XV
Museum Notes, 1991*

1. THE BRONZE AGE DAGGER FROM REAVERHILL FARM, BARRASFORD

As part of the annual conservation programme it was decided that the stability of the Reaverhill Farm dagger might be in doubt and it should be conserved.[1] A report on the dagger had been published in 1965[2] but the need for conservation offered the opportunity for a more detailed examination using modern techniques. The results revealed additional features and cast new light on the nature of the organic remains on the hilt.

Examination

Initial examination of the dagger revealed that the surface of the blade was covered in green copper corrosion products with some soil caught in the recesses. In a few areas where this overlying surface was broken, a smooth, dark green surface patina was visible. The "omega" butt-mark of the hilt was clearly delineated by pale green corrosion products. There were organic remains of the hilt preserved in corrosion products around the three rivets (fig. 2). Raised linear features were also visible within the hilt corrosion products. The tip of the blade was incomplete and the edges uneven, apparently as a result of mineralization of the metal (fig. 1).

Prior to any cleaning the dagger was photographed, including micro-photography, and x-radiographed. X-radiography revealed a dense metallic core and much less dense or radio-opaque edges. Subsequent cleaning confirmed these areas as being completely mineralized. Samples of the pale corrosion products and mineralized organic remains were taken for analysis and investigation.

Treatment

The dagger was cleaned under ×10 magnification manually with a scalpel. The overlying green corrosion products and soil were removed to expose the smooth, dark green corrosion products where possible. In places, the surface consisted of red/brown corrosion products, bare metal or was pitted.

The rivets were cleaned as much as possible without losing the organic remains. The shafts of the rivets were found to be angular in section. The hilt area was cleaned of soil on one face only but more thoroughly on the other side following a slight difference in corrosion products around the rivets and rounded edge of the hilt area.

On cleaning along the "omega" line, a row of dimples was found in the surface of the metal (fig. 3). Similar dimples were found along the lines of the triple-reeded midrib. The shape of the blade edges, midribs and the surface in general also became more clearly defined, revealing a well preserved patina over much of the dagger's surface.

The linear marks within the hilt corrosion might have been the results of the impressions of tool marks on the underside of the hilt (fig. 4). These would not have been polished flat during manufacture as they would not have been visible on the finished artefact. Similarly, the more thorough cleaning of the curved edge of the hilt revealed fine parallel striations within the corrosion patina which may also represent abrasive or tool-marks from the manufacturing process. Unlike the tool marks on the blade, which have been mostly polished away, those on the hilt would have been hidden by the handle.

Analyses

Analysis of the composition of the blade by

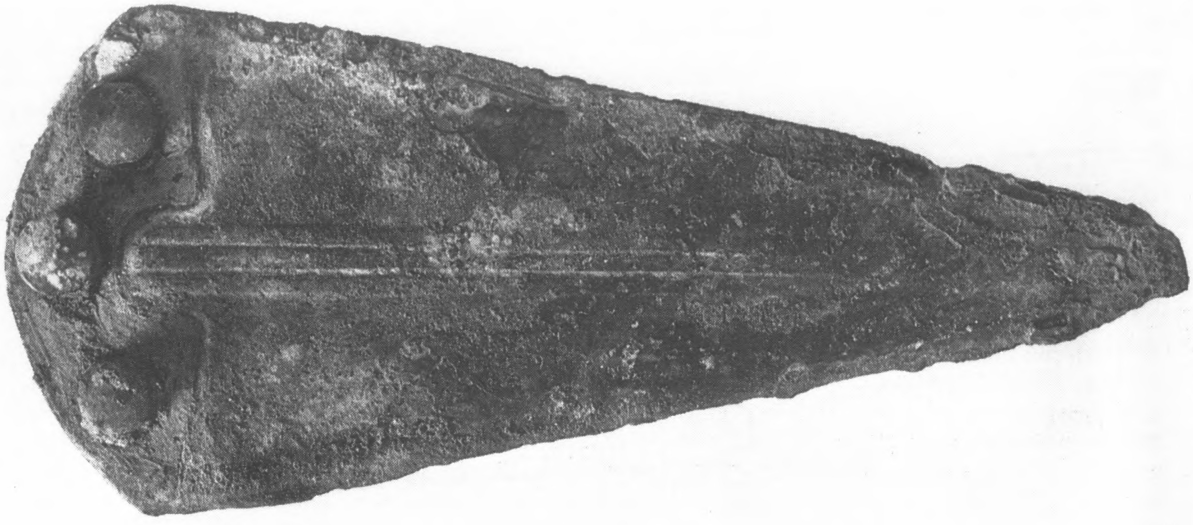

Fig. 1. The Reaverhill Dagger before conservation.

