4 The Cremated Human Remains *by Julie A Roberts*

4.1 Introduction

The preservation of the remains was very poor. A total number of 216 fragments of bone with a combined weight of just 13.8g were examined (Table 3). The majority of fragments measured less than 10mm in diameter, and the largest fragment size was 20.1mm. There was extensive erosion of the surface of the bones, and a relatively large percentage of the fragments, particularly those derived from the samples, could not be identified to skeletal element or region of the body. Fragments were termed unidentified if they could not be ascribed to a specific element or body area.

The aims of analysis, where preservation allowed, were to: (a) identify the species of the burnt bone; (b) determine the minimum number of individuals present within each context, and across the site as a whole; (c) estimate age at death and sex; (d) record any skeletal pathology or variants; (e) provide information relating to mortuary practice.

4.2 Results

4.2.1 Species and minimum number of individuals (MNI) present

No cremated animal bone was identified, although the criteria used for distinguishing species (morphology, surface texture and density) were hard to apply, due to the poor preservation of the material.

The calculation of the minimum number of individuals present (MNI) was based on the presence of repeated skeletal elements, or elements belonging to individuals of clearly different biological age. If each context is regarded as having contained at least one separate individual, then a minimum number of seven individuals from across the site could be recorded. There were, however, no repeated skeletal elements amongst the assemblage as a whole, although individuals of different biological age were identified. It is possible given the complexities of Bronze Age mortuary rituals that single individuals could have been divided between different burial places. Based on these criteria, if all the bone recovered from the site is regarded as a single assemblage, then a minimum number of only two individuals could be recorded.

4.2.2 Age at death and sex

Age at death and sex were considered with reference to standards outlined previously (Buikstra & Ubelaker 1994), but for the most part the fragments were too small and eroded to enable an accurate conclusion to be reached. No sexually dimorphic skeletal elements were preserved so it was not possible to determine the sex of any of the individuals.

None of the fragments in S25, from context 071 (the primary fill of the steatite urn), could be identified to skeletal element, but some could be identified as long bone. The cortical thickness and diameter of some of the larger fragments suggested that this was an immature individual, whilst the periosteal surface of the fragments indicated that the remains were probably those of an infant rather than an older child.

All the other bone examined from the site was probably adult. The remains from S24 and S26, from the upper fill of the urn and the fill of the cist respectively, could be identified only as probable adult because they comprised just a few fragments of eroded cortical bone, each measuring less than 5mm. The bone from SF22 and SF23, and S8 and

Table 3 Summary of bone weights, fragment sizes and percentage identified from each context

Small find/ sample	Context	Context type	Weight (g)	No of Fragments	Fragment size (mm)	% Identified	% Unidentified
SF22	018	Secondary fill, Pit 054	1.6	10	3.4–13.7	87	13
SF23	023	Secondary fill, Pit 052	1.1	3	13.8–15.5	100	0
S8	030	Secondary fill, Cist 006	5.1	84	3.3–20.1	63	37
S11	046	Primary fill, Pit 045	1.4	30	3.4–15.5	29	71
S24	070	Secondary (top) fill of steatite vessel SF19, Cist 069	0.1	2	4.2–4.4	0	100
S25	071	Primary fill of steatite vessel SF19, Cist 069	4.3	82	3.6–11.3	0	100
S26	072	Contents of Cist 069	0.2	5	4.3–6.9	0	100

S11 was identified as adult primarily on the basis of the cortical thickness of the long bones, the thickness of the cranial fragments, and the presence of adult dentition and tooth sockets. A more precise age range for the adult remains could not be given.

4.2.3 Pathology and non-metric traits

Certain types of skeletal pathology can survive the cremation process (Reinhard & Fink 1994; McSweeney 1995; Roberts 1998). Non-metric traits, skeletal variants that are generally used to compare differences between population groups, are also frequently observed in cremated bone (Roberts 1998; Roberts 2000). No pathological conditions or non-metric traits were observed in the remains from Loth Road. This was almost certainly due to the poor state of preservation of the remains.

