Ancient Monuments Laboratory
Report 1/94

GOLD-IN-GLASS BEADS FROM MUCKING, ESSEX

Justine Bayley

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Summary

A total of 127 'gold-in-glass' beads from graves in early Saxon cemeteries were examined and some were analysed by XRF. Four different sub-types were identified. Two contained either gold or silver leaf and a further two no metal; the outer layer of glass in these was either 'colourless' or translucent golden yellow.

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A total of 127 segmented 'gold-in-glass' beads from 17 burials in Cemeteries I and II were submitted for examination and analysis as it was thought that some might contain silver rather than gold foils. The cemeteries date to the early Saxon period (Clark 1993). Most of the beads were only a single segment but double and triple beads were present. This type of bead is well known, and examples of Roman and later date have been discussed by Boon (1966-68 and 1977). Metal-in-glass beads continued in use until at least the 10th century but many of the later one are larger and cylindrical in form, rather than segmented (eg Graham-Campbell and Kidd 1980, Fig 92).

The Mucking 'gold-in-glass' beads can be classified into four sub types. They are 1) those with gold leaf between the layers of glass, 2) those with silver in place of the gold, and 3) those where there is no metal between the layers of glass. In this case light falling on the bead is reflected from the interface between the two layers of glass and from the bubbles in the glass, as noted by Biek (Biek *et al* 1985), giving a mirror-like appearance, similar in effect to the silver-in-glass beads. Type 4) are a variant of the third type and have the outer layer of glass coloured a translucent amber/yellow so they look more like gold-in-glass beads.

The gold-in-glass beads were made by drawing a glass bubble into a tube, laying gold foil on its surface, covering it with further glass and stretching the tube to lengthen it further; the way the gold foils have broken up prove that this further extension of the glass must have taken place. Lengths of the two-layer tube were then threaded onto a wire that was a loose fit in the central hole and the glass was reheated and crimped, giving a segmented appearance. The crimped tubes, which were effectively strips of beads, could easily be broken into single or multiple beads for use. Microscopic examination of the beads show that in some cases the gold was present all round the circumference of the bead but in others it had been applied as a narrow strip and never completely covered the inner glass tube. Not all the gold appeared quite the same colour so it is possible that multiple sources of metal containing different impurities or alloying elements were used, perhaps by different workshops.

The beads containing silver have often lost their lustre as poor adhesion between the glass layers and later cracks and breaks in the glass have exposed the metal to the environment which has usually been sufficiently corrosive to tarnish the metal; the visual effect becomes that of a black layer within the glass though the lacey effect of the over-stretched metal foil or leaf when viewed in transmitted light is the same as that of gold leaf.

Acknowledgement

Steven Rye carried out XRF analyses of the beads and in many cases was able to confirm the presence of the metal that is visible.

References

Biek, L et al (1985) Scientific examination of the glass beads (77-85). In: S M Hirst, *An Anglo-Saxon inhumation cemetery at Sewerby, East Yorkshire*. York University (Archaeological Publication 4).

Boon, G C (1966-68) Gilt glass beads from Caerleon and elsewhere. *Bulletin Board of Celtic Studies*, **22**, 104-9.

Boon, G C (1977) Gold-in-glass beads from the ancient world. *Britannia*, **8**, 193-207.

Clark, A (1993) *Excavations at Mucking. Vol 1: the site atlas*. English Heritage.

Graham-Campbell, J and Kidd, D (1980) *The Vikings*. British Museum Publications.

Hall, E T, Banks, M S and Stern, J M (1964) Uses of X-ray fluorescent analysis in archaeology. *Archaeometry*, **7**, 84-9.