Fig. 2. Corrosion products around the hilt. Magnification ×45

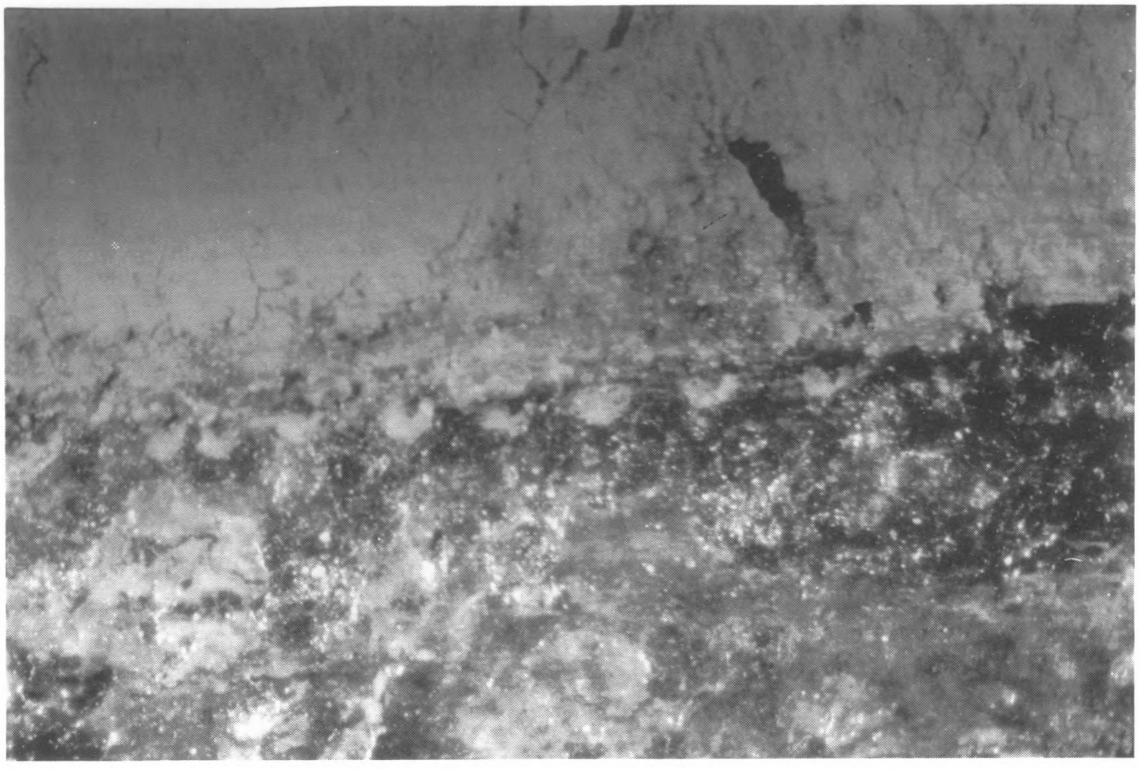

Fig. 3. The row of dimples along the "omega" line. Magnification ×45

Fig. 4. Possible tool marks on the underside of the hilt. Magnification ×45

energy dispersive X-ray fluorescence (EDXRF) showed it to be a copper/tin alloy with average contents of 67% and 29% respectively. The bronze also contained a small amount—less than one per cent on average—of antimony.

A small sample of the mineral preserved organic was taken from the hilt area and examined using a scanning electron microscope (SEM) equipped with an X-ray microanalyser. The X-ray spectrum showed peaks for copper, calcium and phosphorus with trace amounts of sulphur. This would be consistent with an osseous or skeletal material preserved and partly replaced by copper corrosion products. The analysis pointed to bone, ivory or possibly antler being used rather than horn, which would have been expected to give a substantially larger sulphur peak. There was no evidence that this organic material had originally been wood as suggested in the 1965 report.[3] Examination of the mineral preserved organic at high magnification revealed fine corrugated laminations at a very small scale. The small scale structure of the handle material and the original size of the piece required to form the grip, assuming that it was formed from two opposing leaves, suggests that ivory or the limb bone of a large animal was used.

