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EXCAVATIONS AT GRANDTULLY, PERTHSHIRE

D D A SIMPSON AND J M COLES

Appendix A: The Grandtully cremations

C B Denston

## \*\*APPENDIX A

### The Grandtully Cremations

The examination of the material follows the technique used on previous occasions by the writer (1962, 1965) and is based on procedures in cremation reports by Lisowski (1956, 1959, 1962) and by Gejvall (1947, 1948). The primary aim in a study of this type is to try to determine the age, sex and number of individuals cremated.

#### Cremated remains

The remains were forwarded to the laboratory within a certain amount of earth attached to them, the earth being of a darkish brown colour, which washed away quite easily. A slight amount of small pieces of charcoal was observed with three of the cremations.

#### Preparation of material

In each case the cremated material was first washed in a sieve of 2 mm mesh, so as to get rid of the soil, and to float off any other light material. Next the material was allowed to dry, then fragments of the various bones and teeth were sorted into groups. The remaining material was then sieved again to get rid of the dust, and picked free of small stones and any foreign material. This residue of small bone fragments was classified after further inspection as unidentifiable. The various groups of identifiable material were then examined in detail in order to establish as far as possible the number of individuals cremated, their sex and age. A few fragments of individual bones could be glued together, though actual reconstructions of complete bones were impossible.

#### Estimation of number, sex and age

The number of individuals identified from material of a cremation is usually established by the presence of, or lack of, certain definite duplicated skeletal parts, or a great dissimilarity in the thickness of certain bones, or the fact that epiphyseal union had taken place where some bones were concerned, while in other similar bones epiphyseal union had not taken place at all. Assessment of the sex of an individual from cremated remains is a very precarious procedure unless there are preserved definite diagnostic portions of bone from which the sex can be ascertained. The possible sex can be diagnosed from the robustness of certain bones, but the conclusion is only a tentative one. A possible age at death can be suggested by an examination of the state of endocranial and ectocranial suture closure, by noting if epiphyseal union was completed or had not started, by an examination of the vertebrae, state of pubic symphysis, and by the eruption and attrition of the teeth. None of these features however may have survived the combustion.

#### Pit 1

General description of the material. Total weight of bone and teeth fragments 2238 gms. The fragments were irregular in shape and range in overall length from 3 mm to 96 mm. Their colour was predominantly light-brown, some of the larger fragments were twisted and otherwise distorted, some displaying elliptical cracks. In the case of the skull fragments, some pieces had the outer table split away from the inner one.

Estimation of number, sex and age. The cremated remains were great in number and many duplicate parts of bones were noted, among these being proximal and distal extremities of femora and tibiae, parts of innominate bones, and parts of the skull. The numbers of individuals

represented by the remains was possibly three. The greater part of the cremated remains possibly represent two of these individuals. This conclusion was reached by noting the robustness and amount of recognisable large fragments. The third individual was represented by the distal extremity of a femur which was much smaller than the identical portions of similar bones of the other two individuals, and it is highly probable that at least twelve fragments of vertebrae belonged also to the third individual. Considering the proportions of the extremity of the femur, which is intact, and taking into consideration the fact that vestiges of the neuro-central synchondrosis of the vertebral portions still persisted, tend to make the third individual to have been in the region of 3 to 5 years of age at death. This age was also supported by the fact that there were two small epiphyses of ulnae, and one small epiphysis of a radius, which would suggest an age in the region of the fifth year. The age at death of the other two individuals was greater, and comparing the duplicate portions of bone representing these two individuals, one was possibly a few years younger than the other. From the evidence of certain features displayed on some portions of bones, neither individual was over 13 years of age at death, and further investigation of the remains of teeth suggest the possible age at death of the oldest individual was 11 to 12 years. It was not possible to determine the sex of any of the 3 individuals owing to their young ages.

#### Details of the Material

##### Skull

Twelve fragments of sphenoid bone, ranging in length from 24 mm to 48 mm.

Six fragments of occipital bone displaying internal grooves and crests, the length being between 25 mm and 54 mm.

Seven fragments of temporal bone, 4 of which are petrous portions, the length was from 25 mm to 46 mm.

Six fragments from the superior margin of the orbit, 2 of which were identical portions of a right orbit. The smallest portion was 19 mm in length and the largest 30 mm.

Twelve fragments of maxilla from at least 2 individuals ranging in length from 20 mm to 42 mm.

Fifteen fragments of mandible ranging in length from 15 mm to 59 mm.

One basilar portion of an occipital bone.

One fragmentary dorsum sellae, one occipital condyle, and one posterior portion of a vomer.

Also present were numerous cranial fragments which displayed various parts of sutures, the smallest of these being 11 mm in length and the largest 58 mm. In addition there were numerous miscellaneous fragments of crania ranging in length between 6 mm. and 58 mm.

