Ancient Monuments Laboratory
Report 62/87

INVESTIGATION OF SAMPLES FROM A SUSPECTED DYEING VAT IN BEVERLEY, N. HUMBERSIDE.

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Summary

Organic residue analysis of wooden fragments from a suspected dyeing vat showed the presence of lanolin and possibly weld.

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It was decided to subject the fragments to the same procedure as that used to investigate the presence of organic materials trapped within pottery fabrics. Initially the surfaces of the wooden fragments were freed mechanically of debris and then pulverised. (Pulverization was found to be facilitated by initial freezing in liquid nitrogen .) The powerded sample , weighing approximately 2.0g, was placed in a Soxhlet apparatus and extracted with the following solvents : hexane, chloroform, 2-propanol and water. Only the hexane and propanol extracts yielded useful data. Examination of these extracts by infrared spectroscopy and thin layer chromatography suggested the presence of lanolin (wool fat) and a yellow dye, probably weld.

Hydrolysis of the suspected lanolin with alcoholic potassium hychoxide and subsequent methylation of the products with boron trifluoride in methanol gave a system that was very similar to that obtained from a known sample of wool fat when examined by gas chromatography.

The suspected weld sample was further investigated by visible spectroscopy at various pH values. Data obtained was similar to that obtained for the authentic material. It seems reasonable to assume that the vat had been used for the dyeing of wool.

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