The pale green corrosion from between the handle and the tang was also examined in case it could be demonstrated that this was originally a type of adhesive or filler between hilt and blade. However, this proved to be an amorphous material, possibly malachite, and there was no evidence to support the case of it being a filler.

As noted in the original comments published about the Reaverhill Farm dagger, the cleaning and conservation has further confirmed the "very fine workmanship" of its manufacture. The dagger has now been returned to the Museum's displays.

Hazelle Page and Gordon Turner-Walker

Fig. 5. The Reaverhill Dagger after conservation. 1:1

2. A RADIOCARBON DATE FOR THE WILLINGTON QUAY ANTLER MATTOCK

In a "Museum Note" in the 1985 edition of this journal, the authors published a description of the red deer antler mattock found at Willington Quay, Wallsend, in 1934.[4] In that note it was suggested that the mattock should be considered, on typological and biometric grounds, to be of Mesolithic date. A recently obtained radiocarbon date indicates that this interpretation was probably incorrect.

The implement has been dated, along with several similar examples from elsewhere in Britain, by the Accelerator Mass Spectrometry Radiocarbon Dating facility at Oxford University, as part of a programme of dating Late Upper Palaeolithic and Mesolithic bone and antler implements.[5] The date obtained for the Willington Quay mattock is 3880 ± 80 Radiocarbon Years Before Present (RC yr BP) (OxA–1157), and thus clearly post-Mesolithic.

Direct dates on ten red deer antler mattocks have been obtained during the current accelerator dating programme, ranging from 8820 ± 100 to 3300 ± 80 RC yr BP. These dates indicate that the manufacture of antler mattocks was by no means confined to the Mesolithic. While the dates for *antler-beam* mattocks all fall into the time-range of the later Mesolithic, the *antler-base* type (to which the Willington Quay specimen belongs) has a very broad time-range, and appears to have been in use in the earlier part of the Mesolithic and during the Late Neolithic and Early Bronze Age.

Christopher Smith and Clive Bonsall

3. A RECENTLY DISCOVERED MOULDED STONE FROM HEXHAM

During a watching brief by Stan Beckensall and Mr. and Mrs. J. Crow of trenching by British Telecom in Hexham Market Place, in March 1990, a fragment of moulded stone was uncovered. The stone has since been donated to the Museum of Antiquities by the Rector of Hexham Abbey.[6]

The piece is cut from a white and pink micaceous sandstone. Parts of two adjacent dressed and moulded faces, and what is probably the base, survive. Unfortunately, the stone was broken in two subsequent to its discovery. The "front" face, with a maximum width of 345 mm, has a plinth 50 mm high, above which is a wide, shallow, V-shaped groove surmounted by a torus moulding and at least three stepped mouldings set back from the face to a maximum of 50 mm. It is not clear whether there were additional step mouldings further reducing the dimensions of the shaft. The stone has a maximum thickness of 100 mm and stands to a height of 239 mm. The mouldings continue round the right-hand side of the stone where the V-shaped groove, the torus and the lowest step moulding remain. The maximum width of this face is 82 mm. The mouldings are regular and the faces are as smooth as the coarse-grained stone would reasonably permit. On the underside the stone is smooth and almost flat. Along the front is a roughly dressed drafted margin, approximately 40–33 mm wide and dressed back 1 mm from the face. This is also carried around the right-hand side where it is 63 mm wide. The top and left-hand side of the stone are broken. To the rear the stone is extremely rough, but does show evidence of rough pick dressing although it is not clear whether this dates from a period of reuse of the stone (fig. 6).

There is no evidence to indicate the original dimensions of the piece and its identification is thus uncertain, although it is very probably the base of an altar and parallels can readily be found to support this identification. However, it is possible that, if the roughly dressed rear face is an original feature, it formed a moulded plinth added to a pre-existing wall and that it clad an external angle.