Odontological remains. The teeth observed among the remains were of both the permanent dentition and the deciduous dentition. No complete teeth were found, and all the crowns of teeth lacked the enamel occlusal surface. The teeth were adjudged to be the following: Permanent teeth - 5 crowns of molars of varying size, 2 crowns of premolars, twin roots of upper molars, 5 roots of upper premolars, 6 possible roots of canines, and one root of a lower canine. 20 roots could not be identified with certainty, and could belong to any teeth. Deciduous teeth - two twin roots of upper molars, one root of a lower molar, one root of an upper or lower molar, one crown of an incisor, 11 miscellaneous fragments.

Femur. Thirty-two possible fragments ranging in length from 26 mm to 81 mm. Among this category of remains the heads and necks, minus epiphyses of 3 femora were found, along with the fragmentary head, minus epiphysis, of a fourth femur. Eleven fragments were adjudged to be of the

distal extremity, one being of a rather young individual. Two possible right greater trochanters, 4 proximal epiphyses (head), 8 possible fragments of shaft, 2 fragments displaying the linea aspera.

Tibia. Fifteen possible fragments of tibia were observed ranging in length from 26 mm to 96 mm. Eight were from the proximal extremity, 6 pieces of which are epiphyses. Three pieces were from the distal extremity, one being an epiphysis. Four portions were of the shaft.

Humerus. Fifteen humeral fragments were found, the smallest being 17 mm in length and the largest 72 mm. Four of the portions were of the proximal extremity, 2 being of the head and 2 were epiphyses. Seven fragments came from the distal extremity, 3 of these being epiphyses. Four fragments were of the shaft.

Radius. In this category there were adjudged to be 13 fragments ranging in length from 9 mm to 43 mm. Nine fragments were of the proximal extremity, 4 of which were epiphyses. Four fragments were of the distal extremity, 2 of which were epiphyses.

Ulna. Only 2 fragments were recognised as being of ulna, the smallest being 17 mm in length and the largest 42 mm. One fragment was of the proximal extremity, the other was a distal epiphysis.

Miscellaneous long bone. Numerous fragments came under this category ranging in length from 12 mm to 92 mm. These fragments were from the shafts of most of the long bones, but could not be identified as belonging to individual bones.

Ribs. One hundred and thirty one assorted fragments of ribs ranging in length from 11 mm to 61 mm. Four of these fragments displayed the sternal facet, and 4 other fragments displayed the vertebral facet.

Innominate bone. Twenty possible fragments were found, pieces coming from various areas, the smallest measuring 19 mm. in length and the largest 61 mm. Three pieces were from the pubic acetabulum area and 5 pieces of the pubic symphysis displaying typical ridge and furrow formation associated with young individuals. Five pieces were of the ilium, 3 fragments of which displayed parts of the auricular surface. Another 4 portions were ischial tuberosities, and the acetabulum area was represented by 4 fragments. Five other pieces were of the iliac crest, and 2 fragments were of the epiphysis of the iliac crest.

Sacrum. Five fragments were noted.

Scapula. In this category there were 7 fragments, the smallest being 22 mm in length and the largest 59 mm. Three of the fragments were from the glenoid fossa, one fragment from the spine, and another was a coracoid process, unfused.

Patella. One complete patella was present, and fragments of 3 others.

Clavicle. Two fragments were found, the smallest being 23 mm in length and the largest 48 mm.

Vertebra. Fifty-seven fragments of the body of vertebrae were sorted from the remains, 6 were of cervical vertebrae, 2 of which fitted together and

made a nearly complete vertebra. Four fragments of lumbar were present, 3 of which were complete bodies minus posterior and lateral spines. Nine fragments were of thoracic vertebrae, these all had facets for articulation with the ribs. Thirty-eight fragments were of either lumbar or thoracic vertebrae. Fifty-four articular facets of vertebrae were found, these could have been either superior or inferior facets. Thirteen fragments of the posterior spine of vertebrae were also present.

Axis. Two fragments of axis were observed, one displaying the superior and inferior articular facets and the odontoid process, the other the odontoid process and one superior articular facet.

Atlas. Two fragments, both displaying the left inferior articular facet.

Talus. Five fragments, the smallest being 30 mm in length and the largest 38 mm.

Calcaneum. Two fragments, one 30 mm in length and the other 36 mm.

Cuneiform bones. One second right cuneiform.

Cuboid bones. One right cuboid

Scaphoid bones. Three fragments, 2 of which displayed the proximal articular surface for the radius, and the other is a tubercle.

Lunate bones. One right lunate bone.

Epiphyseal plates. Sixteen of such, and these possibly were epiphyses of phalanges.

