
4 The Human Remains from the Cists by PRJ Duffy

Each context containing cremated bone was initially sieved using 10-mm and 4-mm meshes and subsequently sorted from other materials. The amount of bone within the >10mm fraction and the 4–10mm fraction was weighed, analysed and recorded in a skeletal inventory. 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. Bone measuring less than 4mm in diameter was examined and weighed, but only recorded if diagnostic fragments of bone or dentition could be identified.

The preservation of the cremated remains from Ferndale was generally good. Most of the fragments were greater than 10mm in diameter, and had suffered little surface erosion. Thus a large percentage of the bone, predominantly from the >10mm fraction, could be identified.

The preservation of the inhumed remains from cist 003 was poor, with much of the bone highly degraded and fragmented. This appeared to be due mainly to the preservation conditions within the cist itself. The poor preservation of the uncremated remains recovered from cist 003 necessitated the lifting of the skeletal material as block samples. The post-excavation analysis thus consisted of an initial sorting of this material by hand from the surrounding soil matrix. Elements present were then recorded on a standard skeletal pro forma recording sheet.

4.1 Species and minimum number of individuals

All of the bone from the cists was human. A minimum of three individuals were identified from the cremated remains in cist 004, through repeated elements of the sciatic notch of the ilium and the proximal head of the right ulna. A minimum of one individual was identified from both cist 003 and cist 010.

4.2 Sex and age at death

Sexually dimorphic elements were sufficiently preserved from the assemblage recovered from cist 004 to allow the identification of an adult male, an adult female and an infant through morphological characteristics of the occipital nuchal crest, sciatic notch of the ilium, ischial tuberosity and longbone thickness.

Based on the state of epiphysial fusion of the skeletal elements associated with the female individual, particularly an unfused gracile clavicle, an age of *c* 18–30 years is suggested. The adult male proved more difficult to age, with few diagnostic indicators identified. However, several fragments of robust cranial elements with partially fused suture lines were identified. Although rates of cranial suture closure vary among individuals, this may be used as a guide that the individual was probably closer to middle age than a younger individual. Age at death was more straightforward to establish for the infant. The dental development of two deciduous molars indicated the infant was *c* 15 months at death (Moorress *et al* 1964).

The lack of diagnostic elements for bone recovered from cist 010 prevented the identification of age or sex, beyond that of an adult, based on the morphological characteristics of the bone examined. Similarly, the poor preservation of the skeletal elements from cist 003 meant that the individual could not be assigned a biological sex or age at death, beyond the attribution of adult.

4.3 Pathology

Examination of the well-preserved remains from cist 004 revealed a number of pathological conditions. An externally draining dental abscess was identified on the male maxilla at the position of the left second premolar. The infection had also led to breaching of the thin wall of bone which separates the maxillary sinus cavity from the alveolar process of the upper jaw; this would undoubtedly have been a painful condition. Severe pitting of the palatine surface was also observed in the same individual. Such changes have been linked to a number of infectious and metabolic diseases, including leprosy and scurvy (Auferheide & Rodriguez-Martin 1998). However, in the absence of any other skeletal indicators, a diagnosis of the causes of this condition cannot be made accurately.

Osteitis, or inflammation of the cortical bone, was identified on two fragments of male femur. Characterized by a thickening of the cortical (outer) layer of bone and an associated reduction of the medullary (inner) cavity, osteitis can occur as a result of bacterial infection of the bone matrix itself. The condition can have many causes, including traumatic injury and disease conditions, and is likely to have caused some discomfort.

Iron deficiency anaemia was evident, characterized by porotic hyperostosis (a pitting and thickening of the middle layer of the skull) and cribra orbitalia

(a pitting of the superior eye orbits). Three fragments of unsexed frontal bone displayed changes consistent with porotic hyperostosis, and one fragment of female frontal displayed changes consistent with stage 1 cribra orbitalia (Stuart Macadam 1992). There are many causes of iron deficiency anaemia, amongst the most common being lack of absorbable iron in the diet and a high pathogen load within the body (Stuart Macadam 1992). Severe anaemia can cause fatigue and palpitations, leaving the affected individual weak and breathless. In this case, the manifestation was not severe and it is unlikely that she would have been debilitated by the condition.

A single unsexed distal hand phalange with pitting and osteophyte formation (bony outgrowths) was also recorded from the assemblage in cist 004. This can also be caused by a variety of conditions, including rheumatoid arthritis. Without further skeletal indicators as to the cause of this condition, diagnosis is elusive.

4.4 Mortuary ritual

4.4.1 Bone weight and elements represented

Cist 004 was found to contain the remains of three cremated individuals, weighing a total of 2496g; as such, it is not possible to speculate as to the relationship between bone weights and elemental representation among these individuals. The remains from cist 010 weighed a total of 230g, significantly less than that estimated for an adult male (2283.5g) or female (1615.7g) (McKinley 1993). Skeletal elements appeared limited to longbone, cranium and rib. Several reasons could explain this, including selective processes in collection from the pyre or deposition in the cist, or accidental factors such as spillage or post-depositional damage and destruction.

4.4.2 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 (Shipman *et al* 1984; Holden *et al* 1995). The fragments from cist 004 at Ferndale ranged mainly from white through to yellow-white, indicating that the pyre technology and fuel sources employed were sufficient to create and sustain enough heat to cremate their dead fully. Notable exceptions to this pattern were a number of elements of the pelvis and lower limbs from the male individual. These varied in colour from grey to grey-black, demonstrating the incomplete combustion of the organic portion of the bone. Several factors, or combinations of factors, may be suggested to have caused this, including heavier musculature and/or body fat, position of the body on the pyre, insufficient fuel resources, or deliberate stoking and raking of the pyre during cremation. Evidence for this last factor may also be inferred from the differential colours of several of the cranial fragments identified during the analysis. 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 also indicate that the body had been cremated soon after death, while still fleshed (Ubelaker 1989, 36–38).

The cremated remains from cist 010 show little variation from a white to yellow-white colour, indicating the individual was fully cremated. Similar bone warpage as that described above again showed the body had been cremated while fleshed.