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## 7 HUMAN BONE, by Margaret Bruce (*Bone*) and N W Kerr (*Teeth*)

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### 7.1 Introduction

A total of thirty-nine bones and seven teeth were identified as human at An Corran. The samples came from two contexts: C31 contained twelve bones and three teeth, and C36 contained twenty-seven bones and four teeth.

At least five individuals are represented – two children, a late teenager, an adult not more than *c* 35 years old and an adult over 40 years of age. The only significant pathology was discovered in the oldest individual, who had suffered from osteoarthritis of the cervical spine. Virtually all parts of the skeleton are represented.

### 7.2 Skull

There are seven teeth, one attached to a mandibular fragment. These are from two individuals, one aged about nine months to one year, and the other about five years old. No adult or immature neurocranial fragments were found.

One lower right deciduous incisor tooth (CAT 909) with two-thirds of the roots formed had not yet erupted as there is no evidence of occlusal contact. This tooth is from a child aged about nine months to one year. The crown dimensions are: mesio-distal 4.7mm and labio-lingual 4.3mm, which puts the tooth at the larger end of the scale in terms of size. The size of the tooth suggests that the sex of the deceased may have been male.

CAT 641 is a fragment of a mandible from a child, with a crypt of the lower right mandibular permanent canine. The mental foramen is just visible at the distal part of the specimen. It is likely that CAT 639 may be the tooth from this crypt. If this is correct, then it is likely to have been from a child aged five years  $\pm$  nine months. Sockets of deciduous canine, the mesial root of the first deciduous molar tooth, and the crypts of the permanent lateral incisor and first premolar teeth are present.

CAT 639 is the developing crown of a permanent lower right canine, just over three-quarters formed. This specimen most likely formed part of the same tooth as CAT 641, as it is from a child aged five years  $\pm$  nine months, and it fits the other developmental features of the mandible fragment. Its crown dimensions (mesio-distal 6.5mm; labio-lingual 5.8mm) put the tooth at the small end of permanent canines in terms of mesio-distal width. In view of the fact that it is not fully formed at the cervical part of the crown, no proper assessment can be made of the labio-lingual width.

CAT 910 is a lower-right deciduous central incisor

tooth. This tooth has been in occlusal contact for some time and has marked attrition at the incisal edge. The crown enamel is well formed with a highly polished appearance. The first signs of resorption are occurring at the apex. The crown dimensions (mesio-lingual 4.2mm; labio-lingual 3.6mm; root length 9.0mm) indicate that this tooth is from a child aged five years  $\pm$  nine months.

CAT 683 is a fragment of a mandible from the premolar region, with the lower-left first deciduous molar tooth present. The crypt, with early formation of the first permanent premolar tooth, is also present. There are no obvious attrition facets of the cusps of the tooth, although the cusps are rounded and indicate that the deciduous tooth has been in occlusion for some time. The age of development of the permanent tooth suggests an age of five years  $\pm$  nine months.

CAT 604 is a fragment of a mandible with the lower-right deciduous molar sockets present. Radiographs reveal the outline of the crypt of a developing second permanent premolar tooth. This fragment fits CAT 641, and is the distal continuity of the canine fragment; it completes the structure of the mental foramen. A radiograph of the specimen shows the outline of the sockets of the deciduous molars and the crypts of the permanent first and second premolar teeth. This fragment is very similar to that of CAT 683, and it is probably the opposite side of the mandible of the same individual.

CAT 908 is a developing permanent premolar tooth, most likely an upper premolar. The age of development suggests an age of five years  $\pm$  nine months.

All the specimens, apart from CAT 909, appear to be from the same individual. From the recorded tooth measurements, it is likely to have been a young female aged five years  $\pm$  nine months; given the rather young age for CAT 639, the age at death may have been at the younger end of this range.

The single lower right deciduous incisor is from a different individual, probably a young male infant aged nine months to one year.

### 7.3 Vertebral column

Two vertebrae were found. One (CAT 458) is from the cervical or upper end, while the other (CAT 632) is a lumbar vertebra from the lower end of the back. Due to the great difference in the degenerative changes seen in them, these vertebrae may not belong to the same individual.