Phalanges. Sixty-two either complete or represented by fragments. These were roughly sorted as 24 possible proximal phalanges, 5 of which were complete, 14 proximal extremities with portions of shaft as well, and 5 distal extremities. Twenty-seven were adjudged to be possible intermediate phalanges, 15 of which were complete, 8 were distal extremities with portions of shaft, and 2 proximal extremities. Eleven possible distal phalanges were also present, all of which were complete. The majority of the phalanges were of the hand.

Metatarsal and Metacarpal bones. One distal extremity of a left first metatarsal and one fragment of a distal extremity of a first metatarsal. Twenty-three proximal extremities of metatarsal or metacarpal bones, some of which were epiphyses, and 12 proximal extremities with portions of shaft. Six shafts of metatarsal or metacarpal bones.

Miscellaneous cancellous bones. This category of remains is all of cancellous bone and could have come from any part of the skeleton where this sort of bone occurs, and the pieces ranged from 8 mm in length to 42 mm.

Miscellaneous bones. These pieces could represent parts, except cancellous bone, of any of the bones that make up the skeleton. These pieces measured from 3 mm in length to 43 mm.

PIT

Table I

The weight and distribution of the total identified and unidentified cremated human remains.

<u>Skeletal Material</u>	<u>gm.</u>	<u>% Total</u>
Identified total	1412.1	63.2
Unidentified total	<u>821.7</u>	<u>36.8</u>
TOTAL	<u>2233.8</u>	<u>100.0</u>

Table II

The weight and percentages of the miscellaneous cancellous and other miscellaneous bone.

<u>Skeletal Material</u>	<u>gm.</u>	<u>%</u>	<u>% Total</u>
Miscellaneous cancellous	163.7	20.0	7.3
Other miscellaneous bone	<u>658.0</u>	<u>80.0</u>	<u>29.5</u>
TOTAL	<u>821.7</u>	<u>100.0</u>	<u>36.8</u>

Table III

The weight and percentage distribution of the identified remains.

<u>Skeletal Material</u>	<u>gm.</u>	<u>% Identified</u>	<u>% Total</u>
Skull	356.5	25.2	16.0
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Humerus	47.5	3.4	2.1
Radius	10.6	0.8	0.5
Ulna	3.2	0.2	0.1
Hand	<u>2.1</u>	<u>0.1</u>	<u>0.1</u>
UPPER LIMB TOTAL	63.4	4.5	2.8
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Femur and Patella	188.3	13.3	8.4
Tibia	68.5	4.9	3.1
Foot	<u>23.2</u>	<u>1.7</u>	<u>1.0</u>
LOWER LIMB TOTAL	280.1	19.9	12.5
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Ribs	73.0	5.5	3.5
Vertebra	85.3	6.0	3.8
Pelvis	98.8	7.0	4.4
Scapula	20.3	1.4	0.9
Clavicle	2.6	0.2	0.1
Metatarsals & Metacarpals	16.1	1.1	0.7
Phalanges	<u>15.5</u>	<u>1.1</u>	<u>0.7</u>
TOTAL	316.6	22.3	14.1
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MISCELLANEOUS LONG BONE	395.5	28.0	17.7
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IDENTIFIED TOTAL	1412	100.0	63.2
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## Pit 16

### General Description of the Material

Total weight of the bone and tooth fragments 2052 gm. The fragments of bone were irregular and varied in overall length from 2 mm to 119 mm. Some of the fragments were twisted and distorted and many of the larger long bone fragments displayed elliptical cracks, and in some cases the skull fragments had the outer table split from the inner one. The colour of the fragments was predominantly light brown.

### Estimation of number, sex and age

As no duplicated portions of bones were noted, it could be assumed that the remains were of one individual. Enough evidence could be gathered from an examination of the fragments to suggest the individual was a male. The fragments of the cranium were thick, and 2 pieces of frontal bone displayed prominent superior margins of the orbits. A mastoid process was also preserved among the remains, and along with portions of maxilla, mandible, and a zygomatic bone, these all seemed to be of too large proportions to have belonged to a female skull. Some of the long bone fragments were also quite robust, and the largest fragment which was from a femur was of quite large proportions, so from the features of the long bone fragments, and those of the skull, the sex of the individual pointed overwhelmingly to male. Enough evidence could also be gleaned from the remains to suggest the individual was of an adult age at the time of death. Epiphyses at extremities of fragments of an ulna and a radius, phalanges, and of the iliac crest of an innominate bone had all united to the main portions of bone. Enough tooth sockets were also present in the remains of maxilla and mandible to suggest that all the permanent teeth had fully

erupted, and the condition of the serrated sutural edges of some of the cranial fragments suggested the individual was a young adult.

