Ancient Monuments Laboratory Report 209/87

ANALYSIS OF ORGANIC RESIDUES FROM VARIOUS ARTEFACTS FROM YORK ARCHAEOLOGICAL TRUST.

John Evans

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Summary

Analysis of a series of samples showed the use of beeswax, pine resin, animal fats and possibly olive oil.

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Nine samples were submitted for analysis. Prior to chemical analysis, a small portion of each sample was examined by scanning electron microscopy. All samples appeared to be ad hoc mixes of mineral particles and possible binders. However, in view of the exceedingly small amounts of most samples the mineral particles may well have been the result of environmental contamination. The infrared spectra of all samples indicated the presence of organic substances.

Fach sample was extracted with various solvents including hexane, chloroform, propan-2-ol and water. The resulting extracts were investigated by appropriate chromatographic techniques. Petails of the results of this exercise are given below. On completion of the extraction sequence, each sample was refluxed with hydrochloric acid and the resulting solution investigated for aminoacids, the hydrolysis products of proteins. All samples gave negative results.

BONF COMPS YAT No 7284 (case), 8468, 10495 and 11510

All four samples pave traces of adipocere, a degenerate fat system. Unfortunately it was not possible to identify the parent material. It is not possible therefore to say with any degree of certainty whether the samples were derived from a deliberate additive/glue, accidental contamination or possibly a degraded bone product. No resin or animal glue was detected. INLAY, GAMING POARD YAT NO 6609

This inlay consisted of beeswax. The presence of this substance is almost certainly deliberate and it was probably used as a binder or glue.

IRON CANFLE HOLDER AM 868901 YAT NO 7208

The relatively high levels of palmitic and stearic acids plus traces of cholesterol suggested the original presence of a hard animal fat. Such a substance would have been suitable for candle making.

SFAL BOX AM 868902 YAT No 1717

No useful data were obtained from this sample.

IPON LAMP AM 868903 YAT NO 2343

Analysis indicated the presence of a degenerate oil, most probably olive oil.

PITUMEN AM 868904 YAT No 2662

This sample was in fact composed of two distinct phases. Phase 1 was a glassy mineral material containing no organic substances. It was most probably a 'blob' of iron-rich, ash slag. Phase 11 was a wood tar derived from the Pine family. FASKET LINING YAT NO 2135

This material is mainly a pine resin pitch. The analysis was somewhat complex owing to the fact that the sample had become contaminated by partially dissolving the plastic container.

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## <u>Note</u>

The following full and updated details of the objects analysed have been supplied by York Archaeological Trust. All the details below must be quoted in any query to them regarding the date or context of the objects.

مهمته بتبسبت عبابت

Site code	Context	Finds No	Description
1979.7	20793	7284	antler comb case
1980.7	25380	8468	antler comb
1980.7	28092	10493	antler comb fragment
1980.7	30356	11510	antler comb
1979.7	20342	6609	oak gaming board
1979.7	14653	7208	iron candle holder
1984.32	2261	1717	lead alloy seal box
1984.32	4242	2343	iron lamp
1984.32	2457	2662	bitumen ?
1984.32	4155	2135	willow basket with clay lining

NB: Finds No 10493 is described as 10495 in this report.