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Summary

A report on the materials used in the construction of this Roman Gladius handle.

Keywords

Iron
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This Roman bone hilt is an Antiquarian find in the collection of Dorchester Museum. It has never been formally published, and was sent to the Centre for Archaeology by Peter Woodward to take the opportunity to record and identify the organic materials used in its construction during the refurbishment of the display. The corroding iron tang has expanded and forced apart the bone components revealing mineral preserved wood.

All exterior surfaces are highly polished, and most of the components can only be identified from the internal surfaces or on the broken edges. Using low-powered optical microscopy it has been possible to recognise diagnostic features on some partsof each section (Penniman, 1952; Moraitou, 1983; Krzyszkowska, 1990).

The hilt is made up of eight separate pieces of compact bone, with a plug of possible antler in the centre of the button on the pommel. Very little compact bone is available in the skeletal tissue of animals, even in the large animals such as bovid and equid, and is mainly confined to the shafts of long bones and parts of the scapula. None of this material is suited to make the form of this hilt from a single piece of bone, which is why it has been made from many separate pieces fitting closely together. This construction leaves an internal cavity where the marrow or porous tissue was in the living animal, and in the case of the pommel and guard sections this is a large void that had to be filled with another material to keep these sections firmly in position on the iron tang. Inside the interlocking bone sections are the remains of the iron tang, and wood has been preserved in the iron corrosion. It has been possible to identify the wood species with aid of the scanning electron microscope (SEM) (Watson, 1988).

Pommel

The spherical-like pommel is made from four separate pieces of bone, which fit over the iron tang and are secured to it by the button-like top. Each section is made from a single piece of bone, including the wide central portion where the marrow cavity or cancellous tissue is concealed on the inside. The size of this piece alone indicates that it must have been made from a bovid or equid long bone (*pers com.* Polldora Baker).

The centre of the button-like top is filled with another piece of creamy –white material, which seems to be a small piece of antler in cross-section.

Figure 1. Roman gladius hilt, with the bone sections arranged around the iron tang. EH A970054.

Figure 2. The separate hilt components. EH J970068.

