Ancient Monuments Laboratory
Report 101/90

SOME HUMAN REMAINS FROM IRTHLINGBOROUGH, RAUNDS, NORTHAMPTONSHIRE, EXCAVATED 1986-87.

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Summary

Cremated bone, mainly dating to the Bronze Age, from 4 round barrows is studied. The problems in estimating minimum number of individuals represented by cremated remains are discussed.

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SOME HUMAN REMAINS FROM IRTHLINGBOROUGH, RAUNDS, NORTHAMPTONSHIRE EXCAVATED 1986-87

Introduction to the site

Four round barrows stood on a large island in the river Nene; bone was received from 3 of these - Barrows 1, 3 & 4, which were excavated in advance of gravel extraction (Barrow 2, not currently threatened, was not excavated). A further round barrow (Barrow 5) yielding human bone was located about 1km to the NE of this group, about 500m from the east bank of the Nene. The barrows date from the Beaker period and were enlarged in the Bronze Age when the cremations were deposited, the exception is Barrow 4 which may date to the Neolithic period.

Barrow 1 yielded 2 inhumations which were the subject of a previous AML report (Henderson 1988). Bone from this monument reported on in the present work comprised that from an urned cremation, accompanied by a metal dagger, near the centre of the barrow, from 2 cremations each located in a small pit immediately to the SE of the barrow and from one cremation burial located in a pit between the middle and outer ditches.

Two cremations were studied from Barrow 3, one lay under the ESE quadrant, the other was located near the centre of the barrow.

One cremation was studied from Barrow 4; it was recovered from under the western quadrant of the barrow.

A total of 4 cremations were received from Barrow 5, one of which was located near the centre of the barrow and was in-urned; 2 were secondary (Bronze Age) insertions into the mound and one lay in a pit between the 2 ring ditches of the barrow.

A small quantity of inhumed bone of uncertain date (possibly Neolithic), recovered from a pit within a trial trench to the north of the Roman villa which was located on the site, was also received.

The human remains

Recovery methods: the cremated bone examined in the present work comprises material wet sieved through 2 and 4mm meshes. The 4mm fraction was hand sorted in its entirety, as was one quarter of the 2-4mm fraction.

In all cases the tables detailing weights, fragment sizes and fragment counts refer to the >4mm fraction unless stated. The material retained by the 2mm mesh was scanned for diagnostic fragments; no attempt was made to assess numbers of fragments, although they were weighed, since for some contexts they formed an appreciable proportion of the total bone. An estimate of the total weight of the bone retained by the 2mm mesh was obtained by multiplying the weight of the sorted part by 4.

Methods by which age and sex are estimated in individual cases are given in the text. When age in immature individuals was estimated using epiphysial fusion use was made of the chart in Workshop of European Anthropologists (1980: Fig. 6), and when cranial suture closure was used to give a very approximate indication of age in adults reference was made to the study of Perizonius (1984).

Note that it is not generally possible to determine the sex of immature individuals from their bones.

1. The cremated bone

BARROW 1

Context: Cremation 6400, Sample 11070 within Context 30018. Cremation in urn located near the centre of the barrow. A metal dagger accompanied the burial. Burial damaged by animal burrowing.

Material:

		Fragment size (mm)		
	Weight (g)	Mean	Maximum	Fragment count
Skull	213.4	15	45	300
Post-cranial & unidentified	2210.9	14	50	8200
Total	2424.3			8500

Estimated total weight of 2-4mm fraction=70.8g; thus estimated total weight of bone is 2495.1g.

Colours: Neutral white, some bluish and blue-grey fragments.

