

INTRODUCTION

The human skeletal remains from Barton Bendish All Saints consist of a group of inhumation burials, together with a certain amount of miscellaneous bone recovered from various contexts, including grave fills. Preservation of the bone matrix is generally good, although in a few cases some erosion has occurred.

The burials were examined for details of sex, age, stature and for dental and skeletal anomalies and pathology. Certain metrical and non-metrical data were recorded, but analysis of these data has not been attempted in view of the small number of individuals involved.

The miscellaneous bones were listed according to the context in which they were found, and have been used to assess the minimum number of individuals represented by this material over the site as a whole.

NUMBER OF INDIVIDUALS

A total of 79 burials were recorded during excavation. Barely half of these were represented by complete or virtually complete skeletons, and at least 20 consisted of no more than a few bones.

Material recovered from the contexts represents a minimum number of 21 adults, 8 subadults and 3 infants. In view of the disturbed state of many of the inhumations, it is quite likely that much of this miscellaneous bone is derived from the 79 burials. The number of specific bones most frequently occurring in the context material were compared with those missing from the burials; the results of some of these are shown in Table 1:

Table 1: Comparison of specific adult bones from contexts and burials

	Prox. right femur	Prox. left femur	Distal right humerus	Distal left humerus	Mandible	Metatarsal (3rd right)
Misc. bone	21	15	13	13	19	15
Absent from inhumations	24	18	20	14	21	17

Although some of the miscellaneous bone may well represent additional burials completely destroyed at a later date, this cannot be demonstrated from the numbers of bones themselves.

SEX

Assessment of sex was only attempted for the adult skeletons, due to the unreliability of sexing criteria for subadults. Table 2 shows the results of sex determination:

Table 2 : Sex Determination

<u>Sex</u>	<u>No.</u>
Male	28
?Male	5
Female	12
?Female	2
Unsexed adults	9
Unsexed subadults	<u>23</u>
	79

There is a clear predominance of males over females, even given the small number of individuals who could be sexed. It is unlikely that this represents the ratio of males to females in the population, but rather that there is a cultural factor involved affecting inhumation practice.

AGE

For comparative purposes, the results of age estimation have been divided into 5-year groupings for both subadults and adults, although it must be emphasised that beyond the age of 20 years these divisions cannot be taken as definite, and should rather be regarded as indicating death in young adulthood, middle or old age. The results are shown in Table 3:

Table 3 : Estimation of Age at Death

Age	No.	
0-5	17	*****
5-10	5	*****
10-15	1	*
15-20	1	*
20-25	5	*****
25-30	7	*****
30-35	8	*****
35-40	7	*****
40-45	3	***
45+	8	*****
Adult	15	
?Mature Adult	<u>2</u>	
	79	

Of the seventeen children estimated to have died under the age of 5 years, only three are infants of less than 1 year. As far as adult mortality is concerned, the numbers appear fairly evenly spread between the years 20 to 40. Due to the present lack of means for determining age beyond 45/50 years, the group 45+ appears disproportionately large. The small sample size must be borne in mind when considering the significance of the above results, and for this same reason analysis of age at death by sex or period has not been carried out.

STATURE

Stature could be estimated for 42 of the 56 adults. No attempt was made to calculate the stature of sub-adults. The results are shown below in Table 4:

Table 4 : Estimation of Stature

Height (m)	Females	Males
1.50 - 1.54	2 ++	
1.55 - 1.59	5 +++++	1 *
1.60 - 1.64	4 ++++	2 **
1.65 - 1.69	2 ++	10 *****
1.70 - 1.74		9 *****
1.75 - 1.79		5 *****
1.80 - 1.84		2 **

The average height for females was 1.599m and for males 1.705m. There is a certain amount of overlap between the males and the females, which is to be expected in a normal population.

DENTITION

The dentition of 13 subadults and 39 adults was available for examination. The latter consisted of 11 female and 27 male maxillae; and 1 unsexed, 10 female and 26 male mandibles. The maxillae and mandibles recovered from the context material have not been included in the analysis owing to their fragmentary nature, difficulties in sexing the bones, and the high amount of postmortem loss of teeth.

Caries

Nine females and 19 males appear to have suffered from carious infection of one or more teeth. Out of a total of 816 teeth present in the sample, 83 were found to be carious, giving a frequency of 10.17%. This can be broken down as follows (omitting the unsexed mandible):

Table 5 : Carious teeth as a percentage of teeth present

	Carious teeth	Total teeth present	%
<u>Females</u>			
Maxilla	14	99	14.14
Mandible	13	109	11.93
Total	27	208	12.98
<u>Males</u>			
Maxilla	37	291	12.71
Mandible	18	307	5.86
Total	55	598	9.20

In both sexes, caries appears to be more frequent in the maxilla than in the mandible. The results also show a higher frequency for females, and while this may in part be due to their fewer numbers, the higher percentage of abscesses and antemortem tooth loss (see below) in addition to caries in the females does seem to suggest that they are more liable to suffer from poor dental health.

The molars are the teeth most commonly affected by caries, again in common with other skeletal series (Moore and Corbett 1973), with the maxillary premolars also at fairly high risk. The mandibular premolars and the remaining anterior teeth are far less likely to have any carious infection.

Table 6 : Differing incidence of caries

	Tooth Number							
	1	2	3	4	5	6	7	8
Maxilla:	-	-	5%	12.9%	12.28%	27.08%	30.95%	20.59%
Mandible:	-	1.67%	-	3.17%	3.51%	23.91%	17.65%	18.42%

In 26 cases it is impossible to determine the site of origin of the caries, due to the considerable destruction of the tooth. Where the focus of decay can be determined, it was clear that the surfaces between two adjoining teeth are most at risk, 70% of the caries occurring here, compared with 21.7% on the buccal and 8.3% on the occlusal surfaces.

Caries is present in only one of the subadults (Burial 218), occurring as a slight cavity in the buccal surface of a deciduous lower second molar.

Abscesses

Seven females and 13 males suffered from dental abscesses, of which there are 43 in all, representing 3.86% of the total number of observable alveolar sites. This has been further broken down in Table 7:

Table 7 : Abscess frequency as a percentage of alveolar sites

	Tooth Number							
	1	2	3	4	5	6	7	8
Maxilla:	-	-	1.4%	5.48%	5.41%	11.11%	12.7%	3.64%
Mandible:	1.43%	-	-	1.43%	2.9%	9.86%	5.71%	1.45%

This shows a pattern very similar to that observed for caries frequency (see Table 6), with abscesses most commonly occurring in the molars and upper premolars. Indeed, of the 43 abscesses present, 28 (65%) are associated with carious teeth. A further 4 (9.3%) occur at the roots of teeth in which the pulp has been exposed as a result of extreme attrition, 4 (9.3%) at a site where the tooth has been lost antemortem, and 7 (16.3%) where the tooth has been lost postmortem. In at least half the cases the abscesses has drained into the mouth, and in two cases (Burials 231 and 439) they have also drained into the maxillary sinus.

Antemortem tooth loss

All but one of the eleven female skeletons with dentition present had lost one or more teeth antemortem, as had 20 of the 27 males. The pattern of antemortem tooth loss appears to vary between the two sexes although, as mentioned above, it is possible that these differences are accentuated due to the much smaller sample of females. In the males, antemortem tooth

loss is highest in the molars and rarely involves the anterior teeth, while in the females all teeth appear to be at risk, especially in the maxilla. This is summarised in Table 8:

Table 8 : Antemortem tooth loss as a percentage of the number of alveolar sites

	Tooth Number							
	1	2	3	4	5	6	7	8
<u>Females</u>								
Maxilla	25%	25%	10%	20%	19%	20%	37.5%	13.3%
Mandible	15%	10%	-	5%	21.1%	30%	30%	35%
<u>Males</u>								
Maxilla	6.3%	4%	-	9.4%	7.5%	31.4%	21.3%	25%
Mandible	4.1%	-	2	-	8.2%	26%	14.3%	20.8%

Periodontal Disease

Where present, the degree of alveolar resorption (or recession of the bone around the teeth) was recorded as either slight, medium or considerable, in an attempt to assess the prevalence of periodontal disease. Some resorption was apparent in the majority of the jaws, tending to be more pronounced with age, although this appearance may in many cases be the result of compensatory eruption by teeth as their occlusal surfaces wear down (Whittaker *et al* 1982). Nevertheless in certain individuals it was noted that considerable alveolar resorption had occurred even though the teeth were only slightly worn, indicating that the recession of the bone was due to some cause other than continued eruption. In these cases also, medium to considerable amounts of calculus were present on the teeth, probably irritating the gums and leading to inflammation and recession of the bone. It is therefore suggested that two individuals aged 20-25 (Burials 213 and 225, both female), one aged 25-30 (Burial 417) and three aged between 30 and 35 (Burials 244, 267 and 268) may well have suffered from periodontal disease with resultant bone loss. It is harder to assess the severity of this disease for the remaining individuals.

Dental Hypoplasia

Fourteen persons had some degree of enamel hypoplasia. This is visible as pits or ridges in the enamel of a tooth, and is thought to form as a result of nutritional stress or other insult to the individual while the tooth was forming. Up to 3 or 4 ridges were visible in the teeth of some skeletons, most commonly in the incisors and the canines and occasionally in the premolars. However in at least another 14 cases the presence or absence of hypoplasia could not be assessed, due either to a large degree of wear or to calculus obscuring the surface of the teeth. Consequently the significance of this evidence for childhood stress in the sample as a whole cannot be considered.

Partial Anodontia and Malocclusion

Partial anodontia is used to describe absence of certain teeth from the dentition, the tooth most commonly affected being the third molar. A total of 16 teeth were absent, all of these being third molars; 6 individuals having one tooth absent (5 lower right, 1 upper right), 1 having all four absent and 2 others with three absent (in both these 2 cases, one side of the maxilla was damaged, and the presence or absence of the 4th third molar could not be established). The nine affected individuals

represent 23% of the total examined, a not unusual frequency for partial anodontia. X-rays of the jaws were not taken, and conclusions regarding congenital absence of teeth were based on macroscopic examination only.

Four teeth were found to be impacted, again all third molars. One female (Burial 213) had a horizontally impacted lower right third molar and mesio-angular impaction of the upper right. Two males (Burials 269 and 330) had an incompletely erupted upper left third molar, and mesio-angular impaction of the upper right third molar respectively.

Four individuals had rotation of one of their teeth from its normal position; in three of these cases (Burials 267, 279 and 430) the rotation was only mild, ie less than 45°, while in Burial 284 the upper left third molar appeared to be rotated by 90°. A fifth case, Burial 288, showed rotation of 6 maxillary teeth, namely all four premolars and both first molars.

Crowding of the anterior teeth had occurred in five individuals, four of these involving the lower rather than the upper jaw. In a further case, Burial 310, both the upper and lower lateral incisors were completely instanding.

CONGENITAL ABNORMALITIES

No evidence of severe congenital disease was found but there were several examples of minor developmental anomalies, none occurring in any greater frequency than would be expected in a normal population. These include 4 cases of unfused acromial epiphyses (os acromiale) (Burials 267, 426, 439 and 490), 3 cases of double superior articular facets of the atlas (Burials 225, 276 and 450), 2 cases of cleft arches of the atlas (Burials 276 and 370) and 2 cases of supracondyloid processes (Burials 330 and 417). There were single cases of other anomalies such as bipartite patella (Burial 268), bifid rib (Burial 268), sternal foramen (Burial 440) and accessory navicular bone (Burial 418). In addition, several individuals showed departures from the normal numbers of different vertebrae; for example Burial 298 had 6 sacral and 4 lumbar segments, Burials 288 and 310 had 6 lumbar and 11 thoracic and Burial 301 6 sacral and 11 thoracic. Examples of the vertebral defect spondylolysis, the occurrence of which does tend to be familial, are discussed below.