#### Details of the Material

Skull : Numerous fragments ranging in length from 16 mm to 93 mm. Four fragments were of the frontal bone, 2 of which were from the superior margins of the orbits, another fragment displaying part of the coronal suture, and another displaying the internal crest. Seven fragments were of parietal bone displaying parts of sutures. The temporal bone was represented by 11 fragments these being, 2 petrous portions, 2 mastoid processes, 4 fragments from the glenoid fossa area, 2 squamous fragments, and a portion of the zygoma. There were 4 fragments of zygomatic bone, one being a nearly complete left bone, and 7 possible fragments were of parietal bone displaying parts of sutures. The temporal bone was represented by 11 fragments these being, 2 petrous portions, 2 mastoid processes, 4 fragments from the glenoid fossa area, 2 squamous fragments, and a portion of the zygoma. There were four fragments of zygomatic bone, one being a nearly complete left bone, and 7 possible fragments of sphenoid bone from various areas. Cranial fragments with serrated sutural edges totaled 45, and these could have come from areas of the coronal, sagittal, and lambdoid sutures. There were also 68 cranial fragments without sutures and could have come from any area of the vault. Other fragments of the skull were a complete nasal bone, and a fragmentary vomer. The maxilla was represented by 8 fragments, 4 being of the central portion displaying tooth sockets, a left frontal process, and 3 pieces from the area of the zygomatic process. Seven fragments of mandible were also preserved, these being a fragment of the right ramus with the coronoid process, the condyle, and a portion of the body displaying tooth sockets. A fragmentary left ramus included the coronoid process. The frontal portion of the body included the mental protuberance.

Other portions of mandible were a left alveolar border, and a portion each from the right and left angles of the ramus and body.

Odontological remains : Twenty-six fragments, mainly roots. Three were recognizable as mandibular molar roots.

Vertebrae : Sixteen fragments of the body portions of either lumbar or thoracic vertebrae. One fragment of an axis. Twenty-seven superior or inferior articular facets, and 9 other fragments which could not be recognized as belonging to specific vertebrae.

Femur : Thirteen possible fragments ranging in length from 32 mm to 119 mm. Five of the fragments were of various parts of the shaft, 7 others from the distal extremity mainly being the articular surfaces of the condyles, and one fragment was of a head of a femur.

Tibia : Ten possible fragments ranging in length from 34 mm to 74 mm. Nine of the fragments were from the shaft, one piece being from the anterior border and another was a fragmentary distal extremity.

Humerus : Eleven possible fragments. Eight of the fragments were of the shaft, one being from the distal third of the shaft, two fragments of the head, and another fragment from the distal extremity displaying the capitellum and trochlea. The smallest of these fragments measured 43 mm in length and the largest 81 mm.

Radius, Ulna, Fibula : Twenty-six possible fragments ranging in length from 31 mm to 76 mm. Four fragments were definitely of radius these being one distal extremity and three proximal extremities, and two possible fragments

of shaft of radii. Another fragment was definitely of an ulna it being the distal third and extremity, and two other fragments were possibly of the shaft of ulnae. Two other fragments possibly came from the shaft of a fibula, and the rest of the fragments were all of the shaft but could not be identified as coming from any specific bone of this group.

Scapula : Only one fragment measuring 48 mm in length.

Talus : One fragment.

Innominate bone and Sacrum : Four possible fragments of innominate bone, one piece possibly of the ilium, another of the acetabulum, and another piece from the iliac crest, and a fragment displaying the auricular surface. One fragment of a sacrum was identifiable and came from the distal extremity which would have articulated with the coccyx.

Clavicle : One fragment measuring 46 mm in length.

Ribs : Twenty-five possible fragments ranging in length from 16 mm to 56 mm. Two of the fragments displayed articular tubercles.

Hamate : Two fragments of this bone were present, one portion being what is known as the hook.

Pisiform : Two of these bones from the hand.

Metatarsal and Metacarpal bones : Twenty-nine possible fragments. Three fragments were of the first metatarsals, or big toe, one fragment of a first metacarpal, and the rest were fragmentary shafts or extremities.

Phalanges : Six complete distal phalanges of the hand. Three complete and five fragmentary intermediate phalanges of the hand. Five distal phalanges, and five intermediate phalanges of the foot in various stages of completion. Thirty other fragments of shafts and extremities which could have been either of the foot or hand.

Miscellaneous Long Bone : Numerous fragments ranging in overall length from 6 mm to 75 mm and could have come from any long bones.

Miscellaneous Cancellous Bone : Numerous fragments measuring from 2 mm to 31 mm and could have come from any part of the skeleton where cancellous bone occurred.

Miscellaneous Fragments : Numerous fragments and these could represent parts of any of the bones that make up the skeleton, apart from cancellous bone, and could not be identified as coming from any specific bones. The fragments measured from 2 mm to 51 mm.

PJT 16

Table I

The weight and distribution of the total identified and unidentified cremated human remains.