Identified elements include fragments of: mandibular canine with root tip still incomplete, roots of other teeth, including mandibular incisors, premolars, molars and maxillary canines and premolars; crown of a mandibular M3 (dark grey in colour, probably unerupted at death, crown formation complete or almost complete), crown of R mandibular PM1, 2L & 1R mandibular condyle, R mental foramen area of mandible (probably child), R temporal bone with zygomatic process (probably child), L zygomatic, skull vault and base fragments (adult and child, adult sutures un-united), L superciliary arch (probably child), R petrous temporal, R temporal bone (area for articulation with occipital and parietal bones), R zygomatic, sphenoid, alveolar fragments, L temporal bone (external auditory meatus area), L petrous temporal, R petrous temporal (probably child), zygomatic process of R temporal bone, root of zygomatic process of L temporal bone, mastoid processes of L & R temporal bones (probably a pair, large robust mastoid processes) R side of mandible (including sockets of R canine, PM1, PM2 and mesial root of M1), R tibia, R ulna, R clavicle, odontoid process of axis, 7 distal hand phalanges (child - unfused epiphyses), 15 intermediate/proximal hand phalanges (10 child, 5 adult), atlas vertebra, tibia, 5 proximal foot phalanges (1 child, 4 adult), vertebral facet joints (large adult-sized), unfused distal epiphysis of a metacarpal, 1st(?) metatarsal, many fragments of unfused long-bone epiphyses, proximal unfused epiphysis of radius, long-bone shaft fragments (many of rather robust appearance with thick cortices), fibula (large adult-sized), centrum of thoracic vertebra (child), posterior arch of atlas, 1st metacarpal, R calcaneus (child), 1st metatarsal, L scapula (including base of spine and acromion -

child), R scapula (unfused epiphysis at medial border), ribs, tuberosity area of R radius (child), body of hyoid, fibula (child), anterior facet of L calcaneus, L hamate, hallucial sesamoid, lumbar vertebral facet joint, ischium (probably child), unfused basal epiphysis of 1st metatarsal.

Sex: Two individuals, 1 adult, probably male (robusticity of cranial and post-cranial bones), and 1 child of unknown sex.

Age: Young adult - probably about 20-40 (cranial sutures); the child is probably about 13-14 (dental development, consistent with state of epiphysial fusion).

Remarks: The adult shows a unilateral extra-sutural mastoid foramen on the L side. This is probably an inherited anomaly (Sjøvold 1984).

A small amount of "clinker" was found in this context (see discussion section).

Context: Cremation 6401, Samples 11071, 11076 and 11077, within Contexts 30031 and 30037. Cremation with burnt flint in pit dug into the berm between the middle and outer ring ditches of the barrow. Possibly disturbed by animal burrowing.

Material:

		Fragment size (mm)		
	Weight (g)	Mean	Maximum	Fragment count
Skull	1.4	10	12	8
Post-cranial & unidentified	24.9	8	34	193
Total	26.0			201

Colours: mainly neutral white, a few fragments light grey.

Identified elements include fragments of: skull vault and tooth roots.

Sex: Unknown.

Age: The general size of the bone fragments and the thinness of the skull vault is suggestive of a younger child - possibly aged about 2-6 years.

Context: Cremation 6402, Sample 11251 within Context 30306. Cremation in pit to the SE of Barrow 1.

Material:

	Weight (g)	Fragment size (mm) Mean	Maximum	Fragment count
Skull	5.2	8	21	22
Post-cranial & unidentified	18.8	7	23	151
Total	24.0			173

Estimated total weight of 2-4mm fraction= 5.6g, thus estimated total weight of bone= 29.6g.

Colours: mainly neutral white, some fragments and many endosteal surfaces grey or blue-grey.

Identified elements include fragments of: skull vault, a vertebral facet joint, distal hand (?thumb) phalanx- unfused epiphysis.

Sex: Unknown.

Age: The general size of the bone fragments and the thinness of the skull vault fragments suggests a younger child - probably about 2-10 years.

Context: Cremation 6403, Samples 11254, 11255 and 11256, within contexts 30308 and 30309. Cremation possibly with associated pottery, within pit cut into natural gravel to the SE of Barrow 1.

Material:

	Weight (g)	Fragment size (mm) Mean	Maximum	Fragment count
Skull	2.3	8	14	26
Post-cranial & unidentified	16.5	5	19	431
Total	18.8			457

Colours: mainly neutral white, a few fragments light grey.

Identified elements include fragments of: skull vault, distal hand phalanx.

Sex: Unknown.

Age: The general size of the bone fragments and thinness of the skull vault suggest a younger child - probably about 2-5 years of age.

BARROW 3

Context: Cremation 6411, Samples 33001 - 33007 within context 30665. Cremation in pit in ESE quadrant of Barrow 3.