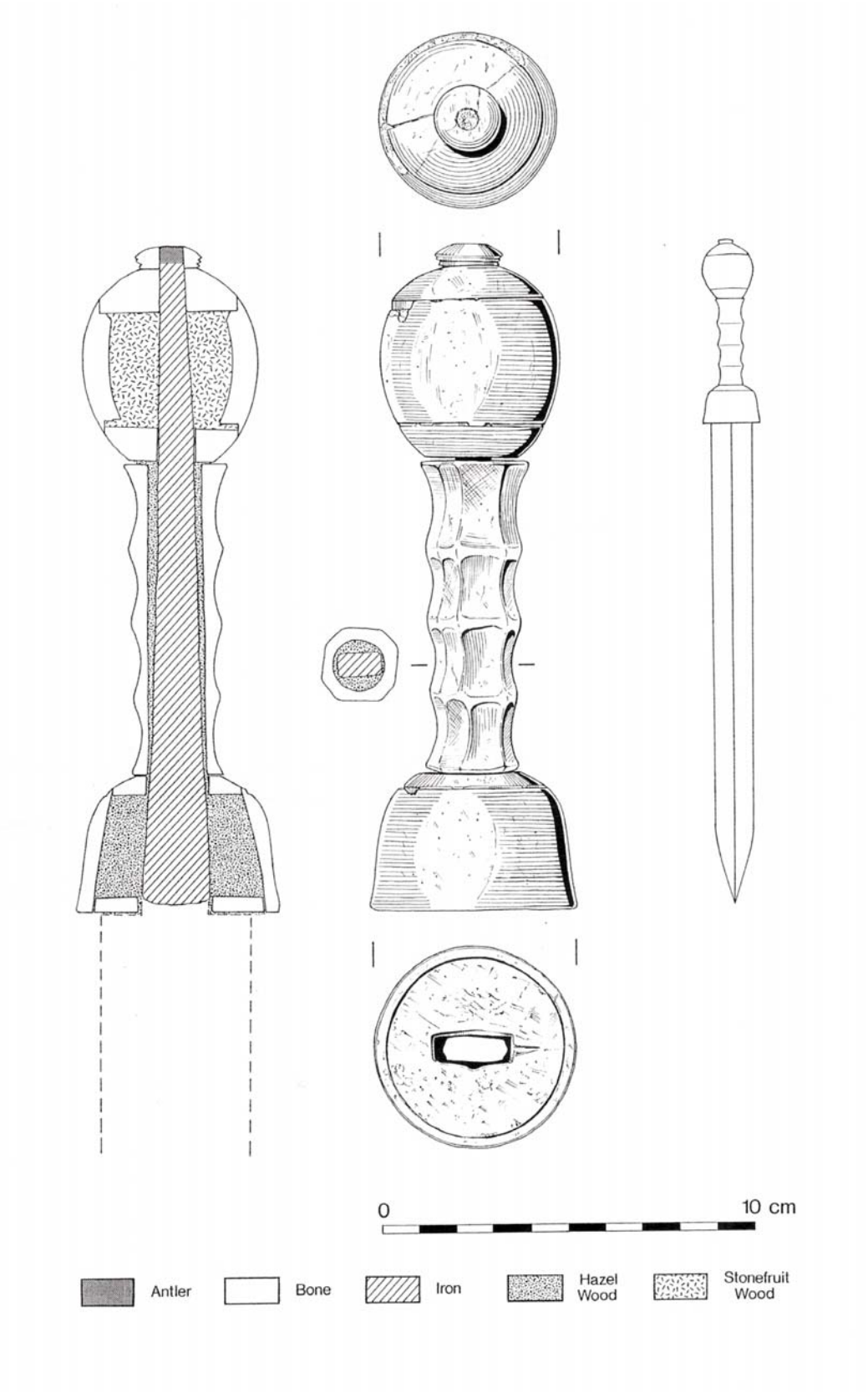

Figure 3. Diagram of the gladius hilt, illustrating the positions of the different materials. Drawn by C.Evans.

The wood inside the bone pommel is made from one of the stone-fruit family of trees, *Prunus* sp.; these include cherry, plum, and apricot, but it is very difficult to distinguish between them microscopically.
SEM B772

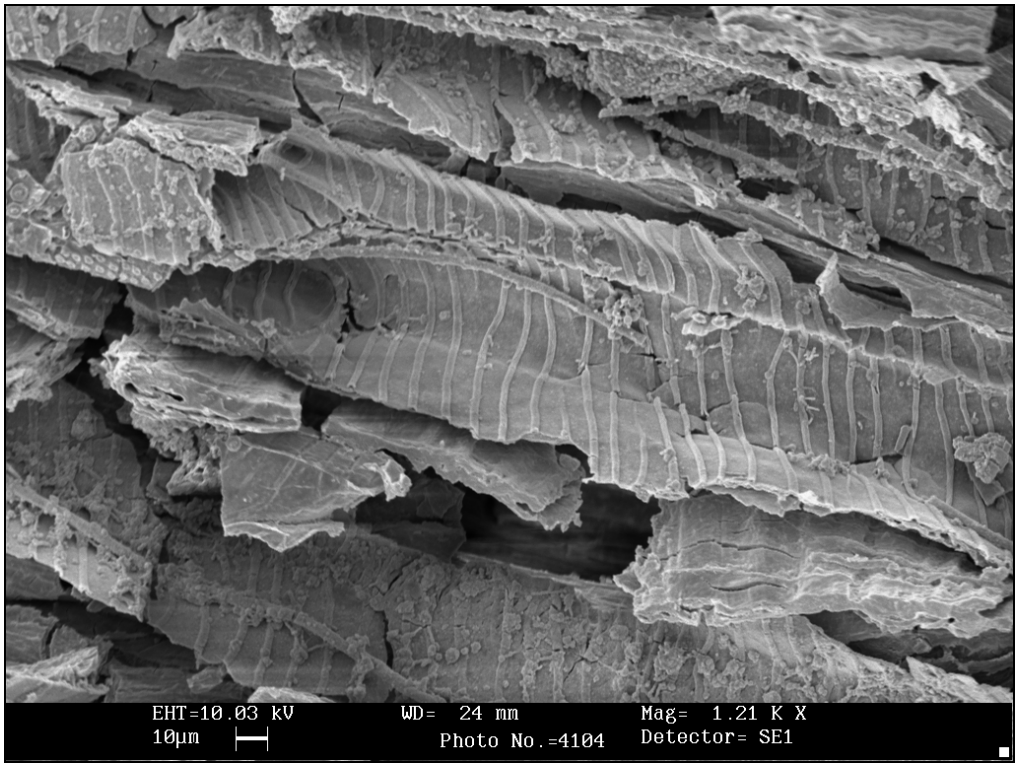

Figure 4. Electron micrograph o the mineral preserved wood inside the bone pommel.

Grip
The grip has been fashioned from a single piece of bone, probably a metapodial from a large animal such as a bovid. The bone has now broken apart due to the iron core expanding as a result of corrosion. Wood has been preserved in the iron corrosion, *Corylus* sp. (hazel). This wood was probably used to fill the void between the iron tang and the bone grip.

Guard
The guard has been made from three pieces of bone. The wood underlying the grip section continues along the tang underneath the bone guard section. As the guard remains intact, it has not been possible to check if a single piece of wood was used to support both sections or if another section of wood remains inside the bone guard.

The use of two different species of wood, and a possible antler plug rather than one made from bone, may point to the pommel having been repaired in a different workshop to its manufacture.

References
Krzyszkowska, O., 1990

Ivory and related materials: an illustrated guide, Classical Handbook 3, Bulletin Supplement 59, Institute of Classical Studies, London.

Moraitou, G.; 1983
Structure, deterioration, and identification of bone, antler, ivory and horn, student dissertation towards BSc in Archaeological Conservation, University College London.

Penniman, T.K.; 1952
Pictures of ivory and other animal teeth, bone and antler, Occasional Paper on Technology, 5, Pitt Rivers Museum, University of Oxford.

Watson, J.; 1988
“The identification of organic material preserved by metal corrosion products”, in S.Olsen (ed) *The Use of the Scanning Electron Microscope in Archaeoloogy,* BAR International Series 452, 65-76.