The cervical vertebra (CAT 458), possibly the fourth, shows extensive degenerative change on the superior articular facets on both right and left

sides, with eburnation on both facets. Degenerative pitting on the inferior facets is more marked on the right side, where there is also eburnation, although less marked than on the upper facets. Osteophytes on the posterior aspect of the vertebral body (right, inferior), and on the inferior aspect of the right pedicle, encroach on the intervertebral foramen. This may have caused some nerve compression. There is some degenerative pitting on the upper surface of the vertebral body but not on the under-surface. The vertebral foramen is single, not bifid. This bone is from a mature to old individual. The wear on the bone is commensurate with heavy loads being carried equally on both sides of the body.

The lumbar vertebra (CAT 632), probably the fifth, since inferior facets are wider apart than upper facets, is almost intact. It is relatively small, with no degenerative change to the facets or the upper and lower surfaces of the vertebral body, except for minor roughening on the left side of the upper body margin. There is no asymmetry of facet joint size or wear, and no Schmorl's nodes. It may have been subjected to a hyperextension of the lower back since there are deep fossae below and mediae to the superior articular facets. This bone came from an adult, who was unlikely to have been older than the mid-thirties.

#### 7.4 Ribs

Eight rib bones were also recovered [n.b. this includes the bone (CAT 143) subsequently reclassified as pig, not human – see below]. One of these may be from an adult individual, one from a sub-adult and the remainder, some of which are very small, probably from a child.

#### 7.5 Upper limb

Five fragments from upper limb bones are present in the assemblage. Two of these appear to have come from a small adult. These are CAT 283, a fragment of scapula, and CAT 615, a distal fragment of a right humerus shaft. The left ulna (CAT 270), showing marked muscle attachments, is likely to be that of a mature adult, and a metacarpal I (CAT 17), showing the last stages of epiphysis fusion, suggests an individual in the late teens. Finally, there is a phalange (CAT 705) from an immature individual.

#### 7.6 Lower limb

There are several bones and bone fragments from the lower limbs. Six foot bones, both tarsals and metatarsals from the right and left feet, and a phalange from one adult big toe, may all have come from one individual, as none of these elements is replicated.

There is one child's tibial epiphysis, one long bone shaft fragment, one fragment of a femoral head and one small fragment of the acetabulum.

#### 7.7 Pathology

The only significant pathological change observed in the human remains was the extensive osteoarthritis on the facet joints of the cervical vertebra (CAT 458). This was identified by the extensively pitted and broken down articular surface with eburnation. The wear appeared to be more or less symmetrical, with both right and left upper facets equally affected, although on the lower surface there was rather more degenerative change on the right side. The encroaching of the space for the passage of the nerve on the right side may have led to some nerve compression.

Some minor degenerative change was observed on the phalange of the big toe (CAT 912), and there was some enthesopathy at the attachments of the muscles on the proximal ulna (CAT 270), which may be age or activity related.

Periostitis (inflammation of the sheath surrounding the bone) was probably the cause of the greyish deposits seen on CAT 190, which cannot however be positively identified as human.

#### 7.8 Number of individuals represented

Obviously, each fragment of bone could be from a different individual. However, it is possible to estimate a minimum number of individuals from the number of replicated elements of the skeleton, taking into account age and size indicators. It appears that there are at least two children represented by dental and jaw fragments, and possibly by some rib fragments. There is evidence of another immature skeleton, nearing skeletal maturity at the time of death, as seen in the rib CAT 143 and metacarpal CAT 117. This individual is likely to have been in his or her late teens. The two adult vertebrae are so dissimilar in the degree to which each was in the 'degenerative' phase of maturity that they are unlikely to have come from the same individual. The other skeletal elements are less useful in determining how many more individuals were represented, and it is possible that the remaining bone fragments could have come from the same two individuals as the vertebrae.

Thus, a minimum number of five individuals is represented, including two children, a late teenager and two adults (one no more than about thirty-five years old, and one over forty years of age).

The size of the teeth suggests that the youngest child may have been male and the older, female. Unfortunately, the sex of the older individuals could not be determined, since many of the bones were incomplete, and the skull and pelvis were scarcely represented in the bone assemblage.

## 7.9 *Addendum*

The reclassification of the rib CAT 143 as pig rather than human arose from the detailed scientific study of selected skeletal parts from An Corran undertaken at the University of York by Nicky Milner and Oliver Craig ([Milner & Craig 2009](#); and see [section 12](#) of this report). The identification as pig was further confirmed in consultation with László Bartosiewicz.

Since then further studies of the An Corran human bones have been made by Emily Hellewell as part of the research for her University of York PhD project. Her preliminary comments, which clarify and expand on certain aspects of the above report, but which do not materially affect its conclusions, are available as part of the site archive ([Hellewell 2011](#)).