4.2.4 Mortuary practice

The colour, fracture patterns and surface texture of all the bone fragments from Loth Road were observed and recorded. The predominant colour of the fragments from all contexts was white, indicating that the bodies had been cremated at temperatures in excess of 700–800° C for a sustained period of time (Shipman et al 1984; Holck 1986; Holden et al 1995). The exceptions to this were a small number of long bone fragments, which were light grey on the endosteal surface, and a number of fragments of trabecular bone, which were also light grey. This indicated that the inner surfaces of these particular bones had not quite reached the same high temperatures as the outside. No further inferences could be made about this, however, because the fragments could not be identified to element. There was no evidence of differential combustion of the skeleton that might suggest a particular body position on the pyre, but so little of it was surviving in each burial that any patterns could easily have been missed. The predominant colour of the remains was consistent with the findings from many of the Orcadian cremations (McKinley 1996; McKinley 1997; Roberts 2000), which indicate a sophisticated level of technology amongst the Bronze Age population, both in terms of pyre construction and an understanding of the whole cremation process.

Burning dry bones causes longitudinal splitting but no warping or twisting, whilst burning flesh-covered bones produces curved transverse fracture lines, irregular longitudinal splitting and marked warping (Ubelaker 1989; Buikstra & Ubelaker 1994). The majority of the fragments were too small or eroded to be assessed for patterns of cracking. The exceptions to this were a fragment of radius showing evidence of curved cracking (from S8), and a fragment of long bone with transverse checking (from SF22). This evidence suggests that at least these particular bodies had been cremated soon after death, while still fleshed (Ubelaker 1989) and not left exposed, or buried until only the bones remained as is still the practice in some parts of modern day Bali (Metcalf & Huntington 1991, 143–7).

The average weights of a complete cremated modern male and female are 2283.5g and 1615.7g, respectively (McKinley 1993). Clearly, the cremation burials from Loth Road represented only minute fractions of the original skeletons, ranging in weight from just 0.1g to 5.1g. All the bone from the site added together total 13.8g, less than 0.3% of the expected total body weight of a female. This lack of complete individuals is a common phenomenon in Bronze Age cremation burials (McKinley 1997; Roberts 1998) and there are many possible interpretations for it, which depend on both intrinsic and extrinsic factors. The incomplete deposits could be seen as deliberate 'token' burials, the product of partial disintegration of the bone in the ground, or a combination of both. In deciding which might be the case, factors such as bone fragment size and the amount of surface erosion present are useful. Deposits that are badly fragmented and eroded are perhaps more likely to contain incomplete individuals because of taphonomic factors such as wind, rain and disturbance, whereas those with large fragment sizes and little surface erosion from funerary urns and cists are more likely to contain incomplete individuals because of selective burial practices (that is not to say, however, that the poorly preserved deposits did not also contain only a token burial to start with). If selective burial practices or deliberate incomplete recovery of bones from the pyre are thought to be the explanation for the absence of complete individuals then this raises a number of interesting questions about what constituted a sufficient amount of bone for burial from each person, what governed the choice of specific skeletal elements and whether the selection process varied according to the status, age or sex of the deceased.

In terms of the skeletal elements represented at Loth Road, there was a predominance of long bone or cortical bone with the axial skeleton being grossly under-represented. Fragments of cranium and tooth were identified in four of the better-preserved samples, SF23 and SF24, and S8 and S11. No fragments of vertebra, rib or pelvis were identified. These elements (particularly the vertebrae) have a high ratio of trabecular to cortical bone, which makes them more susceptible to damage from taphonomic agents than other bones with a greater proportion of cortical bone. The absence of these fragments from the burials at Loth Road might be an indication that physical and chemical agents played a major role in the differential preservation of the remains.

All of the contexts appeared to contain just a single individual, or parts of one. However, in steatite vessel SF19, the remains from the primary fill belonged to an infant, whilst those few fragments from the upper fill were thought to be a possible adult. This could constitute either a double burial that occurred simultaneously, or a primary and secondary burial

within the same vessel, but the upper fill is highly contaminated. Double or multiple burials do occur with regularity in Bronze Age mortuary sites. At Linga Fiold, Sandwick, the frequency rate of multiple burials was recorded as being between 17 and 25% (McKinley 1996). At Fordhouse Barrow in Coupar Angus, 75% of all multiple burials contained at least one immature individual (Roberts 1998).