5 The human and animal bones from the urn

by Julie Roberts

Excavation of the bone from the urn was undertaken in the field (Section 3.2). The remains were removed in four spits, each of which was divided into quadrants. This strategy was designed to facilitate an assessment of the distribution of specific skeletal elements throughout the deposit as a whole.

Each spit and quadrant of bone was passed through a stack of sieves with 10 mm, 5 mm and 2 mm meshes. The amount of bone within each fraction was weighed, analysed, and recorded in a skeletal inventory. Due to the constraints of time, it was not possible to extract the bone measuring < 2 mm in diameter from the soil matrix. The material was examined, however, in its entirety and any diagnostic fragments of bone or dentition were removed and recorded.

The proportion of identified and unidentified elements within each fraction was recorded. Fragments were termed unidentified if they could not be ascribed to a specific element or body area, ie cranial, axial, upper limb and lower limb. Overall, the preservation of the remains from Glennan was very good. The total weight of the bone from the urn was 1511.7 g (excluding the < 2 mm fraction).

5.1 Species and Minimum Number of Individuals

Species was determined macroscopically, on the basis of the morphology, surface texture and density of the fragments. Of the 1511.7 g of bone analysed, 1478.5 g was found to be human and 33.2 g was found to be animal. In the case of the **human bone**, a minimum number of just one individual was identified, based on the absence of any repeated skeletal elements or elements belonging to individuals of clearly different biological age. As noted above, a quantity of **non-human bone** was identified. All the fragments appeared to be from the same animal, an immature sheep/goat. Multiple fine transverse lines were evident on the shaft of the tibia, that may have been associated with skinning the animal.

5.2 The human bone: sex and age at death

Amongst the remains, several sexually dimorphic cranial and pelvic elements were sufficiently well preserved to be used in the determination of sex. These included the orbital rims and superior temporal line of the frontal bones, the zygomatic bones, and the sciatic notch and auricular surface of the ilium. All of the above indicated a male sex. In addition the morphology of the first sacral vertebra was male, and the long bones were robust, with cortical measurements falling within the male range (Gejvall 1963).

With regard to age at death, several diagnostic elements had survived. The roots of the third molar were intact and fully developed, indicating an age of greater than 18–21 years. The first and second sacral vertebrae had fused indicating an age of greater than 22–25 years, and the epiphysis of the medial end of the clavicle had also fused, indicating an age of greater than 25–29 years at death. The medial end of the clavicle is the last epiphysis to fuse in the body and, once this occurs and skeletal maturity is attained, methods of age determination become less precise. It was possible to use the appearance of the pubic symphysis and the auricular surface of the ilium as a guide, although the elements were not quite complete. An age of between 30 and 40 years at death was suggested, which was consistent with the lack of degenerative changes observed on almost all of the other surviving joint surfaces. In addition, the heat of the fire had caused the cranium to fracture along the suture lines on several occasions, indicating that they were not fully fused, which indicates that the individual was probably younger than middle-aged.

5.3 The human bone: non-metric traits

Three non-metric traits were identified: two cranial ossicles (one in the right coronal suture), a right extra-sutural mastoid foramen, and Allens fossa, on the left femur. All of these traits are commonly observed in archaeological populations, and cannot be attributed to any specific activity or environmental factor.

5.4 The human bone: pathology

The individual had suffered from mild spinal joint disease and iron deficiency anaemia. The spinal joint disease was characterised almost entirely by schmorls nodes, which were present on the surfaces of four thoracic vertebrae and one lumbar vertebrae. Often they are the result of a compression force which might be sustained during heavy lifting or in a fall onto the feet, and they may accompany actual compression fractures (Roberts and Manchester 1995, 107–08). In addition, five fragments of lumbar vertebra and one fragment of thoracic vertebra displayed evidence of slight porosity, and one lumbar vertebra, had a slight osteophytic projection. These

minor changes indicate mild degenerative disease in its early stages. It is unlikely that this level of severity would have caused a great deal of pain, or limited mobility. Iron deficiency anaemia was evident, characterised by porotic hyperostosis, a pitting and thickening of the outer layer of the skull. Two fragments of parietal and two fragments of unidentified cranium displayed these lesions. In the case of the male from Glennan, the manifestation was not severe and it is unlikely that he would have been debilitated by the condition.

In view of the good state of preservation of the remains, in particular the survival of many of the joint surfaces, there was surprisingly little pathology present. The only evidence of osteoarthritis on elements other than the vertebrae, was on a single carpal bone and a rib. These were very minor changes that would almost certainly have been asymptomatic.

5.5 Distribution of Elements within the Urn

No clear pattern could be identified with regard to the horizontal and vertical distribution of the different skeletal elements. No concentrations of specific elements or elements from the same region of the body were found in any particular spit or quadrant. This indicates that the human remains were well mixed following removal from the funerary pyre and before deposition within the urn.

The non-human bone was also mixed throughout the deposit, being found in every spit and every quadrant. This strongly suggests that the animal was cremated on the same pyre as the adult male, and that their remains were mixed together before burial. The lack of fuel ash slag and any other extraneous material in the urn suggests that both the human and animal remains were picked carefully from the pyre (and possibly even washed) before they were mixed together and deposited in the urn for burial. Careful sorting and cleaning from pyre material is more likely in light of the problematic radiocarbon dates obtained from the charcoal found in association with the burial.

5.6 Pyre Temperature

Distinct and consistent colour changes have been observed in heat-treated human bone and are white when all the organic matter is combusted and cremation is complete at temperatures in excess of 700–800° C (Holden *et al* 1995; Shipman *et al* 1984). The fragments from Glennan were predominantly white indicating that the technology employed by the community concerned was sufficiently advanced to create and sustain enough heat to completely cremate their dead.

There was no evidence of differential combustion that might suggest a particular body position on the pyre, as observed in other Bronze Age cremation burials (Holck 1986; Roberts 1998; Roberts 2000). This suggests that the pyre was well tended and stoked in order to allow a free flow of oxygen to all body parts. Evidence of fragmentation incurred during the cremation process, perhaps by stoking the pyre, was seen in a few fragments of frontal and parietal bones that were slightly different in colour. It is possible that the cranium was fractured, and those fragments that were grey in colour had been pushed to the peripheries of the pyre, or had lain at the bottom in a layer of ash. The cracking patterns that were evident on many of the bones and the warpage of several of the larger fragments were an indication that the body had been cremated soon after death, whilst still fleshed (Ubelaker 1989, 36–38).