<u>Skeletal Material</u>	<u>gm.</u>	<u>% Total</u>
Identified total	1379.9	67.2
Unidentified total	<u>672.1</u>	<u>32.8</u>
TOTAL	<u>2052.0</u>	<u>100.0</u>

Table II

The weight and percentages of the miscellaneous cancellous, and other miscellaneous bone.

<u>Skeletal Material</u>	<u>gm.</u>	<u>%</u>	<u>% Total</u>
Miscellaneous cancellous	153.1	22.8	7.5
Other Miscellaneous bone	<u>519.0</u>	<u>77.2</u>	<u>25.3</u>
TOTAL	<u>672.1</u>	<u>100.0</u>	<u>32.8</u>

Table III

The weight and percentage distribution of the identified remains.

<u>Skeletal Remains</u>	<u>gm.</u>	<u>% Identified</u>	<u>% Total</u>
Skull	379.7	27.50	18.50
Odontological remains	9.6	0.70	0.50
Vertebrae	49.5	3.60	2.40
Femur	90.7	6.60	4.40
Tibia	72.0	5.20	3.50
Humerus	84.1	6.10	4.10
Radius, Ulna, Fibula	101.3	7.30	4.90
Innominate, Sacrum	12.3	0.90	0.60
Talus	1.6	0.10	0.08
Scapula	2.6	0.20	0.10
Clavicle	4.0	0.30	0.20
Ribs	1.8	0.10	0.09
Hamate	0.7	0.06	0.03
Pisiform	0.3	0.04	0.01
Metacarpal, Metatarsals	21.7	1.60	1.10
Phalanges	20.8	1.50	1.00
Miscellaneous long bone	<u>527.2</u>	<u>38.20</u>	<u>25.70</u>
IDENTIFIED TOTAL	<u>1379.9</u>	<u>100.00</u>	<u>67.20</u>

### Pit 23

The amount of fragments was very small, the total weight being 25.4 gm. A few of the fragments could be recognised as coming from certain areas of the skeleton, but there was no direct evidence to suggest that they belonged with the remains of Cremation Pit 36 West. In favour of the fragments belonging with the other cremation was that they were of a similar robustness (or lack of robustness), and a cranial fragment displayed a part of a suture which had not started fusion, and could possibly have been of young adult person. A root of a fully erupted canine tooth was also present and a phalange of the hand lacking the proximal extremity. The phalange was of the same size as those from Cremation Pit 36 West, but lacking the proximal extremity robbed one of knowing if the epiphysis had fused to the shaft, which would have suggested the remains were of a possible adult individual.

### Details of the Material

Skull : Eight possible fragments of the cranium, one piece displaying part of a suture. All the fragments measured about 17 mm in length.

Odontological remains : One root, possibly of a canine.

Miscellaneous Long bone : Eleven possible fragments ranging in length from 12 mm to 36 mm.

Metatarsal, Metacarpal, Phalange : Five possible fragments, one being a phalange of the hand with proximal extremity missing.

PIT 23

Table I

The weight and distribution of the total identified and unidentified cremated human remains.

<u>Skeletal Material</u>	<u>gm.</u>	<u>% Total</u>
Identified total	10.7	42.1
Unidentified total	<u>14.7</u>	<u>57.9</u>
TOTAL	<u>25.4</u>	<u>100.0</u>

Table II

The weight and percentage distribution of the identified remains.

<u>Skeletal Remains</u>	<u>gm.</u>	<u>% Identified</u>	<u>% Total</u>
Skull	1.8	16.8	7.1
Odontological remains	0.2	1.9	0.8
Metacarpal, Metatarsal, Phalanges	1.5	14.0	5.9
Miscellaneous long bone	<u>7.2</u>	<u>67.3</u>	<u>28.3</u>
IDENTIFIED TOTAL	<u>10.7</u>	<u>100.0</u>	<u>42.1</u>

Pit 24 (Urn P.17)

General Description of the Material

Total weight of the bone and tooth fragments 378.4 gm. The fragments varied in overall length from 2 mm to 51 mm. Their colour was predominantly light brown, and small pieces of charcoal were among the remains. Some of the bone fragments were twisted and distorted, and some of the cranial fragments had the outer table split from the inner one.

Estimation of number, sex and age

No duplicate skeletal portions were noted so suggesting the remains were of one individual. The long bone fragments were small in development, and the cranial fragments rather thin, and those fragments with sutures suggested they were of an immature individual. Also confirming the remains were immature, was the fact that 2 petrous portions of temporal bones were small, and a portion of the neck of a femur displayed a ridge and furrow formation at the extremity which would have articulated with the head, this being a typical immature characteristic. A mental protuberance of a mandible was among the remains and 3 tooth sockets could be seen, and from the size of the sockets and 2 spaces which the permanent canines would have been seated in, suggested the age at death of the individual would have been in the region of 7 years. Comparing the larger fragments of bones with the bones of skeletons of individuals of known ages at death, and taking into consideration the shrinkage which would have taken place of the cremated material, the age at death of this individual could possibly have been in the region of 7 years. The sex was undeterminable.