PATHOLOGY

Trauma

Eight individuals (six males, 1 female and 1 unsexed) had bones which had been fractured at some point, all of them having healed. Three cases, all males, had broken ribs: Burial 295 with fractures in 3 right ribs, Burial 298 with fractures in 2 right ribs and Burial 439 having fractures in 2 left ribs. These are all well healed, with little deformity, and appear to have occurred in the body of the ribs, rather than at the weakest point near the angle.

There are two cases of fractured fibulae. Burial 360 has a fracture of the lateral malleolus of the left fibula, with probable bony fusion to the left tibia, although some postmortem damage made this uncertain. In Burial 297 the right fibula appeared to have been fractured in two places, one midshaft and one some 60-80mm below the proximal end. The latter injury probably occurred a relatively short time before death, judging from the large amount of callus present.

Burial 231 had a fractured right radius, midshaft, with resultant angular deformity. Fractures at this site used to be known as parry fractures, from the idea that such an injury might occur when the arm was lifted to defend oneself against a blow. It may, of course, just as well happen as the result of an accident. This individual also had a fracture of the left 5th metacarpal. At Cirencester, Wells (1982) noted that 4 of 6 cases of fractured metacarpals involved the 5th, and suggested that this would be the exposed part of the hand when raised to ward off a threatened blow. There was also evidence of possible trauma to the skull of Burial 231 in the form of an uneven depression in the centre of the frontal bone measuring ca. 12mm x 6.5mm and surrounded by a slightly thickened rim of bone.

An anteroposterior compression fracture of the 11th thoracic vertebra was found in Burial 419. In old people, such a fracture is likely to be associated with osteoporosis, but in this case the estimated age of the individual is 25-30, and the vertebral collapse is therefore more likely to be the result of a specific traumatic incident. This skeleton also showed evidence of soft tissue injury in the form of an exostosis, measuring ca. 17mm x 8mm. It occurred on the distal right tibia, at the site of attachment of the interosseous ligament.

Burial 418, a female over 45 years old, had a probable fracture of the left innominate through the superior and possibly also the inferior ischio-pubic ramus. Evidence of further trauma comes from the material recovered from Context 402. There were 2 healed rib fractures, and a fracture of the right tibia, occurring just below the midshaft. Both right and left tibiae were present, and it could be seen that the injury, although well healed, had resulted in a shortening of the bone by 35mm. It is very probable that the fibula would also have been fractured, but this bone was not found. One, possibly two, healed rib fractures were also found in Context 492.

Three individuals were found to have spondylolysis, a defect of the vertebra, usually the lower lumbar, whereby there is non-union at the pars interarticularis. The aetiology of spondylolysis is uncertain, and is often considered to be a congenital abnormality, but it may also be thought of as a stress fracture through an area of bone which is already predisposed to fracture. In Burial 276 the 5th lumbar vertebra was affected, in Burial 272 both the 4th and the 5th had detached arches, and in Burial 310, with a 6th lumbar vertebra, the defect was unilateral.

Burial 323 had suffered an anterior dislocation of the left hip. This is a very uncommon injury, posterior dislocation being more usual, at least in modern times, and it is the result of very considerable violence. In this particular case the dislocation had never been reduced, and a secondary articular surface had formed on the innominate. The trauma associated with a dislocation is likely to tear the ligaments and muscles associated with the joint, and this burial shows evidence for this, an exostosis some 18mm long occurring on the lesser trochanter of the left femur.

In Burial 326 the left femur head and neck show changes which are thought to be the result of a slipped epiphysis. This must have occurred before normal epiphyseal fusion had taken place, that is before the age of about 19 years, possibly but not necessarily as the result of a traumatic incident. The epiphysis has been displaced inferiorly and posteriorly, and the joint is considerably arthrotic, with a large area of eburnation on the femur head, together with osteophytic lipping of the lower margins.

Infection

All the cases of infection found at Barton Bendish are non-specific - the bacterium responsible for the lesions is not known - and involve inflammation of the periosteum with deposition of new bone on the surface of the cortex. Periostitis, particularly of the tibia or fibula, is a relatively common finding in many skeletal series, and Barton Bendish is no exception. Ten individuals, all males, had evidence of periostitic change, occurring in every case on the lower legs. Often only one bone was affected, usually one of the tibiae, but in Burial 298 both the right and left tibiae and fibulae had periostitic lesions. In no case has it been possible to assess the cause of inflammation.

Degenerative Joint Disease

Spinal osteophytes, bony lipping at the margins of the vertebral body, were present to some degree on most of the adult spines. There were only 5 individuals with no lipping at all, 3 of these with estimated ages of 20-25 years, and 2 (both females) aged between 25 and 30. All males over the age of 25 and females over the age of 30 were therefore affected, although there was no clear pattern of increase in degree with age. In one individual (Burial 430) vertebral fusion had occurred between the 3rd and the 6th (possibly 7th) thoracic vertebrae, and this represents a probable example of Forestier's disease. Spinal osteophytes are thought to result from degenerative changes in the intervertebral disc, and occasionally this degeneration can be seen on the vertebral body, either as a crescentic lesion towards the outer margins or as a generalised porosity of the entire surface. Such osteochondrosis was present in 10 individuals. In 9 cases it occurred in the cervical vertebrae, usually between the 5th, 6th and 7th segments, but occasionally affecting the 3rd and 4th also, and was always associated with osteophytes at the vertebral body margins. The 10th case involved degeneration of the disc between the 4th lumbar vertebra and the 1st sacral (this individual having 4 lumbar and 6 sacral vertebrae).

Over half the adults at Barton Bendish had osteophytic lipping, often only slight, occurring at the margins of their joints, in many cases with no other changes at the joint surface. The elbows, knees and hands were the most common sites, with the feet, articular facets of the vertebrae, hips, shoulders and ribs also not infrequently affected. To what extent this slight lipping reflects the onset of osteoarthritis is uncertain.

In 14 individuals a more positive diagnosis of osteoarthritis was made, since in addition to marginal osteophytes, a joint surface was affected, having an irregular contour, possibly with cystic defects and areas of eburnation. The articular facets of the vertebrae were the most common site, 5 out of 7 cases involving the cervical vertebrae. Fusion had occurred between the 5th and 6th cervical vertebrae in one individual (Burial 297). Burial 418 had osteoarthritis of much of the spine, while in Burial 426 the lower thoracic articular facets were affected. Osteoarthritis of the temporomandibular joint was found in 4 individuals (Burials 225, 326, 418 and 449). Burial 295 had considerable arthritis of both right and left elbows, with areas of eburnation on the right capitulum and both radii heads. In addition there were erosive changes at the joint between two hand phalanges (middle and distal row) and osteoarthritis of both metatarsophalangeal joints. Burial 244 also had arthrotic right and left elbows and left wrist, with exuberant osteophytosis and eburnation. This individual showed signs of having suffered from a defect of the central nervous system (see below).

Arthrosis of the hip was present in 2 individuals: Burial 326 showed considerable change on the left side, presumably secondary to the displacement of the upper femoral epiphysis; in Burial 439 the left hip is affected, as well as the left clavicle (the right side of this skeleton was missing). In Burials 418 and 453 fusion had taken place between two phalanges of the foot (both being middle and distal row), while in Burial 290, the left 1st interphalangeal joint showed considerable lipping, porosity and eburnation, and it appeared likely that the distal phalanx was angled away from the foot. The 1st metatarsophalangeal joint was arthrotic in 4 cases: Burial 295 (mentioned above), and Burials 418, 453 and 284. In the latter, the base of the proximal phalanx was a site of osteochondritis dissecans, and this may have contributed to the development of the osteoarthritis.

Changes at the sacroiliac joint were found in two individuals (Burials 323 and 418), and eburnation of the pisiform had occurred in Burials 323 and 370. Burial 398 was found to have extensive changes in the bones of the feet. There was almost complete ankylosis of the navicular, cuboid and cuneiform bones with the proximal ends of the metatarsals. The tali and calcanei both had exuberant new bone growth at their margins, as well as roughened articular surfaces. In addition, the appearance of the joint surfaces of the left carpals is similar to those of the calcanei and tali, although no ankylosis has occurred. This skeleton also has osteophytic fusion of the 12th thoracic and 1st lumbar vertebral bodies. It is possible that burial 398 suffered from one of the conditions grouped under 'seronegative spondylarthritis', which includes psoriatic arthritis and Reiter's disease.

The right and left patellae of Burial 298 exhibited arthrotic changes thought to be the result of the condition chondromalacia patellae, whereby the articular cartilage lining the patella degenerates.

Metabolic Disease

Cribra orbitalia was found in 6 individuals, only one of these an adult (Burial 284), the others being children under 5 years. It is thought to develop in cases of chronic anaemia during childhood, and its occurrence in 5 of the 16 children under 10 years whose orbits could be examined may suggest that at an early age at least, their diet was deficient in iron.

Neoplastic Disease

The only evidence of a neoplasm came from Burial 439. A small almost circular lesion of approximately 9mm diameter was present on the outer table of the frontal bone, and is probably a benign tumour, possibly a small haemangioma.

Miscellaneous

Burial 244 appeared to have suffered from neuromuscular paralysis. Apart from the skull, which as far as could be ascertained from its fragmentary condition appeared to be symmetrical, all the bones of the right side of the body were slightly smaller and somewhat more slender than those from the left. The difference in length between the humeri is 14mm and between the femor 12mm. All the vertebrae have varying degrees of lipping, and there is slight scoliosis, the 2nd and 3rd lumbar vertebrae tilting to the right. The left inferior articular facet of the 5th lumbar vertebra consists of a large mass of bone which articulates with a sacral facet measuring ca. 32mm x 25mm, while the right auricular surface of the sacrum measures 29mm compared to 55mm on the left. The right tibia appears to

twist laterally down the length of its shaft. As mentioned above, there is considerable osteoarthrosis of both elbows and of the left wrist, and destruction of much of the olecranon of the right ulna.

In Burial 260 there is a distinct concave area on the anterior surface of the head of the left humerus. Some eburnation is present, and there is considerable lipping of the lower margin of the joint. Although the coracoid process of the left scapula is damaged, it seems unlikely that friction between these two surfaces could have produced the lesion, and it may be the result of ossification within the short head of the biceps muscle.

During the excavation of Burial 301, a large calculus was recovered, although since it was not immediately recognised as such, its precise location in relation to the skeleton is uncertain. It is roughly circular, with a diameter of about 53mm, and an appearance similar to that of a large walnut. Chemical analysis showed it to be composed of calcium, carbonate and phosphate. Different opinions have been sought regarding this calculus, and suggestions include a bladder stone, kidney stone and calcified fecal material. No definite diagnosis has been made, however.

