

A possible Romanesque object made from zinc

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The subject of this note is an item of ecclesiastical metalwork found near Ludlow, Shropshire, of which two contiguous fragments are all that remain. The fragments are, however, sufficient to give some indication of the object's form and function (Figure 1). Together they make up nearly half of a truncated cone, approximately 13cms in diameter by 5cms deep, probably forming the base of a larger object. The words MARCUS and LUCAS inscribed near the upper rim indicate that the object was for liturgical use: no doubt the remainder of the base carried the names of the other evangelists. For the most part, the remainder of the fragments is devoted to openwork decoration with figures, not easy to interpret (due to the corroded nature of the fragments) but seemingly Romanesque in style.



Figure 1. Fragments of zinc object from Aston
(Photo P G Bartlett, Studio Eight, Ludlow)

The fragments were included among medieval items in Ludlow Museum sampled for metal analysis as part of a larger programme of research into medieval metalwork. The colour of both patinated surface and clean metal drillings was noted as unusual at the time of sampling. The subsequent semi-quantitative XRF analysis showed the metal to be 99.3% zinc and 0.7% lead.¹ It was not realised at the time that earlier, unpublished work carried out at the British Museum using qualitative spectrographic analysis had shown the metal to be zinc with traces of copper and lead. Also, X-ray diffraction had shown the surface deposit to be mostly carbonate (Research Laboratory File No. 2052).

It will be evident that the analytical findings cause problems in relation to the time and place of

manufacture of the object since the accepted view is that zinc metal was not available in Europe in the early medieval period. Very small quantities of metal were sometimes found in cracks between the stones of furnaces in which zinc-containing ores were smelted in the Harz region for copper and/or lead.² Conditions in the cracks allowed condensation of the zinc vapour under reducing conditions whereas the bulk of the zinc was converted to oxide in the upper part of the furnace, later an important source of "furnace calamine". The zinc metal was not always recognised as such and appears to have been confused in the early 17th century with bismuth.³ Earlier operations of this kind might also have given rise to very small quantities of metallic zinc as may have been the case with the zinc object found in the Agora at Athens.⁴ It is thus a remote possibility that the zinc for the present object was laboriously collected from early smelting furnaces as small beads of metal.

A more obvious possible explanation may lie in the placing of the object in a much later period, after the late 16th century when zinc metal became relatively freely available and used principally in the making of brass. However, the appearance of the object conflicts with this approach since there is no stylistic reason to doubt the Romanesque date and some circumstantial evidence in support of a medieval date may be inferred from the find site.

The circumstances of the find were as follows:

In 1967, two pieces of metal were brought to Mr W J Norton then Curator, for identification by a Mrs Pound of Ludlow who discovered them in a stream bank just below the water line near the roots of a tree, at Pipe Aston, near Ludlow, when she was ten years old in 1955. The map reference is SO45857170. This position is a short distance down-stream from the site marked "Castle Mound" described in Pevsner's "Herefordshire" (The Buildings of England) page 67 where there is a reference to a "Mound 120 yards NE, probably a castle-mound or tump about 24ft above the bottom of the ditch". There is also a Norman Church at Pipe Aston close to the find site.⁵

If the possibility of the object being a late copy is set aside for the moment, it remains to account for the use of zinc in its manufacture in the 12th century. Zinc was extracted and used widely at a much earlier date in Asia than in Europe⁶ but the object is most unlikely to have been made in Asia since the style of the object is European if not actually English. The most likely explanation appears therefore to lie in zinc extracted somewhere in Asia having been brought to Europe and there used to cast the object.

The existence of seaborne trade in zinc directly from Asia to Europe from the 16th century is well known and it may be that trade, albeit indirect and on a smaller scale, existed at an earlier date. The zinc smelting at Zawar was conducted from the 11th century at least⁷ and this or some other site in the same region may have been the source of the metal. The laborious transport, at least partly overland, of heavy objects such as even small ingots would place such metal in the precious category⁸ and so perhaps fit for the production of a fine piece of metalwork such as that found at Pipe Aston.

The above arguments are admittedly somewhat speculative but the purpose in publishing the object is to alert readers to the possibility that Romanesque metalwork might be encountered in zinc.

References

1. *The analysis was carried out without the benefit of suitable standards and so the data must be regarded as semi-quantitative. The lead content lies within the range of lead contents for various examples of commercial (non-refined) zinc available in the early part of this century: C A Smith, 'The Zinc Industry', London 1918, p. 145 and p.149; W R Ingalls, 'Metallurgy of Zinc and Cadmium,' London, 1903, p. 566.*
2. L Ercker, 'Treatise on ores and assaying', 1580, trans A G Sisco and C S Smith, Chicago U.P. p. 271.
3. G E Löhneiss, 'Bericht von Bergwerken', 1617, extract in trans in footnote p. 271 of Ercker *ibid*.
4. M Farnsworth, C S Smith and J L Rodda, *Hesperia* (Suppl 8), 1949, p. 126.
5. *The authors are grateful to Mr J Norton, Curator, Ludlow Museum for supplying information on the discovery of the object.*
6. P T Craddock, I C Freestone, L K Gurjar, K T M Hegde and V H Sonawane, *Mining Magazine*, 1985, 152, p. 45.
7. *Personal communication from Dr Paul Craddock.*
8. *Examples are known of fine metalwork in zinc, albeit Islamic and of 16th century date: Topkapi Palace Museum, Istanbul (items 2/2836, 2/2844, 2/2860) referred to and illustrated in 'Islamic Metalwork in the Freer Gallery of Art' ed. E Atil, W T Chase and P Jett, Smithsonian Institute, Washington DC 1985.*

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