Material:

	Weight (g)	Fragment size (mm) Mean	Maximum	Fragment count
Skull	83.7	17	34	90
Post-cranial & unidentified	1138.5	17	96	3000
Total	1222.2			3090

Estimated total weight of 2-4mm fractions=575.2, thus the total weight of bone received=1797.4g.

Colours: mainly neutral white, a few fragments white-grey and blue-white.

Identified elements include fragments of: skull vault, alveoli, L zygomatic, L mandibular condyle, maxilla fragment with sockets for some molar teeth and fragment with sockets for R incisors, R temporal bone, R petrous temporal, lateral margin of L superciliary arch, tooth root (possibly maxillary PM1), distal end of R humerus, R scapula (glenoid cavity), fragment of unfused epiphysial surface - probably proximal humerus, thoracic vertebral facet joints, lower thoracic/lumbar vertebrae, sacral face of R sacro-iliac joint, ribs, fibula, hook of L hamate, pelvis, distal end of femur, rim of acetabulum, inferior border of L scapula, distal joint surface of ulna, tibia, R distal hallucial phalanx, an intermediate and a distal foot phalanx (fused together), 2 distal hand phalanges, 5 proximal/intermediate hand phalanges, proximal ends of L and R ulnae, ulna shaft, greater trochanter of L femur, distal joint surface of femur, R ilium (pre-auricular area), proximal joint surface of radius, radial shaft, distal joint surface of R humerus (duplicates R humerus fragment, above), L pisiform, proximal foot phalanx.

Sex: Probably female (morphology of pre-auricular area of pelvis). The duplication of the distal R humerus indicates a minimum of 2 individuals (but see discussion section); the other is unsexable.

Age: About 16-25 (epiphysial fusion, consistent with state of fusion of skull sutures). The second individual is an adult or at least an older juvenile - over 14 years of age.

Remarks: The distal and intermediate phalanges of a toe are fused together. In modern Europeans this type of anomaly may be present in about 35-45% of individuals, generally in the 5th toe (Venning 1960, cited in Renton & Stripp 1982).

Context: Cremation 6412, Sample 33024 within Context 30848. Cremation in pit near centre of barrow. Damaged by animal burrowing.

Material:

		Fragment size (mm)		
	Weight (g)	Mean	Maximum	Fragment count
Skull	10.9	18	33	15
Post-cranial & unidentified	101.4	9	35	405
Total	112.3			420

Estimated total weight of 2-4mm fraction=43.6g, thus estimated total weight of bone=155.9g.

Colours: White, a few endosteal surfaces grey.

Identified elements include fragments of: skull vault, roots of permanent teeth, tibia, facet joint of a thoracic vertebra, L scapula (coracoid), 2 proximal/intermediate hand phalanges.

Sex: Unknown.

Age: Adult.

BARROW 4

Context: Cremation 6460, Sample 33467 within Context 60312. Cremation under western quadrant of barrow.

Material:

		Fragment size (mm)		
	Weight (g)	Mean	Maximum	Fragment count
Skull	1.6	11	19	7
Post-cranial & unidentified	97.8	9	35	400
Total	99.4			407

Estimated total weight of 2-4mm fraction=53.2g, thus estimated total weight of bone=152.6g.

Colours: Mainly neutral white; some fragments and many endosteal surfaces grey.

Identified elements include fragments of: skull vault, tooth root, tibia, navicular, unfused proximal radius epiphysis.

Sex: Unknown.

Age: About 12-16 (epiphysial fusion, bone size).

BARROW 5

Context: Cremation 6451, Samples 33301 and 33298 within context 47111. Secondary (Bronze Age) insertion into SE quadrant of barrow. Plough damaged. A quantity of pottery was found with the burnt bone.

Material:

		Fragment size (mm)		
	Weight (g)	Mean	Maximum	Fragment count
Skull	45.1	20	43	36
Post-cranial & unidentified	167.7	14	45	1100
Total	212.8			1136

Estimated total weight of 2-4mm fraction=22.0g; thus estimated total weight of bone is 234.8g.

Colours: Neutral white, grey white and grey.