Schmorl's nodes are present in 8 individuals, 6 of them male. They occur as the result of prolapse of intervertebral disc material into the vertebral body and can be produced by various processes, including trauma, metabolic disorders and degenerative disc disease. The Barton Bendish cases follow the normal pattern, with nodes occurring more often in males than in females, the most common region affected being the lower thoracic and upper lumbar spine, and the inferior surface involved more often than the superior. In all except 2 cases more than one vertebrae are affected, and in no instance are any vertebrae higher than the 4th thoracic involved.

Osteochondritis dissecans, a lesion which presents as a pit on the articular surface of a joint where necrotic loss of a small area of cartilage and underlying bone has occurred, is found in 8 individuals. A common site is the base of the 1st proximal phalanx of the foot, 4 of the cases being found here. Other bones affected are the patella, the distal tibia and the femur head, the latter with evidence of healing having taken place.

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Wells, C 1982 The Human Burials. In Romano-British Cemeteries at Cirencester, by A McWhirr, L Viner and C Wells. Cirencester: Cirencester Excavation Committee.

Whittaker, D K, Parker, J H & Jenkins, C 1982 Tooth attrition and continuing eruption in a Romano-British population, Arch. Oral Biol. 27:405-409.

METHODS

Sexing

Both morphological and metrical variables were considered when attempting to sex individuals. For the pelvis, the main morphological features observed were the width of the sciatic notch, presence or absence of a preauricular sulcus, and the shape of the sub-pubic angle of the innominates, together with the width of the first sacral vertebrae in relation to the sacral alae, and the length of the auricular surface on the sacrum. For the skull, the features considered were the size of the mastoids, the size of the supraorbital ridges, the extent to which the posterior root of the zygomatic process continued beyond the external auditory meatus, and the development of the nuchal crest. In cases where the sexing criteria of pelvis and skull tended to contradict one another, the characteristics of the pelvis were preferred.

Bone measurements used for sex determination include the longitudinal diameter of the femur head, the bicondylar width of the femur, the longitudinal and transverse diameter of the head of the humerus, the epicondylar width of the humerus, and the length of the clavicle (Krogman 1978).

Ageing

Age at death for the subadult individuals was assessed from the state of tooth eruption (Brothwell 1981) and epiphyseal fusion of the bones (Gray's Anatomy 1980). For the adults, the degree of tooth wear on the molars was assessed (Brothwell 1981) together with the metamorphosis of the pubic symphysis (Ubelaker 1980).

Stature

Stature was calculated for adults only, using the formulae proposed by Trotter and Gleser (in Brothwell 1981).

Brothwell, D R 1981 Digging Up bones, 3rd edition. Oxford: Oxford University Press.

Gray's Anatomy 1980 36th edition, eds. P L Williams and R Warwick. Edinburgh: Churchill Livingstone.

Krogman, W M 1978 The Human Skeleton in Forensic Medicine. Springfield, Ill.: Charles C Thomas.

Ubelaker, D H 1980 Human Skeletal Remains, 2nd edition. Washington: Taraxacum.

LIST OF INDIVIDUAL SKELETONS - Condition, Sex, Age, Stature

- 11 Lower two-thirds of skeleton present, relatively good condition. Child aged ca. 3-5 years on the basis of longbone measurements and epiphyseal fusion.
- 204 Cranial fragments only. Child estimated to be probably <5 years, comparing skull thickness, size etc. with other skeletons.
- 205 Cranial fragments only. Child, estimated <2/4 years, since laterals still unfused to squamous part of occipital.
- 206 Skull, axis and two cervical vertebrae, in poor condition. Probably male, based on morphological characteristics of the skull. Mature adult, suggested by antemortem loss of 17 teeth.
- 209 Upper half of child's skeleton, badly fragmented. Age 2-3 years, from tooth eruption and vertebral fusion.
- 212 Almost complete child's skeleton, right femur missing, relatively good condition. Age 3-5 years, from tooth eruption and epiphyseal fusion.
- 213 Upper half of skeleton, very broken. Female, based on clearly female characteristics of pelvis and skull. Age 20-25, from tooth wear and complete fusion of all epiphyses. Stature 163.47 ± 4.45 , using humerus.
- 214 Skull, left arm and lower legs of badly broken skeleton. Skull characteristics suggest male, as do measurements on humerus. Age 30-35, based on tooth wear. Stature 171.73 ± 4.57 , using humerus.
- 215 Relatively complete skeleton; however, very broken, longbones generally splintered. Green stain on manubrium. Pelvis and skull suggest female, apart from large mastoids. Measurements on humerus and sternum fall within female range. Conclusion: female. Age: molars all lost antemortem - ?mature adult. Stature 150.37 ± 4.45 , using humerus.
- 216 Virtually complete skeleton, in poor condition with erosion of most longbone ends. Probably male, based on the morphological characteristics of pelvis and skull. Age 20-25, using molar wear and pubic symphysis morphology. Stature 156.29 ± 3.74 , using femur and tibia.
- 217 Mandible, left arm, shoulder and femur only, fragmentary. Sex could not be determined. Age ?45+ from very worn teeth present in the mandible.
- 218 Upper half of skeleton only, without skull apart from mandible fragment. Child, aged 5-7 years, from tooth eruption and epiphyseal fusion.
- 224 Complete skeleton, in good condition. Green stain on skull, at the junction of frontal, right parietal and right sphenoid bones, and also on left temporal bone. Child aged 8-10 years, based on tooth eruption and epiphyseal fusion.

- 225 Virtually complete skeleton, somewhat eroded, especially at ends of longbones. Considerable green staining on skull and mandible, green stains also on right radius, midshaft medially and left ulna, midshaft posteriorly. Very small amount of hair on frontal bone. Characteristics of pelvis and skull are female; bone measurements are ambiguous. Conclusion: probably female. Age estimated at 20-25, from molar wear. Stature 158.77 ± 4.45 , using humerus.
- 231 Complete skeleton, rather broken. Pelvis and skull both show clear male characteristics; bone measurements fall within male range. Age 35-40, based on tooth wear, especially considerable wear of anterior teeth, and on pubic symphysis morphology. Stature 164.96 ± 3.62 , using femur and fibula.
- 242 Complete skeleton, skull very broken, of child. Age 6-10 years, based on tooth eruption and epiphyseal fusion.
- 244 Virtually complete skeleton, left lower leg and foot missing, skull fragmentary, otherwise good condition. Pelvis modified by pathology, skull characteristics generally male. Longbones also affected by pathology, but generally measurements appear to indicate male. Conclusion: ?male. Age 30-35, based on tooth wear. Stature 168.53 ± 3.94 , using normal femur.
- 249 Complete skeleton of child, in good condition apart from cervical vertebrae. Age 5-7 years, based on tooth eruption and epiphyseal fusion.
- 260 Left half of postcranial skeleton, plus right lower leg, in good condition. Sex probably female, based on morphological characteristics of left innominate. Bone measurements inconclusive. No teeth or pubic symphysis, therefore age not assessed as other than adult. Stature 164.81 ± 3.55 , using femur and tibia.
- 265 About one third of postcranial skeleton, fragmentary. Left innominate shows clear female characteristics; those bones present fall within the female range of measurements. Age could not be estimated as other than adult. Stature 158.70 ± 3.55 , using femur and tibia.
- 266 Complete skeleton, in good condition. Pelvic characteristics are male, skull and bone measurements less determinate, falling between male and female. Conclusion: probably male. Age 20-25, based on tooth wear and relatively recent fusion of iliac crest and sternal ends of clavicles. Stature 163.52 ± 3.62 , using femur and fibula.
- 267 Complete skeleton, in relatively good condition apart from fragmentary vertebrae. Pelvic characteristics clearly female; skull and bone measurements tend to fall between male and female. Conclusion: probably female. Age 30-35, based on tooth wear and age changes at the pubic symphysis. Stature 162.63 ± 3.51 , using humerus, femur and tibia.
- 268 Complete skeleton, in good condition. Male, from characteristics of pelvis and skull, and from bone measurements. Age 30-35, based on tooth wear and age changes at the pubic symphysis. Stature 171.25 ± 3.62 , using femur and fibula.

- 269 Complete skeleton, in good condition apart from skull, which has been distorted and damaged by soil pressure. Male, from characteristics of pelvis and skull, and from bone measurements. Age ?45+. Hard to use molar wear since several lost antemortem; however anterior teeth are quite well worn, and age estimate for the pubic symphysis suggests over 50. Stature 163.39 ± 3.62 , using femur and fibula.
- 271 Ca. two-thirds of postcranial skeleton, in poor condition, bones being broken and eroded. Sex could not be determined, nor age be assessed as other than adult.
- 272 Postcranial skeleton, virtually complete and in good condition; upper right arm and both feet missing. Pelvic characteristics are male, bone measurements fall within male range. Age 25-30, based on age changes at the pubic symphysis. Stature 172.17 ± 3.74 , using femur and tibia.
- 276 Complete skeleton, in relatively good condition. Innominates and skull show clear female characteristics; bone measurements fall between male and female. Conclusion: probably female. Age 40-45, based on tooth wear and pubic symphysis. Stature 156.44 ± 3.51 , using humerus, femur and tibia.
- 278 Complete skeleton of child. Longbones tend to be eroded, skull very broken. Age 10-11 years, based on tooth eruption and epiphyseal fusion.
- 283 Upper third of skeleton, in good condition. Morphological characteristics of left innominate suggest female, skull rather more male. Measurements on humerus and clavicle fall into female range. Conclusion: ?female. Age 25-30, based on tooth wear. Stature 156.75 ± 4.45 , using humerus.
- 284 Skull and left side of skeleton, very broken. Morphological characteristics of left innominate inconclusive; skull characteristics female; bone measurements fall within female range. Conclusion: probably female. Age 35-40, based on considerable wear on anterior teeth (only 2 molars present, others lost antemortem), and on age changes at the pubic symphysis. Stature 155.07 ± 3.67 , using humerus and tibia.
- 288 Complete skeleton, in relatively good condition. Female, from characteristics of the pelvis, skull and from bone measurements. Age 25-30, based on tooth wear and pubic symphysis morphology. Stature 164.60 ± 3.51 , using humerus, femur and tibia.
- 290 Skull, upper 8 vertebrae and part of lower legs only, in good condition. Probably male, from skull alone. Age 35-40, based on tooth wear. Stature cannot be calculated.
- 293 Skull, upper 3 vertebrae and lower legs only. Morphological characteristics of skull indicate male. Age 35-40, based on tooth wear. Stature 173.40 ± 4.00 , using tibia.
- 295 Virtually complete postcranial skeleton; pelvis and vertebrae in poor condition, otherwise relatively good. Pelvic characteristics all male; bone measurements fall within male range. Age 35-40, based on age changes at the pubic symphysis. Stature 181.73 ± 3.62 , using femur and fibula.

