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ASSESSMENT OF TECHNOLOGICAL POTENTIAL OF THE GLASS BEADS FROM BARRINGTON ANGLO-SAXON CEMETERY, CAMBRIDGESHIRE

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Summary

198 glass beads were found during the 1989-91 excavations at this early Anglo-Saxon cemetery. Inspection using a low-powered microscope should be sufficient to confirm their construction. It is recommended that chemical analysis be carried out on a selection of the beads to give accurate information about the type of glasses used at the site and to place the finds in a wider context.

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Assessment of technological potential of the glass beads from Barrington Anglo-Saxon Cemetery, Cambridgeshire

Catherine Mortimer

198 glass beads were found during the 1989-91 excavations at the early Anglo-Saxon cemetery at Barrington. About half of the beads are monochrome, the others have more than one colour on them. They should be subjected to careful technological examination, to determine how they were made and to establish their compositions.

A visual inspection of a representative selection, using a low-powered microscope, should be sufficient to confirm their construction and hence allow accurate cataloguing and reporting.

Chemical analysis of a selection of the beads would provide a further significant class of data. This would give accurate information about the type of glasses used to make the beads, which could be included in the finds report. The compositional data would also be useful in a wider context, giving an insight of the technological background to the artefacts, through comparisons with material from other sites.

Large-scale surveys using non-destructive X-ray fluorescence (XRF) analysis have been carried out on beads from several other early Anglo-Saxon sites (*eg* Sewerby (Biek *et al* 1985), Dover, Buckland (Bayley 1987) and Mucking (Heyworth 1988)). This technique identifies some of the major glass components in a qualitative or semi-quantitative form, but it is difficult to detect sodium and some minor elements. Furthermore, it is often difficult to produce useful results by XRF on beads with more than one colour on them, although it is usually possible to deduce which elements are present in which part of the bead, based on previous analyses of plain beads.

Fully quantitative analyses have rarely been carried out on early Anglo-Saxon beads. Quantitative analysis was carried out on some of the Sewerby beads (analyses by Gilmore and Henderson, in Biek *et al* 1985), but the techniques used were not ideal for this sort of material and it is difficult to compare the results with other compositional datasets. In the largest and most thorough fully-quantitative analysis programme so far, Henderson (1990) analysed 28 different glasses from 22 sixth- or early seventh-century beads from Apple Down, West Sussex, using an electron microprobe.

The Apple Down glass analyses suggest that the majority of the glass used to make beads in the early Anglo-Saxon period was of the soda-lime-silica type, with various additives to colour and/or opacify the glass. However, a single example of a mixed-alkali glass was found at the site. It is difficult to compare these analyses directly with the Sewerby data, but at least some of the Sewerby beads were also made of soda-lime-silica glasses.

Non-destructive XRF analysis could be applied to the Barrington glass beads to gain some chemical information but it is recommended that, after full recording, quantitative X-ray micro-analysis should be carried out by cutting or chipping small samples[1] from selected beads. This would allow all of the most important oxides/elements to be analysed, allowing direct comparison with other Anglo-Saxon glass artefacts.

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[1] The minimum dimensions of the sample are limited only by visibility: if the sample can be seen, it can be analysed. Practically, this means that samples are at least 1mm long in one dimension.

Henderson identified two important questions in this subject area - how comparable were the technologies of bead making and vessel manufacture? and is there evidence for technological changes over the early medieval period? - but found that there was very little compositional data with which to compare the Apple Down results (*ibid*, 156). The compositions of the Barrington glass beads would be useful for developing this research area, as they could be compared with a) the Apple Down bead compositions, b) the compositions of beads from two sixth- to ninth-century sites in Ipswich (Boss Hall and St Stephen's Lane, recently assessed (Mortimer forthcoming)) and c), with caution, the Sewerby results. Around 100 fully-quantitative analyses of Anglo-Saxon beads would then be available, and the investigation of a group of this size would allow initial evaluation of regional and chronological characteristics, to assess whether further research into this subject is appropriate. The data from the Barrington beads can also be compared with the information from vessel glass of the period (*eg* Henderson 1993; Sanderson and Hunter 1982).

Quantitative analysis of a representative selection (perhaps 30-50 beads) to report standard, would take three to four weeks, including background research.

This assessment is based on information supplied by Tim Malim and John Hines (15.4.94). I have not seen the material in question and this assessment may need to be revised slightly, after I have seen the material.

Cath Mortimer, 18 April 1994

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