Identifiable elements include fragments of: roots and dentine parts of the crowns of maxillary PM2s, PM1s, a maxillary molar and other, unidentified, teeth; mandible (internal surface with genial tubercle), maxillary alveolus, occipital, L temporal bone (area just above mastoid process) skull vault, L and R trapezia, L triquetral, L hamate, distal end of a metacarpal, 2 distal hand phalanges, 3 proximal foot phalanges, proximal hallucial phalanx, distal joint surface of R humerus, anterior facet of L calcaneus, L and R fibulae, 3 cervical vertebrae, thoracic and lumbar vertebral facet joints, inferior parts of L pubic symphysis (older-looking - surface rather bumpy but no trace of ridge and furrow system; sharp edge to dorsal border), patella, pelvis, rib; also midshaft part of a femur of an infant.

Sex: Unsexable adult, but bones fairly robust. The presence of the infant femur indicates a second individual (but see discussion section).

Age: Adult probably middle aged - i.e. about 30-50 (pubic symphysis and cranial suture closure). The infant bone probably comes from a neonatal or slightly older individual.

Context: Cremation 6452, Samples 33299, 33300 and 33304, within Context 47144. Badly damaged cremation, secondary (Bronze Age) insertion into the NW quadrant of the barrow.

Material:

		Fragment size (mm)		
	Weight (g)	Mean	Maximum	Fragment count
Skull	20.2	16	31	28
Post-cranial & unidentified	227.0	11	56	1300
Total	247.2			1328

Estimated total weight of 2-4mm fractions=248.4g; thus total weight of bone received=495.6g.

Colours: Mainly white, a few grey fragments; some endosteal surfaces dark grey or black.

Identifiable elements include fragments of: skull vault, dentine parts of maxillary L M3 (no wear detectable on dentine of crown), maxillary alveolus with sockets for the L M3 and M2, L? mandibular ramus, mandibular alveolar fragment, palate, mandibular molar, tibia, humeral head, femur (with linea aspera), L radius (with area for attachment of pronator teres), ?scapula, 3 proximal/intermediate hand phalanges, 2 cervical vertebrae.

Sex: Unknown, but of fairly light build.

Age: Middle aged adult - probably about 30-50 (cranial suture closure).

Remarks: Fragment of burnt animal bone also present.

Context: Cremation 6453, Samples 33305, 33308 and 33309 within context 47085. Cremation in cut between the 2 ditches around the barrow.

Material:

		Fragment size (mm)		
	Weight (g)	Mean	Maximum	Fragment count
Skull	102.1	19	38	140
Post-cranial & unidentified	708.5	13	51	3000
Total	810.6			3140

Estimated combined weight of 2-4mm fractions is 234.0g. Thus estimated total weight of bone=1044.6g.

Colours: Mainly neutral white, a few fragments grey-white or grey-blue.

Identified elements include fragments of: 2R mandibular condyles, tip of zygomatic process of R temporal bone, robust-looking lateral part of R superciliary arch, L petrous temporal bone, tooth root fragments, atlas vertebra, lumbar vertebral body, navicular, tibia, metacarpal, fibula, thoracic vertebral facet joint, 2 proximal/intermediate hand phalanges, calcaneus.

Sex: The replication of the R mandibular condyles indicates a minimum of 2 individuals (but see discussion section, below); both are unsexable.

Age: Both adult.

Estimated total weight of 2-4mm fractions=248.4g; thus total weight of bone received=495.6g.

Colours: Mainly white, a few grey fragments; some endosteal surfaces dark grey or black.

Identifiable elements include fragments of: skull vault, dentine parts of maxillary L M3 (no wear detectable on dentine of crown), maxillary alveolus with sockets for the L M3 and M2, L? mandibular ramus, mandibular alveolar fragment, palate, mandibular molar, tibia, humeral head, femur (with linea aspera), L radius (with area for attachment of pronator teres), ?scapula, 3 proximal/intermediate hand phalanges, 2 cervical vertebrae.

Sex: Unknown, but of fairly light build.

Age: Middle aged adult - probably about 30-50 (cranial suture closure).

Remarks: Fragment of burnt animal bone also present.

Context: Cremation 6453, Samples 33305, 33308 and 33309 within context 47085. Cremation in cut between the 2 ditches around the barrow.

Material:

		Fragment size (mm)		
	Weight (g)	Mean	Maximum	Fragment count
Skull	102.1	19	38	140
Post-cranial & unidentified	708.5	13	51	3000
Total	810.6			3140

Estimated combined weight of 2-4mm fractions is 234.0g. Thus estimated total weight of bone=1044.6g.