- 297 Virtually complete skeleton, somewhat broken. Male, from pelvis, skull and bone measurements. Age 45+, based on tooth wear and age changes at the pubic symphysis. Stature 171.78 ± 3.62 , using femur and fibula.
- 298 Postcranial skeleton, virtually complete, though vertebrae fragmentary. Condition generally good. Male, from pelvis and bone measurements. Age 45+, based on age changes at the pubic symphysis. Stature 171.64 ± 3.62 , using femur and fibula.
- 301 Virtually complete skeleton, lower left leg missing. Skull very broken. Generally good condition. Morphology of pelvis female; however skull and bone measurements are ambiguous. Conclusion: probably female. Age 25-30, based on tooth wear and age changes at the pubic symphysis. Stature 168.73 ± 3.51 , using humerus, femur and tibia.
- 305 Fragments of lower left tibia and fibula only. Unsexed adult.
- 310 Virtually complete skeleton, bones badly broken.. Pelvic morphology generally male, bone measurements fall within male range; skull characteristics ambiguous. Conclusion: probably male. Age 20-25, based on tooth wear, recent fusion of rib heads and iliac crest, and pubic symphysis morphology. Stature 166.15 ± 3.62 , using femur and fibula.
- 311 Fragments of child's skull, atlas and one other cervical vertebra. Age $<2/4$, since laterals still unfused to squamous part of occipital.
- 319 Upper third of infant's skeleton, broken and incomplete. Age estimated at about 4-6 months, based on tooth formation and epiphyseal fusion.
- 320 Left lower arm, incomplete femora and patellae only. Unsexed adult.
- 323 Virtually complete skeleton, generally in good condition. Male, from pelvis, skull and bone measurements. Age 45+, from tooth wear. Stature 175.71 ± 3.62 , using femur and fibula.
- 326 Complete skeleton, apart from right maxilla. Male, from pelvis, skull and bone measurements. Age 30-35, based mainly on age changes at the pubic symphysis (tooth wear indicates a slightly older individual, 35-40). Stature 174.95 ± 3.74 , using femur and tibia.
- 328 Complete skeleton, in good condition apart from vertebrae which are extremely fragmentary. Male, from pelvis, skull and bone measurements. Age 35-40, based on tooth wear. Stature 175.45 ± 3.62 , using femur and fibula.
- 330 Complete skeleton, in good condition. Pelvis, skull and bone measurements all indicate male sex. Age estimated at 40-45 from tooth wear and age changes at the pubic symphysis. Stature 181.47 ± 3.62 , using femur and fibula.
- 337 Virtually complete skeleton of child. Age 2-4 years, based on tooth eruption and epiphyseal fusion.
- 353 Fragmentary infant skeleton, in poor condition. Age <1 year, since vertebral arch halves still unfused.
- 354 Feet only. Unsexed adult.

- 355 Feet and distal left fibula only. Unsexed adult.
- 360 Lower legs and feet only. Unsexed adult.
- 364 Cranial fragments only. ?Male, from size of mastoids and supra-orbital ridges. Probably adult.
- 370 Complete skeleton, in relatively good condition. Sexing features of pelvis somewhat ambiguous; however skull has male characteristics and bone measurements fall well within male range. Conclusion: probably male. Age 30-35, based on tooth wear and age changes at the pubic symphysis. Stature 164.44 ± 3.62 , based on femur and fibula.
- 376 Relatively complete skeleton of child, broken and in generally poor condition. Age 1-3 years, based on tooth eruption and epiphyseal fusion.
- 393 Left lower leg and foot only. Child, age about 6-10 years, based on a comparison of longbone length with other children's skeletons from the same site.
- 397 Skull and left upper half of skeleton, relatively good condition, although skull distorted by soil pressure. Skull shows male characteristics. Age about 18-20, based on eruption of third molars. Stature 173.03 ± 4.66 , using the radius.
- 398 Virtually complete skeleton, in good condition. Male, from pelvis, skull and bone measurements. Age 40-45, based on tooth wear. Stature 165.89 ± 3.62 , using femur and fibula.
- 406 Skull, minus mandible. Morphological features of skull indicate ?female. Age cannot be assessed as other than adult; many teeth appear to have been lost shortly before death.
- 417 Relatively complete skeleton, upper spine and lower left leg missing. Male, from pelvis, skull and bone measurements. Age 25-30, based on tooth wear and age changes at the pubic symphysis. Stature 166.01 ± 3.62 , using femur and fibula.
- 418 Complete skeleton, in relatively good condition, although bones are somewhat fragile, and skull is badly distorted by soil pressure. Green stain on left parietal. Both pelvis and skull indicate a female, although bone measurements tend to be close to or within the normal male range. Conclusion: probably female. Age 45+, based on antemortem tooth loss of 19 teeth and the porosity of the bones. Stature 164.26 ± 3.72 , using femur.
- 419 Complete skeleton, in good condition. Male, from pelvis, skull and bone measurements. Age 25-30, based on tooth wear and age changes at the pubic symphysis. Stature 170.73 ± 3.62 , using femur and fibula.
- 421 Relatively complete skeleton, lower right arm and left hand missing, of child. Bones very broken. Age about 2-3 years, based on tooth eruption and epiphyseal fusion.
- 422 Fragments of infant skull and right arm only.
- 426 Virtually complete skeleton, upper spine missing. Some erosion of the bones. Iron stain on shaft of left 5th metatarsal. Male, from pelvis, skull and bone measurements. Age 30-35, based on tooth wear and age changes at the pubic symphysis. Stature 175.19 ± 3.62 , using femur and fibula.

- 428 Lower legs and feet only, damaged. Unsexed adult.
- 430 Relatively complete skeleton, in poor somewhat eroded condition, bones broken. Skull badly distorted due to soil pressure. Male, from pelvis and skull and from bone measurements. Age 45+, from tooth wear and age changes at the pubic symphysis, supported by the lightness and porosity of the bones. Stature 167.13 ± 3.74 , using femur and tibia.
- 433 Skull and left upper half of child's skeleton. Age 2-4 years, based on tooth eruption and epiphyseal fusion.
- 434 Skull and upper quarter of child's skeleton, considerably fragmented. Age 2-4 years, based on tooth eruption and epiphyseal fusion.
- 436 Right fibula only. Unsexed adult.
- 439 Skull and left upper half of skeleton, badly broken. Male, from left innominate, skull and those bone measurements available. Age 35-40, based on tooth wear. Stature 176.44 ± 4.31 , using humerus and radius.
- 440 Upper third of skeleton, in relatively good condition. Morphological characteristics of skull tend towards male; bone measurements fall between male and female. Conclusion: ?male. Age 45+, based on tooth wear and age changes at the pubic symphysis. Stature 167.98 ± 4.57 , using humerus.
- 441 Two thirds of skeleton, with some of right side missing. Bones very broken. Probably male, from skull features, bone measurements and absence of preauricular sulcus (left innominate otherwise too fragmentary for further observations). Age 30-35, based on tooth wear. Stature 176.99 ± 4.31 , using humerus and radius.
- 450 Left side of postcranial skeleton, in relatively good condition. ?Male, based on bone measurements alone, all of which are within the male range. Age cannot be assessed as other than adult. Stature 168.24 ± 3.62 , using femur and fibula.
- 453 Relatively complete skeleton, part of right side missing. Male, from skull, pelvis and bone measurements. Age 25-30, based on tooth wear. Stature 169.15 ± 3.74 , using femur and tibia.
- 456 Part of right arm and shoulder only. Possibly male, based on the size of those bones present. Age cannot be assessed as other than adult. Stature cannot be calculated.
- 459 Fragments of infant skeleton, consisting of feet and splintered longbones, probably tibiae and fibulae.
- 461 Complete skeleton of child, very broken. Age 2-4 years, based on tooth eruption and epiphyseal fusion.
- 490 Relatively complete postcranial skeleton, bones broken and eroded in parts. Probably female, from pelvis and those bones which could be measured. Age could not be assessed as other than adult. Stature 153.64 ± 3.72 , using femur.
- 514 Upper half of child's skeleton only, in good condition. Age 1-1.5 years, based on tooth eruption and epiphyseal fusion.

QUICK REFERENCE LIST OF INDIVIDUAL SEX, AGE AND STATURE

<u>BURIAL NO.</u>	<u>SEX</u>	<u>AGE</u>	<u>STATURE</u>
11	Child	3-5	-
204	Child	<5	-
205	Child	<2-4	-
206	Male	Mature Adult	-
209	Child	2-3	-
212	Child	3-5	-
213	Female	20-25	1.63
214	Male	30-35	1.71
215	Female	Mature Adult	1.50
216	Male	20-25	1.56
217	Unsexed	?45+	-
218	Child	5-7	-
224	Child	8-10	-
225	Female	20-25	1.58
231	Male	35-40	1.64
242	Child	6-10	-
244	?Male	30-35	1.68
249	Child	5-7	-
260	Female	Adult	1.64
265	Female	Adult	1.58
266	Male	20-25	1.63
267	Female	30-35	1.62
268	Male	30-35	1.71
269	Male	?45+	1.63
271	Unsexed	Adult	-
272	Male	25-30	1.72

<u>BURIAL NO.</u>	<u>SEX</u>	<u>AGE</u>	<u>STATURE</u>
276	Female	40-45	1.56
278	Child	10-11	-
283	?Female	25-30	1.56
284	Female	35-40	1.55
288	Female	25-30	1.64
290	Male	35-40	-
293	Male	35-40	1.73
295	Male	35-40	1.81
297	Male	45+	1.71
298	Male	45+	1.71
301	Female	25-30	1.68
305	Unsexed	Adult	-
310	Male	20-25	1.66
311	Child	<2-4	-
319	Infant	4-6 months	-
320	Unsexed	Adult	-
323	Male	45+	1.75
326	Male	30-35	1.74
328	Male	35-40	1.75
330	Male	40-45	1.81
337	Child	2-4	-
353	Infant	<1	-
354	Unsexed	Adult	-
355	Unsexed	Adult	-
360	Unsexed	Adult	-
364	?Male	Adult	-
370	Male	30-35	1.64

<u>BURIAL NO.</u>	<u>SEX</u>	<u>AGE</u>	<u>STATURE</u>
376	Child	1-3	-
393	Child	6-10	-
397	Male	18-20	1.73
398	Male	40-45	1.65
406	?Female	Adult	-
417	Male	25-30	1.66
418	Female	45+	1.64
419	Male	25-30	1.70
421	Child	2-3	-
422	Infant	-	-
426	Male	30-35	1.75
428	Unsexed	Adult	-
430	Male	45+	1.67
433	Child	2-4	-
434	Child	2-4	-
436	Unsexed	Adult	-
439	Male	35-40	1.76
440	?Male	45+	1.67
441	Male	30-35	1.76
450	?Male	Adult	1.68
453	Male	25-30	1.69
456	?Male	Adult	-
459	Infant	-	-
461	Child	2-4	-
490	Female	Adult	1.53
514	Child	1-1.5	-

FEMALE MAXILLAE (Total 11)

	Tooth Number								Total
	1	2	3	4	5	6	7	8	
Teeth present	9	12	15	16	14	13	10	10	99
Lost antemortem	5	5	2	4	4	4	7	2	33
Lost postmortem	6	3	3	-	3	3	-	1	19
?Congenitally absent	-	-	-	-	-	-	-	3	3
Alveolar margins	20	20	20	20	21	20	16	15	152

	Tooth Number								
	1	2	3	4	5	6	7	8	Total
Teeth present	10	16	18	17	14	13	14	7	109
Lost antemortem	3	2	-	1	4	6	5	7	28
Lost postmortem	7	2	2	2	1	1	1	1	17
?Congenitally absent	-	-	-	-	-	-	-	5	5
Alveolar margins	20	20	20	20	19	20	20	20	159

	Tooth Number								Total
	1	2	3	4	5	6	7	8	
Teeth present	26	40	45	46	43	35	32	24	291
Lost antemortem	3	2	-	5	4	16	10	10	50
Lost postmortem	19	8	6	2	6	1	5	4	51
?Congenitally absent	-	-	-	-	-	-	-	2	2
Alveolar margins	48	50	51	53	53	52	47	40	394