Details of the Material

Skull : There were 78 fragments without sutures and could have come from any part of the vault of the cranium. Twenty fragments displayed parts of sutures and could have come from areas where either coronal, sagittal, or lambdoid sutures occurred. Apart from the fragments mentioned, others were a piece of the inner table of bone from the frontal bone displaying the internal crest, 2 petrous portions of temporal bones, the mental protuberance (chin) of a mandible, and a fragment of a zygomatic bone. The smallest of these fragments measured 11 mm in length and the largest 48 mm.

Odontological remains : Five fragments, 2 of these being roots.

Vertebrae : Nine superior or inferior articular facets.

Femur : One fragment of the neck measuring 37 mm in length.

Ribs : Possibly 4 fragments.

Metatarsal, Metacarpal, and Phalanges : Thirty-eight possible fragments of shafts and extremities.

Radius, Ulna, Fibula: Three possible fragments.

Miscellaneous Long Bone : Ninety-three possible fragments ranging in length from 11 mm to 51 mm.

Miscellaneous Cancellous Bone : Numerous fragments ranging in length from 5 mm to 35 mm.

Miscellaneous Bone : Numerous small fragments measuring from 2 mm to 22 mm.

PIT 24

Table I

The weight and distribution of the total identified and unidentified cremated human remains.

<u>Skeletal Material</u>	<u>gm.</u>	<u>% Total</u>
Identified total	135.3	35.8
Unidentified total	<u>243.1</u>	<u>64.2</u>
TOTAL	<u>378.4</u>	<u>100.0</u>

Table II

The weight and percentage of the miscellaneous cancellous, and other miscellaneous bone.

<u>Skeletal Material</u>	<u>gm.</u>	<u>%</u>	<u>% Total</u>
Miscellaneous cancellous	38.2	15.7	10.0
Other miscellaneous bone	<u>204.9</u>	<u>84.3</u>	<u>54.1</u>
TOTAL	<u>243.1</u>	<u>100.0</u>	<u>64.1</u>

Table III

The weight and percentage distribution of the identified remains.

<u>Skeletal Remains</u>	<u>gm.</u>	<u>%Identified</u>	<u>% Total</u>
Skull	54.9	40.6	14.5
Odontological remains	0.7	0.5	0.2
Vertebrae	1.5	1.1	0.4
Femur	1.9	1.4	0.5
Ribs	0.8	0.6	0.2
Metacarpal, Metatarsals, Phalanges	9.1	6.7	2.5
Radius,Ulna, Fibula	2.7	2.0	0.7
Miscellaneous long bone	<u>63.7</u>	<u>47.1</u>	<u>16.8</u>
IDENTIFIED TOTAL	<u>135.3</u>	<u>100.0</u>	<u>35.8</u>

### Pit 32

Twenty-three very small fragments measuring from about 1 mm to 9 mm. It was impossible to identify these small fragments as coming from any specific area of the skeleton. Total weight 0.5 gm.

### Pit 33

#### General Description of the material

Total weight of the bone and tooth fragments 1017.5 gm. The fragments of bone were irregular and varied in overall length from 2 mm to 168 mm. The longest piece of bone was part of the shaft of a femur and was made up of five separate fragments. The colour of the fragments was predominantly light brown, and when washed a few small pieces of charcoal floated away. Some of the fragments were twisted and distorted, and many of the larger fragments displayed elliptical cracks. In some instances skull fragments had the outer table split from the inner one.

#### Estimation of number, sex and age

No duplicated skeletal portions of bones were noted, suggesting the remains were of one individual. The fragments of long bones were not robust, and the largest fragment which was a femur shaft, displayed a linea aspera which was regular in appearance and smooth, and in no way robust, so suggesting a female individual. The bodies of some vertebrae which were intact were small, and also bone fragments from the vault of the cranium were thin, two mandibular condyles also were small, all these considerations giving weight to the individual being a female.

An approximate age at death could not be ascertained, but one or two of the bone fragments had the extremities intact, and in each case the epiphysis had fused to the shaft, suggesting the individual was an adult.

#### Details of the Material

Skull : The total amount of possible skull fragments was 177, these ranging in length from 10 mm to 58 mm. One fragment was from the supra-orbital torus area of the frontal bone, and another fragment was of the occipital bone displaying the internal protuberance. The sphenoid bone was represented by 7 possible fragments, and 7 other fragments were of temporal bone, one of the fragments being a petrous portion, another a fragment of the squamous portion, and another fragment had a styloid process intact. Four fragments of maxilla were preserved all displaying tooth sockets, and also 6 fragments of mandible. Two of the mandible fragments were condyles, right and left, another a right coronoid process, and 3 other fragments were portions of the mandibular body displaying tooth sockets. Of the cranium, 123 fragments could not be identified as coming from any specific areas, but a further 28 fragments had serrated sutural edges so came from areas of either coronal, sagittal, or lambdoid sutures.