That the piece is of Roman date need not be doubted and it joins the small group of Roman decorated and inscribed stones recovered from Hexham over the years. Some of these, built into the Saxon crypt beneath the Abbey (*RIB* 1122, 1151, and 1193) and from the founda-

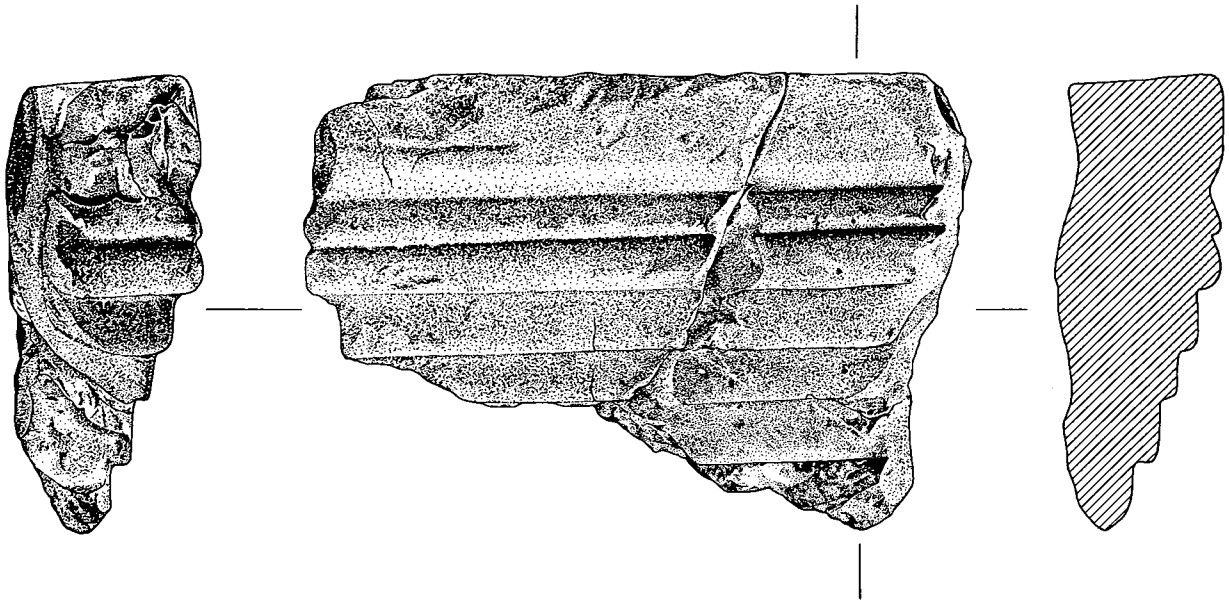

Fig. 6. Roman stone from Hexham. Drawn by Adam Traill. 1:4

tions of the Saxon south-west tower (*RIB* 1151), testify to the early date of the robbing of the Roman monuments in the area. The apparent absence of Roman pottery, glass and other artefacts strongly suggests that Hexham itself was not the site of a Roman settlement or military installation. In the past it has often been assumed that Corbridge was the source for the Roman stonework at Hexham—in *Roman Inscriptions of Britain* the Hexham stones appear under the entry for Corbridge—although Chesters is perhaps an equally likely source for some of the stones and other sites could be suggested.[7]

Derek Welsby

NOTES

* Prepared for the press by L. Allason-Jones with grateful thanks to the contributors.

[1] Accession Number 1964.2.

[2] Burgess, C. B., in Jobey, G., Smith, D. J., and Tait, J., "An early Bronze Age burial on Reaverhill Farm, Barrasford, Northumberland", in *AA*[4] LIII, 1965, Appendix 2, 68–75.

[3] Burgess 1965, 70. On the identification of osseous materals see O'Connor, T. P., 1987 "On the structure, chemistry and decay of bone, antler and ivory", in *Archaeological Bone, Antler and Ivory*, The United Kingdom Institute for Conservation Occasional Papers No. 5, 6–8; O'Connor, S., 1987 "The identification of osseous and teratinaceous materials at York", ibid., 9–21; MacGregor, A., *Bone, Antler, Ivory and Horn*, 1985, London.

[4] Accession Number 1934.7.

[5] Bonsall, C., and Smith, C., 1990, "Bone and antler technology in the British Late Upper Paleolithic and Mesolithic: the impact of Accelerator Dating", in Vermeersch, P. M., and van Peer, P., (eds.) *Contributions to the Mesolithic in Europe*, 359–68, Leuven.

[6] Accession Number 1990.4.

[7] Collingwood, R. G., and Wright, R. P., 1965, *The Roman Insciptions of Britain*, Oxford.