	Tooth Number								
	1	2	3	4	5	6	7	8	Total
Teeth present	37	43	44	44	41	32	37	29	307
Lost antemortem	2	-	1	-	4	13	7	10	37
Lost postmortem	10	6	4	5	4	5	5	3	42
?Congenitally absent	-	-	-	-	-	-	-	6	6
Alveolar margins	49	49	49	49	49	50	49	48	392

[illegible]

DENTAL ABNORMALITIES - Individual results

IMPACTION

<u>Burial</u>	<u>Tooth</u>	<u>Comments</u>
213	<u>8</u> ₁	horizontal
	<u>8</u> ₁	mesio-angular
269	<u>8</u> ₁	'vertical', ie never completely erupted
330	<u>8</u> ₁	mesio-angular

ROTATION

267	<u>3</u> ₁	rotated mesiolabially, mild
276	<u>4</u> ₁	rotated mesiolabially, mild
284	<u>8</u> ₁	rotated mesiopalatally, 90°
288	<u>4</u> ₁	rotated mesiolabially, ca 45°
	<u>4</u> ₁	" " " "
	<u>5</u> ₁	" " " "
	<u>5</u> ₁	rotated mesiopalatally, over 45°
	<u>6</u> ₁	" " " "
	<u>6</u> ₁	" " " "
430	<u>3</u> ₁	rotated mesiolabially, mild

CROWDING

213		Crowding of mandibular incisors and canines
268		Crowding of mandibular incisors
297	<u>1</u> ₁	Slightly instanding
310		Upper and lower lateral incisors completely instanding
398	<u>3</u> ₁	Slightly outstanding
426	<u>1</u> ₁	Slightly instanding

POSSIBLE CONGENITAL ABSENCE

225	<u>8</u> ₁	
276		All four third molars
288		All except upper right third molar (site damaged)
214	<u>8</u> ₁	
269	<u>8</u> ₁	
330	<u>8</u> ₁	
370		All except upper left third molar (site damaged)
419	<u>8</u> ₁	
426	<u>8</u> ₁	

ALVEOLAR RESORPTION AND CALCULUS - Individual results

<u>Burial</u>	<u>Alveolar resorption</u>	<u>Calculus</u>	<u>Age</u>
213	Considerable	Medium	20-25
214	Medium	Slight	30-35
215	Medium	Slight	Mature adult
216	None	Slight	20-25
217	Medium	Slight	45+
225	Considerable	Considerable	20-25
231	Medium	Slight	35-40
244	Considerable	Medium	30-35
266	Very slight	Slight	20-25
267	Considerable	Medium	30-35
268	Considerable	Medium	30-35
269	Medium	Medium	45+
276	Medium	Slight	40-45
283	Slight	Slight	25-30
284	Slight	Very slight	35-40
288	Slight	None	25-30
290	Medium/Considerable	Medium	35-40
293	Medium	None	35-40
297	Medium	Slight	45+
301	Medium	Slight	25-30
310	Slight	Medium	20-25
323	Medium	Medium	45+
326	Slight	Slight	30-35
328	Very slight	Slight	35-40
330	Slight	Slight	40-45
370	Medium	Slight	30-35
397	Very slight	Very slight	18-20
398	Slight	Slight	40-45
417	Considerable	Medium	25-30
418	-	Considerable	45+
419	Slight	Slight	25-30
426	Slight	Slight	30-35
430	Medium/Considerable	Very slight	45+
439	Medium	Medium	35-40
440	Medium	Very slight	45+
441	Slight	Medium	30-35
453	Medium	Slight/Medium	25-30

ENAMEL HYPOPLASIA - Individual results

<u>Burial</u>	<u>Comments</u>
213	2 ridges visible in central upper incisors
215	3 ridges visible in canines
225	1 ridge visible in premolars
266	3 ridges visible in lower incisors and canines
269	2 ridges visible in upper central incisors
288	2 ridges visible in upper premolars, 3 in incisors and canines
290	2 ridges, considerable discolouration, central upper incisors
310	1 (possibly 2) in lower premolars and canines
328	1 ridge in incisors, 2 in canines
397	1 ridge in upper premolars
398	At least 3 ridges in incisors and canines
418	1 ridge in lower premolar
419	2 (possibly 3) in incisors, canines and premolars
426	1 ridge in incisors and canines

CARIES : MANDIBLES - Individual results

<u>Burial No.</u>	<u>Tooth</u>	<u>Comments</u>
213	$\overline{6}$ $\overline{8}$	Distal, slight Occlusal, slight
217	$\overline{6}$	Roots only remain
218	$\overline{6}$	Buccal, slight
266	$\overline{7}$ $\overline{7}$	Buccal, slight Buccal, slight
268	$\overline{5}$ $\overline{6}$	Distal, slight Roots only remain
269	$\overline{7}$	Occlusal, slight
283	$\overline{6}$ $\overline{6}$	Distal, medium Distal, slight
284	$\overline{5}$ $\overline{7}$	Root only remains Occlusal, slight
288	$\overline{6}$	Distal, medium
297	$\overline{8}$ $\overline{8}$	Buccal, slight Buccal, medium
301	$\overline{6}$ $\overline{6}$ $\overline{7}$ $\overline{8}$ $\overline{8}$	Roots only remain " " " " " " Buccal, slight Distal, slight
330	$\overline{2}$	Distal, slight
370	$\overline{6}$ $\overline{6}$ $\overline{7}$ $\overline{7}$	2 foci, buccal and distal, both slight Buccal, considerable Roots only remain Buccal, medium
418	$\overline{4}$	Mesial, slight
430	$\overline{4}$ $\overline{7}$	Mesial, slight Mesial, considerable
441	$\overline{8}$	Distal, slight
453	$\overline{6}$ $\overline{7}$ $\overline{8}$	Distal, slight Occlusal, slight Roots only remain

Total no of carious teeth: mandibles = 33 (13 female, 18 male,
2 unsexed)

CARIES : MAXILLAE - Individual results

<u>Burial No.</u>	<u>Tooth</u>	<u>Comments</u>
213	<u>16</u>	Mesial, medium
215	<u>13</u>	Distal, medium
	<u>14</u>	Root only remains
	<u>15</u>	Distal, slight
216	<u>41</u>	Mesial, slight
	<u>14</u>	Mesial and distal, both slight
225	<u>81</u>	Buccal, slight
244	<u>17</u>	Distal, medium
267	<u>61</u>	Mesial, considerable
	<u>16</u>	Mesial, considerable
268	<u>14</u>	Root only remains
	<u>51</u>	Root only remains
269	<u>13</u>	Mesial, slight
	<u>41</u>	Distal, slight
	<u>51</u>	Root only remains
	<u>16</u>	Root only remains
	<u>17</u>	3 foci: mesial, slight; buccal and distal, both medium.
283	<u>61</u>	Roots only remain
284	<u>41</u>	Root only remains
	<u>51</u>	Root only remains
301	<u>16</u>	Root only remains
	<u>17</u>	Root only remains
	<u>81</u>	Mesial, medium
310	<u>16</u>	Distal, slight
	<u>61</u>	Distal, slight
	<u>17</u>	Mesial, slight
	<u>17</u>	Mesial, slight
326	<u>18</u>	Roots only remain
328	<u>17</u>	Distal, medium
330	<u>61</u>	Roots only remain
	<u>17</u>	Distal, considerable
370	<u>17</u>	Buccal, slight
397	<u>17</u>	Mesial, slight
398	<u>17</u>	Distal, medium

Caries : Maxillae (cont.)

<u>Burial No.</u>	<u>Tooth</u>	<u>Comments</u>
417	<u>16</u>	Distal, slight
	<u>17</u>	Mesial, slight
418	<u>41</u>	Root only remains
430	<u>13</u>	2 foci: mesial, medium; labial, slight
	<u>15</u>	Root only remains
439	<u>71</u>	Distal, considerable
	<u>81</u>	Mesial, medium
	<u>18</u>	Mesial, slight
440	<u>16</u>	Root only remains
441	<u>51</u>	Distal, slight
	<u>61</u>	Mesial, slight
	<u>16</u>	Roots only remain
	<u>17</u>	Roots only remain
453	<u>41</u>	Root only remains
	<u>51</u>	Root only remains
	<u>81</u>	Occlusal, slight
	<u>18</u>	Buccal, medium

Total no. of carious teeth: maxilla = 51 (14 female, 37 male)

INCIDENCE OF CARIES (Laterality not considered)

	Tooth Number								
	1	2	3	4	5	6	7	8	Total
Maxilla:	-	-	3	8	7	13	13	7	51
Mandible:	-	1	-	2	2	11	9	7	32
TOTAL	-	1	3	10	9	24	22	14	83

LOCATION OF CARIES CAVITIES (Laterality not considered)

	Tooth Number								
	1	2	3	4	5	6	7	8	Total
Occlusal	-	-	-	-	-	-	3	2	5
Buccal	-	-	1	-	-	2	5	5	13
Interstitial	-	1	3	6	3	12	12	5	42
Indeterminate	-	-	-	5	6	9	4	2	26

ABSCESSSES - Individual results

<u>Burial No.</u>	<u>Site</u>	<u>Comments</u>
213	<u>6</u>	Tooth carious.
215	<u>3</u>	Tooth carious.
	<u>4</u>	Drained buccally. Tooth carious.
217	<u>6</u>	Drained buccally. Tooth carious.
231	<u>5</u>	Drained buccally and also into maxillary sinus. Tooth lost postmortem.
	<u>6</u>	Tooth lost antemortem.
	<u>7</u>	Drained buccally. Tooth lost postmortem.
267	<u>6</u>	Tooth carious.
	<u>6</u>	Drained buccally. Tooth carious.
283	<u>6</u>	Tooth carious.
	<u>6</u>	" "
284	<u>4</u>	Drained buccally. Tooth carious.
	<u>5</u>	" " " "
	<u>5</u>	" " " "
290	<u>4</u>	Drained buccally. Pulp exposed due to considerable tooth wear.
	<u>7</u>	Tooth lost postmortem.
	<u>8</u>	Tooth lost antemortem.
301	<u>7</u>	Drained buccally. Tooth lost antemortem.
323	<u>6</u>	Drained buccally. Pulp exposed due to excessive wear.
	<u>6</u>	Tooth lost postmortem.
	<u>7</u>	" " "
	<u>7</u>	Tooth lost antemortem.
326	<u>8</u>	Drained buccally. Tooth carious.
328	<u>7</u>	Drained buccally. Tooth carious.
330	<u>6</u>	Exposure of pulp through tooth wear.
	<u>6</u>	Drained buccally. Tooth carious.
	<u>7</u>	" " " "
370	<u>6</u>	Drained buccally. Tooth carious.
	<u>7</u>	" " " "
398	<u>7</u>	Tooth carious.
	<u>4</u>	Drained buccally. Tooth carious.
418	<u>5</u>	Tooth lost postmortem.
430	<u>5</u>	Drained buccally. Tooth carious.
	<u>7</u>	Tooth carious.

ABSCESSSES (Cont.)