Odontological remains : One root possibly of a canine.

Vertebrae : Three bodies of lumbar vertebrae were preserved, along with fragments of 7 thoracic, and the body portions of 4 cervical vertebrae. There were also 22 other fragments of the body portion of vertebrae, but could not be identified as coming from specific vertebrae. The odontoid process of an axis was present, and also 15 superior or inferior articular facets.

Femur : Six possible fragments ranging in length from 33 mm to 168 mm., all of the shaft. The longest piece was made up of 5 fragments which could be glued together and formed part of a shaft displaying the linea aspera. Another fragment came from the neck area, and a third fragment was a lesser trochanter.

Tibia : Four possible fragments ranging in length from 34 mm to 88 mm. Three of the fragments were of the shaft, and the other was from the distal articular extremity.

Fibula : One fragment of the shaft measuring 88 mm in length.

Humerus : One fragment from the distal extremity displaying the olecranon fossa.

Radius : One fragment from the distal extremity.

Ulna : One fragment from the distal extremity.

Innominate bone : Eight possible fragments ranging in length from 22 mm to 62 mm. One piece was of an acetabulum, and two other pieces were from the iliac crest.

Scapula : One possible fragment.

Hamate bone : One portion which is known as the hook.

Ribs : Six possible fragments.

Metacarpal and Metatarsal bones : Twenty-two possible fragments of shafts and extremities.

Phalanges : Fifteen possible fragments of shafts and extremities, 4 of which were of the hand.

Miscellaneous Long bone : Two hundred and forty possible fragments ranging in length from 10 mm to 70 mm.

Miscellaneous Cancellous bone : Numerous fragments. This category of remains consists of cancellous bone which could have come from any part of the skeleton where this sort of bone occurred. The smallest of these bone fragments measured 5 mm and the largest 42 mm.

Miscellaneous fragments : These fragments could represent parts of any of the bones that make up the skeleton, apart from cancellous bone, and could not be identified as coming from any specific bones. There were numerous fragments measuring from 2 mm to 54 mm.

PIT 33

Table I

The weight and distribution of the total identified and unidentified cremated human remains.

<u>Skeletal Material</u>	<u>gm.</u>	<u>% Total</u>
Identified total	644.3	63.3
Unidentified total	<u>373.2</u>	<u>36.7</u>
TOTAL	<u>1017.5</u>	<u>100.0</u>

Table II

The weight and percentage of the miscellaneous cancellous, and other miscellaneous bone.

<u>Skeletal Material</u>	<u>gm.</u>	<u>%</u>	<u>% Total</u>
Miscellaneous cancellous	140.0	37.5	13.8
Other miscellaneous bone	<u>233.2</u>	<u>62.5</u>	<u>22.9</u>
TOTAL	<u>373.2</u>	<u>100.0</u>	<u>36.7</u>

Table III

The weight and percentage distribution of the identified remains.

<u>Skeletal Remains</u>	<u>gms.</u>	<u>% Identified</u>	<u>% Total</u>
Skull and tooth	188.6	29.30	18.50
Vertebrae	56.5	8.80	5.60
Femur	65.8	10.20	6.60
Tibia	29.6	4.60	2.90
Fibula	8.1	1.30	0.80
Humerus	1.2	0.19	0.12
Radius	1.2	0.19	0.12
Ulna	1.2	0.19	0.12
Innominate bone	23.8	3.70	2.30
Scapula	1.3	0.20	0.13
Hamate	0.2	0.03	0.01
Ribs	2.5	0.40	0.20
Metacarpal & Metatarsals	10.6	1.60	1.00
Phalanges	6.0	0.90	0.60
Miscellaneous long bone	<u>247.7</u>	<u>38.40</u>	<u>24.30</u>
IDENTIFIED TOTAL	<u>644.3</u>	<u>100.00</u>	<u>63.30</u>

### Pit 36 West

#### General description of the material

Total weight of the bone fragments and teeth 833.6 gm. The fragments were irregular and varied in overall length from 2 mm to 80 mm. Some of the fragments were twisted and distorted, and others displayed elliptical cracks, and in some instances skull fragments had the outer table split from the inner one. The colour of the fragments was predominately light brown, and small pieces of charcoal floated away when the fragments were washed.