Colours: Mainly neutral white, a few fragments grey-white or grey-blue.

Identified elements include fragments of: 2R mandibular condyles, tip of zygomatic process of R temporal bone, robust-looking lateral part of R superciliary arch, L petrous temporal bone, tooth root fragments, atlas vertebra, lumbar vertebral body, navicular, tibia, metacarpal, fibula, thoracic vertebral facet joint, 2 proximal/intermediate hand phalanges, calcaneus.

Sex: The replication of the R mandibular condyles indicates a minimum of 2 individuals (but see discussion section, below); both are unsexable.

Age: Both adult.

Context: Cremation 6461 Samples 33089 and 33090 within context 47172. Located in centre of barrow, disturbed by ploughing and by machining of site.

Recovery: Sieved - Sample 33089 with 5mm mesh, Sample 33090 with 4, 2 and 1mm meshes.

Material:

		Fragment size (mm)		
	Weight (g)	Mean	Maximum	Fragment count
Skull	263.0	25	47	223
Post-cranial & unidentified	2583.5	17	75	10200
Total	2846.5			10423

Estimated total weight of 2-4mm fraction=1112.8g, thus total weight of bone received=3959.3g.

Colour: Mainly white, occasional grey or bluish-grey fragments.

Identified elements include fragments of: 2 R superciliary arches, L superciliary arch, occipital bone with large nuchal crest, skull vault (some sutures un-united or in the early stages of fusion, some are fused with lines beginning to be obliterated), 2 R zygomatics, L petrous temporal, R styloid of temporal bone, L temporal bone including root of zygomatic process, 3 L mandibular condyles, L coronoid process, mandibular alveolar fragment, tooth roots, L & R maxillae (a pair) with sockets for L I1-PM2 and R I1-PM1, occipital fragment including rim of foramen magnum, R petrous temporal bone, tooth roots (including maxillary molar and maxillary canine), glabella area, mandible fragment with sockets for some permanent teeth, L mastoid process (small), nasal processes of L and R maxillae (a pair), 2 L zygomatics, L temporal bone (area just above mastoid process), mandible (area with socket for L M3, R mandibular condyle, frontal bone, styloid process of L temporal bone, tibia, 2 cervical vertebral bodies, pelvis, fibula, thoracic vertebral facet joints, thoracic vertebral centrum, atlas vertebra (articular facet for odontoid), ribs, distal articular surface of tibia, R ulna, lumbar vertebral body, femur, wing of scapula, R lunate, metacarpal, hallucial sesamoid, sacral vertebral body, R intermediate cuneiform, 8 proximal/intermediate hand phalanges, 5 distal hand phalanges, L tibia, L patella, neural arches of 3 thoracic vertebrae, proximal and distal thumb phalanges (which articulate with one another), proximal and distal hallucial phalanges, trochlear surface of R talus, R scapula (base of spine), odontoid (large) process of axis, iliac crest, proximal joint surface of radius, distal joint surface of R 1st metatarsal, proximal hand phalanx, proximal foot phalanx.

Sex: A minimum of 3 individuals. 1 possibly male, 1 possibly female (both based on size and robusticity of bones) and 1 unknown.

Age: Most of the remains seem to be from fairly young adults - i.e. probably under about 40 years - (cranial suture closure, lack of any osteoarthritis or ossification at the enstheses).

Remarks: There are abscess cavities at the sockets of the L PM2 and the R PM1 in the pair of maxillae from cremation 6461. A left patella shows a vastus notch, a minor variant of uncertain significance.

2. The Inhumed bone

Context: Skeleton 6454 within context 37684. Fragments of human bone found in a pit located in trial trench to N of villa.

Material: Fragments of skull vault, and a maxillary canine and 2 other anterior permanent teeth.

Sex: Unknown.

Age: Adult.

Remarks: Animal bone (probably a canid ulna - identification by S. Payne) also recovered from this context.