<u>Burial</u> <u>No.</u>	<u>Site</u>	<u>Comments</u>
439	<u>7</u> ₁	Drained buccally and also into maxillary sinus. Tooth carious.
440	<u>1</u> ₁ <u>6</u> ₁ <u>6</u> ₁	Pulp exposed due to excessive wear. Tooth carious. Tooth lost postmortem.
441	<u>6</u> ₁ <u>7</u> ₁	Tooth carious. Tooth carious.
453	<u>4</u> ₁ <u>5</u> ₁ <u>8</u> ₁	Tooth carious. " " " "

Total No. of Individuals with Abscesses: 21 (7 female, 13 male, 1 unsexed)

Total No. of Abscesses: 43

Abscesses associated with caries:	28
Tooth lost antemortem:	4
Tooth lost postmortem:	7
Pulp exposed through wear:	4
	43

Abscess Sites (laterality not considered)

	<u>Tooth Number</u>								
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>Total</u>
Maxilla:	-	-	1	4	4	8	8	2	27
Mandible:	1	-	-	1	2	7	4	1	16
Total	1	-	1	5	6	15	12	3	43

DEVELOPMENTAL ANOMALIES - Individual results

- 213 Supracondyloid foramen (septal aperture), right and left humeri
 6 lumbar vertebrae (no. of thoracic could not be established)
- 225 Double superior articular facets, atlas
- 244 6 sacral vertebrae
 Acetabular creases, bilateral
- 267 Os acromiale, bilateral
- 268 Scapular foramen, bilateral
 Bifid right rib
 Bipartite patella
 'Double shaft' of right 1st metatarsal
- 269 Scapular foramen, bilateral
- [272 Spondylolysis, L4 and L5]
- 276 [Spondylolysis, L5]
 Incomplete neural arch, atlas
 Double superior articular facet, atlas, left side
- 284 Third trochanter, left femur
- 288 6 lumbar, 11 thoracic vertebrae
- 290 Accessory bone at anterior talar facet of both calcanei
 Atlas in 2 halves
- 293 Ossified stylohyoid ligament
- 298 6 sacral, 4 lumbar
 Os trigonum, left talus
- 301 6 sacral, 11 thoracic
- 310 [Spondylolysis, L6, right side only]
 Spina bifida occulta
 6 lumbar, 11 thoracic
 Sternum in 2, possibly 3 separate segments
- 330 Supracondyloid process, right and left humeri
- 370 Incomplete neural arch, atlas
 6 sacral vertebrae
- 417 Supracondyloid process, right and left humeri
- 418 Accessory bone at anterior talar facet, both calcanei
 Accessory bone at right navicular
- 419 'Bridging' of atlas
- 426 Os acromiale, right side

Developmental anomalies, cont.

- 430 Supracondyloid foramen (septal aperture), left humerus
Double superior articular facet, atlas, right side
- 439 Os acromiale, left side
- 440 Supracondyloid foramen (septal aperture), left humerus
Sternal foramen
- 441 Rudimentary rib, 12th thoracic vertebra
- 450 3rd trochanter, left femur
- 456 Supracondyloid foramen (septal aperture), right humerus
- 490 Os acromiale, right side

PATHOLOGY - Individual results

Note: In relation to vertebrae, C = Cervical, T = Thoracic, L = Lumbar.
(s) refers to the superior surface of a vertebral body
(i) " " " inferior " " " " "

Periostitis has been classified as slight where it is represented by little more than an irregular surface, generally with distinct linear striations, and as medium where plaques of new bone are also present.

Arthrosis has been separated from simple osteophytic lipping and the term used in those cases where distinctive joint surface changes have occurred, such as sclerosis, porosity, cysts or eburnation.

- 205 Slight cribra orbitalia, right and left orbits
- 209 Medium cribra orbitalia, right and left orbits
- 212 Slight cribra orbitalia, right and left orbits
- 214 Slight periostitis, right tibia, midshaft, lateral surface
" " right fibula, upper third of shaft, laterally
- 215 Slight osteophytic lipping of 5 middle thoracic vertebrae
- 216 Schmorl's node, L2 (i)
- 225 Arthrosis: Right and left mandibular condyles, with lipping,
small cysts at surface of joint
Spinal osteophytosis: Most thoracic and all lumbar vertebrae
- 231 Healed fracture of shaft of left 5th metacarpal
Healed fracture of right radius, midshaft, callus resorbed
leaving bone with a slight angular deformity
Possible trauma, centre of frontal bone - rough depression, ca.
12 x 6.5mm, surrounded by a small ridge of bone
- Spinal osteophytosis: slight - 6 thoracic and 2 lumbar
considerable - 2 thoracic
- Slight lipping: Right and left distal humeri
Left proximal ulna and radius
Left proximal metacarpals
Left femur head
Right and left proximal tibiae
- Medium lipping: 2 lumbar intervertebral facets
Right and left distal femora
Right distal ulna

Evidence of a neurological abnormality, causing unilateral paralysis? All bones of the right side smaller and more slender than those of the left (apart from the bones of the skull):

Skull: The skull was very broken, and reconstruction was not attempted. However, comparison of right and left malar bones, and right and left temporal bones showed no apparent differences in size between the two sides.

Clavicles: Appear very elongated.

Scapulae: Left glenoid cavity broader than the right; left has slight lipping and a small piece of raised bone on the articular surface. Both right and left glenoid cavities have uneven surfaces.

Ribs: Many have lipping of the costo-vertebral and costo-transverse facets.

Humeri: Right humerus 14mm shorter than left. Both have slight to medium lipping of their heads, and considerable lipping of the distal ends. Left humerus has an area of eburnation on the posterior surface of the trochlea, right humerus on the capitulum, with the posterior trochlea of the right humerus being very rough and uneven.

Radii: Right more slender than left; length cannot be measured. Both have medium lipping of proximal ends, right also has area of eburnation. Left radius, distal end, has eburnation and cystic formation at the surface which articulates with the scaphoid.

Ulnae: Right more slender than left, but cannot be measured, owing to the destruction of much of the olecranon, the cause of which is uncertain. The proximal end of the left ulna has medium lipping, with eburnation of the right half of the olecranon. The distal end of the right ulna has a small area of lipping.

Carpals: No right carpals present. Those left carpals present show medium to considerable lipping, with some deformation of shape of the scaphoid and trapezoid. The scaphoid is eburnated where it articulates with the radius; the head of the capitate also has a small area of eburnation.

Metacarpals: All the right metacarpals are smaller and more slender than the left. The size difference increases from 5th to 1st, ie little size difference between the two 5th metacarpals (1.3mm) increasing to 4.3mm difference in length between the 1st metacarpals. All have slight lipping; eburnation present between the 4th and 5th right metacarpals and on the head of the 1st left metacarpal.

Phalanges: Not sorted into right and left. All have some lipping of the articular surfaces.

244
cont.

Spine: All cervical articular facets have slight lipping, with the exception of C2 (axis) lower right and C3 upper right which are markedly arthritic and eburnated, and C6 lower left/C7 upper left. All vertebrae have varying degrees of osteophytes and there is slight scoliosis, with L2 and L3 tilting to the right. In addition there are anomalous articulations of L4 with L5 and L5 with the sacrum, both on the left side; that of L5 is considerable, consisting of a mass of bone at the left inferior facet which articulates with a much enlarged facet at S1, measuring ca. 32mm x 25mm. The auricular surface on the right side of the sacrum measures ca. 29mm compared to ca. 55mm on the left. Osteochondrosis occurs on C3, 4 and 5 (i), C6 (s), T9 (i), T10 (s), T12 (i).

Innominate: Both ilia are very thin in the centre, more like a scapula body, with slight buckling of the bone. The right side is smaller, with a smaller auricular surface.

Femora: The right femur is more slender, and 12 mm shorter than the left. The size of the head and the bicondylar breadth are also less on the right side. There is very slight lipping of the left condyles.

Tibiae: The right tibia, as well as being more slender than the left, appears to be twisted, so that if the proximal end is placed in its anatomical position, the foot would be facing laterally at an angle of at least 45°. On the left tibia, a small tongue of bone projects upwards towards the tubercle, at the site of the patellar ligament.

Fibulae: Both are incomplete. The right is very thin and bowed, the left somewhat flattened and thickened.

Feet: Only the right foot is present, and several of the tarsals are damaged, but there is evidence of slightly anomalous facets, especially between the calcaneus and the cuboid, and between the cuboid and the 4th and 5th metatarsals.

260

Distinct concave area, 16.5mm x 22.5mm, on anterior surface of head of left humerus, half of it eburnated. (Coracoid process of left scapula broken, but anyway unlikely to have caused this lesion). Considerable lipping of the lower margin of humerus head. May be result of some ossified body within the short head of the biceps muscle.

Slight lipping: Left 1st metacarpal, distal end
Left elbow (distal humerus, proximal ulna & radius)
Left distal ulna
Left glenoid cavity of scapula

- 265 Slight lipping: Left distal humerus
 Left proximal ulna
 Right and left distal femora
- 267 Osteochondritis dissecans - proximal end of left 1st toe phalanx
 - right femoral head (healed)
 Spinal osteophytosis: Very slight on a couple of upper thoracic.
 Slight lipping: Right and left proximal and distal humeri
 " " " " " " radii
 " " " " " " ulnae
 Both knees (rt. and left distal femora
 proximal tibiae and patellae)
- 268 Osteochondrosis, C4 (i), C5 (i & s), C6 (i & s), C7 (s)
 Spinal osteophytosis: Slight to medium, all lumbar, most thoracic
 and lower 4 cervical
- 269 Medium periostitis, right tibia, upper half of shaft, medial and
 lateral surfaces, and anterior border.
 Spinal osteophytosis: Slight to medium, most lumbar and thoracic,
 2 cervical
 Slight lipping: Thoracic intervertebral facets T2-T5
 Right and left proximal and distal humeri
 Right and left proximal ulnae
 Right sacroiliac joint
 Right femur head
 Right and left knees (distal femora, patellae,
 proximal tibiae)
- 272 Slight periostitis, right tibia, whole length of shaft, medially
 " " left tibia, medially on whole shaft and
 laterally on lower third of shaft
 Spondylolysis, L4 and L5
 Schmorl's nodes, T4, T5 (i), T6-12 (i & s)
 L1-4 (i & s), L5 (s)
 Osteochondrosis, C6 (i), C7 (s), T8 (i)
 Spinal osteophytosis: Varying degrees, affecting all vertebrae
 present
 Slight lipping: Left proximal ulna
 Left acetabulum
 Right and left distal femora
 Consid. lipping: Several costotransverse facets of the ribs
- 276 Spondylolysis, L5
 Osteochondrosis, C5 (i), C6 (i & s), C7 (s)
 Spinal osteophytosis: Slight, all lumbar, most thoracic and lower
 3 cervical

- 284 Very slight cribra orbitalia, right and left orbits
 Osteochondritis dissecans, left 1st proximal toe phalanx
 Arthrosis: Left 1st metatarsal, distal end, with eburnation and
 cystic formation; also 3 juxta-articular cysts on
 the left side. (Possible result of osteochondritis in
 phalanx?)
 Spinal osteophytosis: Slight on at least 3 lumbar and 4 thoracic.
 Slight lipping: Left humerus head
 Left elbow (distal humerus, proximal ulna)
- 290 Osteochondrosis, C6 (i), C7 (s)
 Osteochondritis dissecans, left 1st proximal toe phalanx
 Arthrosis: Left 1st interphalangeal toe joint, with considerable
 lipping, porosity of both surfaces, and eburnation.
 Distal phalanx was probably angled outwards, away from
 the rest of the foot.
 Spinal osteophytosis: Slight to medium on lower 3 cervical. Most
 of spine missing.
- 293 Very slight periostitis, right and left tibiae, lower third of
 shaft, medial surface
- 295 Healed fractures of 3 right ribs
 Medium periostitis, right tibia, middle and upper thirds of shaft,
 medial and posterior surfaces
 " right fibula, middle and lower thirds of shaft,
 medial and posterior surfaces
 Thickening of shaft of right 5th metatarsal
 Spinal osteophytosis: Slight to medium on those lumbar and
 thoracic present
 Arthrosis: Erosive arthropathy between a middle and a distal row
 phalanx of the hand.
 Left and right elbow (distal right humerus has area of
 eburnation on capitulum; both right and left
 radii have eburnated areas on their heads)
 Acromial end of right clavicle, porotic cystic surface
 Right 1st metatarsophalangeal joint, with medium
 lipping and rough uneven joint surfaces
 Left 1st proximal toe phalanx, as above (left 1st
 metatarsal missing)
 Slight lipping: Right proximal humerus
 Right and left carpals, metacarpals and hand
 phalanges
 Left distal femur
 Left patella
 Right and left tarsals, metatarsals and foot
 phalanges
- 297 2 healed fractures of right fibula, one midshaft and one ca. 60-
 80mm below the proximal end.
 Slight periostitis, left tibia, lower half of shaft, medially
 Spinal osteophytosis: Vertebrae very fragmentary, but lipping
 appears considerable on some thoracic, with
 3 bodies fused (probably either T7, 8, 9 or
 T8, 9, 10). Others show slight osteophytes.