#### Estimation of number, sex and age

The evidence available suggested the remains were of one individual. No dissimilarity occurred in the general robustness of the long bone fragments, and all the cranial fragments were of a similar thickness. It could be seen by the lack of robustness of the fragments, and the size of some phalanges and a portion of a clavicle, that the individual would have been a small delicate person, these features being suggestive of a female. A close inspection of the fragments revealed that the epiphyses of certain bones had fused to the shafts during life, and in no cases where fragments of crania had serrated sutural edges did they show any signs of fusion. Two larger portions of parietal bone were preserved, the sagittal sutures of which were contiguous and articulated perfectly and displayed no signs of fusion. From the evidence of the cranial fragments and the fact that epiphyseal union was complete where certain bones were concerned, the individual was possibly a young adult at the time of death. An age of 20 years, plus or minus a few years, would seem feasible.

Details of the material

Skull : The total amount of skull fragments came to 160, ranging in length from 10 mm to 46 mm. Three of the fragments were of occipital bone displaying the internal protuberance and ridges. Five were possible fragments of temporal bone, one being a petrous portion, 3 possibly from the glenoid fossa area, and another fragment was a zygomatic process. Two other fragments were from the superior margin of the orbits, one fragment was of the maxilla, another fragment was of the mandible displaying the genial tubercle, and a further 2 pieces were of the parietal bones with sagittal sutures. Thirty-two fragments of crania had serrated sutural edges so came from areas of either coronal, sagittal or lambdoid sutures, and a further 114 fragments could not be identified as coming from any specific areas of the cranium.

Odontological remains : Fourteen fragments of teeth, 12 of which were roots or fragments of roots.

Vertebrae : Twenty possible fragments. One fragment was the odontoid process of an axis, and 14 fragments were either superior or inferior articular facets.

Femur : Only one fragment could be recognized with any certainty and that was a portion from the neck area measuring 46 mm in length.

Humerus : Two fragments from the distal extremity both portions being of the trochlea.

Radius, Ulna, Fibula : As the shafts of these bones, especially when having been cremated and in small fragments, look very similar, they have been

classified together. Two fragments were definitely from the proximal extremity of a radius, but 9 other fragments measuring from 15 mm to 44 mm. could be of any of the bones of this group.

Clavicle : One fragment of a right clavicle measuring 75 mm in length.

Patella : One fragment only.

Scapula : Two possible fragments.

Ribs : Fourteen possible fragments ranging in length from 16 mm to 35 mm.

Innominate bone : Five possible fragments. Three were possible fragments from the ilium, and another a fragment of an acetabulum.

Metatarsal and Metacarpal bones : Twenty-three possible fragments of shafts and extremities.

Phalanges : Twenty-five possible fragments of shafts and extremities. Three were complete distal phalanges of the hand, one intermediate and 3 proximal phalanges of the hand.

Miscellaneous Long Bone : Three hundred and thirty possible fragments ranging in length from 10 mm to 80 mm.

Miscellaneous Cancellous bone : Numerous fragments, and these could have come from any bone where cancellous bone occurred. The smallest of these fragments measured about 2 mm in length and the largest 36 mm.

Miscellaneous bone : Numerous fragments ranging in length from 2 mm to 43 mm.

PIT 36 West

Table I

The weight and distribution of the total identified and unidentified cremated human remains.

<u>Skeletal Material</u>	<u>gm.</u>	<u>% Total</u>
Identified total	544.1	65.3
Unidentified total	<u>289.5</u>	<u>34.7</u>
TOTAL	<u>833.6</u>	<u>100.0</u>

Table II

The weight and percentage of the miscellaneous cancellous, and other miscellaneous bone.

<u>Skeletal Material</u>	<u>gm.</u>	<u>%</u>	<u>% Total</u>
Miscellaneous cancellous	58.4	20.2	7.0
Other miscellaneous bone	<u>231.1</u>	<u>79.8</u>	<u>27.7</u>
TOTAL	<u>289.5</u>	<u>100.0</u>	<u>34.7</u>

Table III

The weight and percentage distribution of the Identified remains.

<u>Skeletal Remains</u>	<u>gm.</u>	<u>% Identified</u>	<u>% Total</u>
Skull	117.8	21.7	14.1
Odontological remains	1.9	0.4	0.2
Vertebrae	9.4	1.7	1.1
Femur	2.9	0.5	0.4
Humerus	2.8	0.5	0.3
Radius, Ulna, Fibula	19.7	3.6	2.4
Clavicle	4.1	0.8	0.5
Patella	1.3	0.3	0.2
Scapula	4.0	0.7	0.5
Ribs	5.5	1.0	0.7
Innominate Bone	6.7	1.2	0.8
Metacarpal and Metatarsals	10.3	1.9	1.2
Phalanges	6.5	1.2	0.8
Miscellaneous long bone	<u>351.2</u>	<u>64.5</u>	<u>42.1</u>
IDENTIFIED TOTAL	<u>544.1</u>	<u>100.0</u>	<u>65.3</u>