross fragments. They were both a dark black colour, with a high surface polish, and became electrically charged when rubbed. Careful visual examination showed that they were conchoidally fractured around the edges in places. All these features confirm the material as jet. No non-destructive tests were permitted, though these are unlikely to have added any more conclusive evidence to the identification.

A qualitative surface analysis by energy dispersive X-ray fluorescence was also undertaken and a piece of known Whitby jet was analysed for comparison. There were clear compositional differences between the Winchester cross and the Whitby jet, but the cross fragments were similar enough in composition, and different enough from other possibilities such as shale, to make them likely to be jet, though probably from a source other than Whitby, which would be consistent with a Spanish origin.

An X-radiograph of the cross fragments (undertaken by Dr B.Knight in the Ancient Monuments Laboratory) showed no internal structure within the jet (see Figure 1), but highlighted the pattern of the inlaid decoration and showed the shape and length of the holes in the pieces used as part of the joints to hold the cross together. The areas of inlay were analysed using X-ray fluorescence and were found to be tin.

Examination of the cross fragments therefore confirms their identification as jet and the composition suggests that they may come from a source other than Whitby, possibly Spain, which would fit with other archaeological evidence.

References

Muller,H. 1980 "A note on the composition of jet", in The Journal of Gemmology XVII,1, pp.10-18.

Muller,H. 1987 Jet. Butterworths Gem Books, London.

Pollard,A.M., Bussell,G.D. and Baird,D.C. 1981 "The analytical investigation of early Bronze Age jet and jet-like material from the Devizes Museum", in Archaeometry 23,2, pp.139-167.

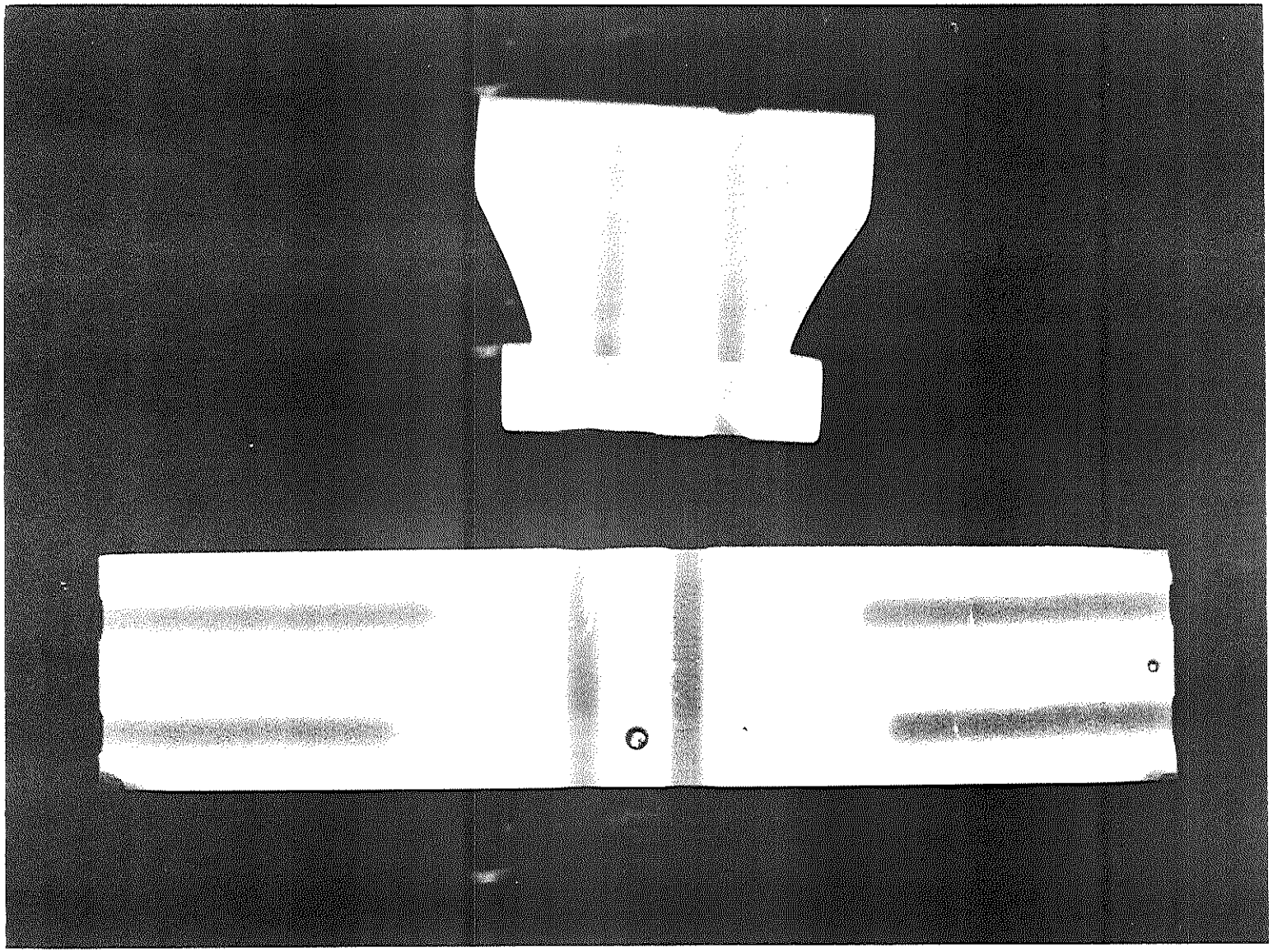

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Figure 1 X-radiograph of jet crucifix fragments