- 297 cont. Arthrosis: Fusion of C5 and C6 at the left articular facet. Lower right C4 and upper right C5 show considerable degeneration.
- Slight lipping: Right humerus head
Left and right elbow (distal humeri, proximal ulnae)
Heads of right 1st and 2nd metacarpals
Right and left distal femora
Right and left tibiofibular joints
- 298 Healed fracture of 2 right ribs
Slight periostitis, left tibia, central and lower shaft medially, lower shaft laterally
" " right fibula, central and lower shaft
Medium " left fibula, " " " "
Osteochondritis dissecans, lower right tibia
Chondromalacia patellae
Osteochondrosis L4 (i), S1 (s)
Slight lipping: Most intervertebral facets
Right and left distal humeri
" " " proximal ulnae
" " " distal radii
" " " carpals, 1st metacarpals
4 hand phalanges
Right and left distal femora
" " " proximal and distal tibiae
" " " patellae
" " " tarsals
- 301 Roughly circular calculus, diameter ca. 53mm. Appearance is similar to that of a small brain or a large walnut! Surface is smooth but extremely uneven, as though a lot of smooth nodules have been concreted together and folded over each other.
Chemical analysis gave the following results:
- | | |
|-----------|----------|
| Carbonate | 3+ |
| Calcium | 3+ |
| Oxylate | negative |
| Ammonium | negative |
| Phosphate | 3+ |
| Magnesium | negative |
| Uric Acid | negative |
| Cystine | negative |
- No firm decision reached as to what this calculus is.
Could be a bladder stone? Another suggestion was calcified fecal material, resulting from chronic constipation.
- Schmorl's nodes, T7,9,10 (i), T8 (i & s)
L1 (i), L2 & 3 (s)
Osteochondrosis, C3 (i), C4 (s), C6 (i), C7 (s)
Spinal osteophytosis: Slight on all lumbar, lower 3 thoracic, 4 cervical
- Slight lipping: L3-L5 intervertebral facets
Left elbow (distal humerus, proximal ulna)
Right and left distal and proximal femora

- 310 Spondylolysis, L6, right side only
Small area of subperiosteal new bone, 16mm x 8mm, right femur, upper shaft, medially
- 323 Anterior dislocation of left hip joint. New articular facet for femur formed in the area of the anterior inferior iliac spine. Femur head considerably damaged postmortem, but there is evidence of eburnation, considerable lipping and distortion of the normally rounded head. The acetabulum no longer retains a smooth articular surface. There is an exostosis ca. 18mm long on the lesser trochanter presumably resulting from the same traumatic incident.
- Slight to medium periostitis, occurring in patches over the whole shaft of the left fibula.
- Schmorl's nodes, T7,8 (i), T9, 10, 12 (s), T11 (i & s)
L4 (s)
- Arthrosis: Left pisiform has area of eburnation
Right and left sacroiliac joints, degeneration of surface
- Spinal osteophytosis: Slight on lumbar and lower 6 thoracic, remainder too damaged
- Slight lipping: Left mandibular condyle
Right and left distal humeri
" " " proximal and distal ulnae
" " " proximal and distal radii
" " " carpals
Many rib facets
Right femur head
Right and left knees (distal femora, patellae, proximal tibiae)
- Medium lipping: Lower thoracic and all lumbar articular facets
- 326 Probable slipped epiphysis, left femur head, displaced inferiorly and posteriorly. Superior surface has a band of eburnation some 26mm wide, and cysts have formed in the remainder of the upper head. There is considerable lipping of the lower margins of the joint. An area of eburnation occurs on the superior rim of the left acetabulum, and there is some marginal lipping.
- Slight periostitis, right tibia, central shaft, medial surface
- Arthrosis: Right mandibular condyle, some lipping and degeneration of lateral half of joint surface
Left 1st metatarsal, distal end, with small area of eburnation on the head
Right intervertebral facet between T3 and T4, slight lipping and porosity
- Spinal osteophytosis: Slight on lumbar and lower 6 thoracic
- 328 Spinal osteophytosis: Spine fragmentary, but appears to be slight osteophytes present on lumbar and thoracic (cervical missing)
- Slight lipping: Right and left distal humeri
" " " proximal ulnae
Right femur head
Right and left tarsals, proximal metatarsals

- 330 Osteochondritis dissecans: right patella
 " " left tibia, distal end
 Spinal osteophytosis: Varying degrees, slight to considerable on
 those lumbar and thoracic present
- 355 Slight lipping: Right and left tarsals
- 360 Probable healed fracture of lateral malleolus, left fibula,
 possibly with bony fusion to left tibia at lateral margin of
 distal end (bones somewhat broken and damaged postmortem)
- Slight lipping: Distal left tibia and fibula
 Left talus
- 370 Osteochondrosis: C3 (i), C5 (i), C6 (s, i), C7 (s)
 Arthrosis: Intervertebral facets - medium to considerable between
 C3-C7. Left facet between C7 and T1 is eburnated.
 Slight degenerative changes at both ends of left
 clavicle (NB acromial end is unusually thin and
 flattened)
 Eburnation of joint surfaces between pisiform and
 triquetral
 Right and left 1st metatarsophalangeal joints; lipping
 and areas of eburnation on both surfaces. In addition,
 juxta-articular cysts on the medial side of the meta-
 tarsal heads
 Spinal osteophytosis: Slight on two lower thoracic, slight to
 medium on 4 lower cervical
 Slight lipping: Right scaphoid and lunate
 Right and left 1st interphalangeal (finger)
 joint
 Right and left tarsals and metatarsals
- 398 ??Seronegative spondarthritis:
 Right foot: Ankylosis of first 3 metatarsals, 3 cuneiform bones
 and navicular in one piece, ankylosis of 4th and 5th
 metatarsals and cuboid in another. Exuberant new bone
 growth around talo-calcaneal, talo-navicular and
 calcaneo-cuboid joints, with very uneven roughened
 articular surfaces. Distal 1st metatarsal considerably
 affected in the same way, but not remaining metatarsal
 heads. Joint between talus and tibia/fibula completely
 unaffected. Slight lipping of proximal ends of a few
 phalanges.
- Left foot: Virtually the same as the right foot, but the 1st
 tarso-metatarsal joint appears unaffected.
- Left carpals: Also show similar new bone growth and roughening
 of articular surfaces, although no ankylosis has taken
 place. Metacarpals hardly appear to be affected, nor do
 any of right carpals or metacarpals.

Arthrosis: Left 1st metacarpophalangeal joint, with a small area
of eburnation

Spinal osteophytosis: Anterior fusion of T12 and L1 bodies
(articular facets unaffected). Otherwise
only very slight osteophytes on most of
thoracic spine

Slight lipping: Right and left distal humeri
" " " proximal ulnae
Right lunate
Right and left knees (distal femora, patellae,
proximal tibiae)

Spinal osteophytosis: Slight to medium on all lumbar and lower 4 thoracic. All others missing.

Slight lipping: Lower thoracic and all lumbar articular facets

Right and left distal humeri

" " " proximal ulnae

" " " carpals, metacarpals

8 hand phalanges

Right distal femur

Probable healed fracture of left innominate, through the superior and possibly also the inferior ischio-pubic rami.

Fusion of 1 middle and 1 distal row toe phalanges
Schmorl's node, T7 (i)

Arthrosis: Considerable arthrosis of the articular facets of the spine, in particular C4 and C5, the lower half of the thoracic spine, and the upper lumbar.

Right and left sacroiliac joints show degenerative changes, with roughened and porous surfaces

Left mandibular condyle, slight lipping and porosity

T11 wedge-shaped, probable compression fracture
Exostosis on right tibia, distal end, lateral surface, measures
ca. 17mm x 8mm. Site of interosseus ligament.
Schmorl's nodes, T8, 9, 10 (i), T11, 12 (i, s), L1 (s)
Spinal osteophytosis: Slight on two lumbar, slight to medium on
lower 6 thoracic
Slight lipping: Several costovertebral joints
Right tarsals

Slight periostitis, right and left tibia, midshaft, laterally
Schmorl's nodes: T5-8 (i), T10 (i), T11, 12 (s, i)
 L1 (i), L3 (s, i), L4 (s)
Arthrosis: Articular facets between T9, T10 and T11
Slight lipping: Some costotransverse joints
 Right carpals
 Right and left tarsals
 " " " proximal and distal metatarsals

- 430 Osteochondritis dissecans, right patella
 Osteochondrosis, C5 (i), C6, C7 (s & i), T1 (s)
 Arthrosis: Right clavicle, sternal and acromial ends
 Cervical vertebrae, almost all articular facets,
 varying degrees of marginal new bone growth and
 roughness and porosity of the surface
 Spinal osteophytosis: Slight to medium on lumbar and cervical.
 Upper thoracic fused on the right side by
 osteophytic growth, ie T3, 4, 5, 6 and
 possibly 7. Lower thoracic missing.
 Slight lipping: Left proximal and distal humerus
 Left glenoid cavity
 Right patella
 Consid. lipping: Ankylosis of right and left sacroiliac joints
 by extension of lipping across superiorly. No
 involvement of the joint surfaces themselves.
- 439 Healed fractures of 2 left ribs
- Almost round, slightly raised lesion measuring 10mm x 8.5mm on
 outer table of frontal bone, ca. 13mm above left orbit. Surface
 is finely pitted around its outer edge, more open at the centre,
 with a trabecular appearance. Probably a benign tumour, possibly
 a small haemangioma.
- Osteochondrosis, C6 (i), C7 (s)
 Arthrosis: Both ends of left clavicle roughened and porotic
 Left hip, considerable lipping of femur head, with
 degenerative change beginning on the posterior surface;
 acetabulum lipped marginally, with roughened articular
 surface.
 Spinal osteophytosis: Varying degrees on those vertebrae present,
 mainly lower thoracic
- 440 Osteochondritis dissecans, sternal end of left clavicle
 Schmorl's nodes, T11 (i), T12 (s), L3 (s)
 Osteochondrosis, C3 (i), C4, 5, 6 (s & i), C7 (s)
 Spinal osteophytosis: Slight on two lumbar, lower 5 thoracic and
 lower 3 cervical
 T12 fused to L1 anteriorly, with very smooth
 surface - possibly a local ossification of
 the anterior ligament
 Arthrosis: Right articular facets between C2 and C3
 Left " " " C3 and C4
 Right and left mandibular condyles
- 441 Osteochondritis dissecans, right and left 1st proximal toe
 phalanges
 Spinal osteophytosis: Slight on 2 lumbar and several middle
 thoracic
 Slight lipping Right and left tarsals
- 450 Juxta-articular cyst, distal end of right 1st metatarsal