3. Discussion

Eleven contexts yielded cremated human bone: 6 seemed to contain the remains of only one individual, 4 contained the remains of a minimum of two and 1 the remains of a minimum of three individuals. Of the contexts containing the remains of more than one individual, 3 (Cremation 6411, Barrow 3 and Cremations 6451 and 6453, Barrow 5) showed replication of only 1 skeletal element: in 6411 there was a fairly complete distal joint surface of a R humerus and also a small fragment which clearly came from the distal joint surface of another R humerus. In 6451 there were 2 R mandibular condyles and in 6453 there was a midshaft part of an infant femur among the adult remains. The impression gained in all 3 cases was that the remains were predominantly of a single individual. The question thus arises as to whether these contexts should be considered as "true" double cremation burials or whether the duplicated fragment should be regarded as a "stray" element in a single cremation burial. A major hindrance in answering this question is the substantial quantity of bone in a cremation burial which remains unidentifiable: clearly one might make the argument that had more fragments been identifiable more remains of a second individual would have emerged. Against this, however, was the fact that in addition to the material which could be identified to skeletal element there was a substantial portion which could be identified to the level of "long-bone", "flat-bone" etc. In the 2 cases where only adult bones were present (6411 and 6453) there were no differences in the robusticity of the remains, stage of closure of the skull sutures etc which might have suggested the presence of 2 individuals even in the absence of further duplication of

skeletal elements. In 6451 there was no evidence for further infant remains (such as deciduous tooth fragments, unfused epiphysial surfaces or thin skull fragments).

Cremation 6451 had been disturbed by Mediaeval ploughing - thus the infant femur may well be a stray bone.

If the same pyre (or pyre area) was used for several separate cremations, then when the remains of a cremated individual were collected together for burial bone fragment(s) from a previous cremation may have been inadvertently (or even intentionally) included with them. At some sites where artifacts were burnt with the body adjoining fragments of the same artifact were found in different burials, suggesting that this type of scenario may have occurred. Unfortunately no such adjoining fragments were found in the Irthlingborough cremations. However this is an explanation which would be consistent with the findings in Cremations 6411 and 6453.

The remains of 6400 and 6461 indicated that they were multiple cremations (double and triple) in the proper sense. From inurned cremation 6461, Sample 33089 was from inside the urn and Sample 33090 was from the soil surrounding it; there was no evidence for segregation of the remains of different individuals inside and outside the urn (although it must be remembered that the burial was somewhat disturbed).

Cremation of an adult corpse yields about 2kg of bone (studies cited in Wahl 1982). Using this as a guide it is clear that all the cremations from Irthlingborough are substantially incomplete, the lowest weight for a single adult cremation at the site was 155.9g (cremation 6412), with burial 6400 (2495.1g for an adult and a 13-14 year-old child) or perhaps 6411 (1797.4g, discussed above) being the most complete. In several cases disturbance of the cremation, by animal burrowing (6400, 6412 and possibly 6401) or by plough/machining damage (6451, 6452 and 6461), contributed to loss of material. It is probable that much other loss of bone occurred in funeral ritual during the transfer of remains from the pyre to their burial place. Inevitable losses during recovery, and destruction of bone during its long sojourn in the soil, should also not be forgotten.

In all cremations at Irthlingborough the fragments were predominantly neutral white in colour, with some greys and blues. Shipman et al. (1984) demonstrate that colour can be used as a very approximate guide to firing temperature. The appearance of the Irthlingborough fragments suggests temperatures in excess of 645C and probably in excess of 940C.

In many cases endosteal surfaces were less well fired than periosteal surfaces. Since the heat of the pyre causes the bones to shatter, exposing their endosteal surfaces, lesser firing of these surfaces suggests that either the heat of the pyre was already past its peak when this occurred or, perhaps more likely, that when the bones shattered the fragments fell down towards lower, cooler parts of the pyre.

Cremation 6400 contained a small quantity of "clinker", a pale yellow/greenish coloured material. It has an irregular, glistening surface which show many small cavities and vesicles. It has unfused soil particles adhering to its surface. The material weighs 0.57g (including adhering soil) and measures 20x13x11mm. This seems to be the same material as the "clinker"

first described in archaeological cremations by Wells (1960). He suggested that it was derived from burnt hair, but later work (Henderson et al. 1987) showed that this explanation was unlikely; this study showed that it is probably a result of fusion of soil with material from the pyre. The intimate association between the soil and the clinker in the present case might be viewed as consistent with this suggestion.

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