- 453 Fusion of 1 right middle and distal row toe phalanges
Possible fusion of right sacroiliac joint suggested by broken area
 of lipping on the anterior margin of right sacral
 auricular surface
Spinal osteophytosis: Slight to medium on all lumbar and all but
 upper 2 thoracic
Slight lipping: Most lumbar articular facets
 Right and left carpals
 Right and left tarsals
- 461 Slight cribra orbitalia, right and left orbits
- 490 Spinal osteophytosis: Slight on the 4 lumbar vertebrae which could
 be examined. Rest too fragmentary.
- 514 Slight cribra orbitalia, right orbit

CONTEXTS

- 122 Foot phalanx
- 130 Hand phalanx
- 133 Thoracic vertebra, with slight osteophytosis
Rib fragment
- 136 Cranial vault fragment
1 upper right premolar
Lumbar vertebra centrum fragment
2 vertebral arch fragments
3 hand phalanges
Metatarsal/metacarpal shaft fragment
Left 1st metatarsal
- 137 Left 1st metatarsal
- 140 3 cranial vault fragments
2 fragments of calcified thyroid cartilage
1 mandible, missing both condyles and left coronoid process
- 8 7 6 5 / / / / | / 2 3 4 5 6 7 8
 2
- Vertebrae: Cervical - 3 complete, incl. 1 axis
 Thoracic - 1 relatively complete, 2 body
 fragments, 3 neural arch fragments
 Lumbar - 1 complete, 1 centrum fragment
- Ribs: 13 fragments
Right humerus, distal end
Left 3rd metacarpal
Hand phalanx
Left 4th metatarsal
- Sub-adult
Basilar part of occipital bone, unfused
1 unfused vertebral centrum
2 unfused " arches
Glenoid cavity of right scapula
Right humerus, proximal diaphysis
Right radius, distal diaphysis
Left femur, proximal diaphysis
Femoral shaft fragment
- + 8 unidentified fragments
- 142 1 rib fragment
Hand phalanx

- 142 Sub-adult
 cont. 2 cranial vault fragments
 Distal diaphysis of tibia
 + 1 unidentified fragment
- 143 Cranial vault fragment
 Scapula spine fragment
 3 rib fragments
 Left ulna, proximal half
 Right 2nd metacarpal fragment
 Metacarpal head fragment
 2 iliac crest fragments
- Subadult
 Longbone shaft fragment
- 145 Parietal fragment
 Lumbar vertebral arch fragment
 Hand phalanx
- 149 Left 1st metacarpal
 Left 4th metacarpal
 2 hand phalanges
 Left 5th metatarsal
 Metatarsal shaft fragment
- 151 Skull 6 cranial vault fragments
 Sphenoid fragment
 Petrous part of right temporal bone
 Mandible, damaged. Probably edentulous
 1 mandibular incisor
 Vertebrae: Thoracic - 1 complete, 2 spines
 Sacral - 2 fragments
 Scapula spine fragment
 Ribs: 9 fragments
 Humerus, head fragment
 Humerus, shaft fragment
 Right 4th metacarpal
 Metacarpal fragment
 Hand phalanx
 Femur, head fragment
 Femur, condyle fragment
 Femur, greater trochanter fragment
 Right tibia, proximal half
 Left tibia, distal end
 2 right 1st metatarsals
 1 " 2nd "
 2 " 3rd "
 1 " 4th "
 1 " 5th "
 2 metatarsal shaft fragments

- 151 Sub-adult
 cont. 6 cranial vault fragments
 Vertebral centrum, unfused
 Clavicle shaft (probably left side)
 3 rib fragments
 Left humerus, distal diaphysis
 Left 1st metacarpal
- 159 Thoracic vertebra
 Metatarsal fragment
- 164 3 small cranial vault fragments
 Left maxilla 1 / 3 / 5 6 7 / , little wear on molars
 Rib fragment
 Right femur, proximal half, recent fusion of head
- Sub-adult
 Right clavicle
- 165 Skull: 9 cranial vault fragments
 Right temporal bone, squamous missing
 2nd mandibular premolar
 Vertebrae: Thoracic - 1 complete, 1 damaged
 1 centrum fragment
 Small sternal fragment
 Ribs: 17 fragments
 Right humerus, shaft fragment
 Right ulna, proximal end, moderate lipping
 Right 5th metacarpal
 Right femur, proximal half
 Femur, head fragment
 Left calcaneus, fragment
 Right 1st metatarsal
 Metatarsal with proximal end missing
 Foot phalanx
 4 longbone shaft fragments
- Sub-adult
 Unerupted molar (crown forming)
- 166 Skull: 6 cranial vault fragments
 Left temporal bone, squamous part missing
 Right clavicle, sternal end
 Hand phalanx
- Sub-adult
 Right maxilla fragment 6 e d / b / 1 (ca 1.5-2 years?)
 2 rib fragments
 Right 5th metatarsal, proximal end still unfused (<ca 18 years)
- 168 2 cranial vault fragments
 Vertebra centrum fragment, slight osteophytes
 Scapula body fragment
 Ulna/radius shaft
 Metacarpal fragment
 Left os pubis fragment

168

cont.

Sub-adult

Vertebrae: 5 unfused centra
 right costal element of sacrum, unfused
 unfused axis fragment
 Right scapula, fragment
 Ribs: 30 small fragments
 Right humerus, distal half
 Right radius, proximal end
 Radius, distal end, unidentified to side
 2 metatarsals
 9 phalanges

Infant

26 skull fragments
 Unfused vertebral arch half
 Right scapula, fragment

169

Skull: 47 cranial vault fragments
 Right and left malar bones
 Right and left nasal bones
 Vertebrae: Cervical - 1 fragment
 Thoracic - 1 relatively complete
 Lumbar - 1 complete, 3 arch fragments
 Manubrium fragment
 8 scapula body fragments
 2 scapula spine fragments
 1 glenoid cavity fragment
 Left clavicle, shaft fragment
 Ribs: 23 fragments
 Right humerus, shaft fragment
 Left humerus, head missing
 Humerus, head fragment
 Ulna, shaft fragment
 Left 5th metacarpal
 Hand phalanx
 Acetabular fragment
 2 iliac fragments
 2 pubic fragments
 Left tibia, proximal end
 Foot phalanx
 4 longbone shaft fragments

171

Left clavicle
 Acetabular fragment
 2 iliac fragments
 Left 5th metatarsal

172

1 small cranial vault fragment
 Mandibular fragment

 / 4 3 2 1 | 1 2 3 4 5

175

Mandibular fragment, left side
 2 rib fragments
 Left 1st metacarpal
 Left 2nd metacarpal
 Metacarpal, proximal end missing
 Right 1st cuneiform
 Foot phalanx

 - 7 8 9 10 11 NP

2 hand phalanges

Sub-adult

10 skull fragments

1 maxilla: 6 e d c / / | - / c d e 6 (ca 6-7 years?)1 mandibular fragment, left side: 1 - / d e 6

Vertebrae: Cervical - atlas fragment, centrum fragment

Right scapula, incomplete

Ribs: 19 fragments

Right humerus, proximal half

Metacarpal fragment

4 phalanges

Os ischium fragment, unfused to os pubis (< 7/8 years)

178

Right ulna, distal end

Metacarpal fragment

Left 4th metatarsal

Foot phalanx

179

Skull: 1 complete frontal bone

20 parietal and frontal fragments

5 occipital fragments

1 right, 1 left temporal bone

maxilla fragment: 1 X 7 6 X X2 mandibular fragments: 1) / / / / / / / / X / X X X2) X 7 X / / / - |

1 very worn premolar

1 very worn canine

1 root (possibly upper central incisor)

Vertebrae: Cervical - 4 virtually complete (3 with osteophytes)

Thoracic - 5 complete (1 with osteophytes),
3 arch fragments

Lumbar - 1 complete, 1 centrum fragment

Sacral - 3 small fragments

Manubrium and sternum, complete

2 sternal fragments

Right scapula, damaged

Left scapula, relatively complete

Right clavicle, acromial end missing

Right clavicle, both ends damaged

Left clavicle, complete

Left clavicle, acromial end missing

Ribs: 45 fragments

Right humerus, distal half

Right humerus, shaft fragment

Left humerus, head missing

Left humerus, distal half

Left humerus, distal shaft with epicondyles missing

Humerus, head fragment

Right radius, complete

" " distal end missing

" " proximal end only

Left radius, distal end missing

Right ulna, complete

" " proximal half

" " distal end fragment

179
cont.

Left ulna, complete, medium lipping of proximal end
 " " virtually complete
 " " proximal end, slight lipping

2 right 3rd metacarpals
 1 left 4th metacarpal
 1 right 5th metacarpal
 7 hand phalanges

Right innominate, 2 fragments (one ? female)
 Left innominate, relatively complete (? male)
 Iliac fragment

Right femur, complete
 " " 2 proximal halves

Left femur, complete
 " " distal half

Right tibia, complete
 Left tibia, complete
 " " proximal half

Right fibula, proximal end
 Left fibula, complete
 2 fibula shaft fragments

Right calcaneus
 Right talus
 Left talus
 Right cuboid

Metatarsals	<u>Right</u>	<u>Left</u>
1st	1	
2nd	1	2
3rd	3	
4th	2	
5th	2	

3 Foot phalanges
 + 9 longbone shaft fragments

Sub-adult

Skull: 1 relatively complete frontal bone
 61 cranial vault fragments
 2 maxilla fragments: 1) ϕ δ δ δ δ
 2) 6 e δ - - -
 2 mandibular fragments: 1) e d / - - -
 2) | - - - ϕ δ

3 loose deciduous incisors
 1 canine crown, unerupted
 2 premolar crowns, unerupted

Vertebrae: 3 cervical vertebrae, fused
 3 centra, unfused
 8 vertebral arch fragments, unfused

Right scapula, damaged
 Left scapula, almost complete

Right clavicle, complete
 " " sternal half

Left clavicle, sternal half
 " " 2 acromial ends

Ribs: 44 fragments

Right humerus, 2 complete diaphyses
 " " 3 proximal halves
 " " 1 distal half

Left humerus, 1 virtually complete diaphysis
 " " 2 proximal ends
 " " 1 distal half

179 Humerus shaft fragment
 cont. Right radius, 3 complete diaphyses
 " 1 virtually complete, distal end missing
 " 1 distal half
 Left radius, distal half
 Right ulna, virtually complete diaphysis
 " 2 proximal ends
 Left ulna, complete diaphysis
 " 1 proximal half
 Ulna, 2 shaft fragments
 5 metacarpal fragments
 8 hand phalanges
 Right innominate: complete os ilium
 anterior part of ilium
 Left " posterior part of os ilium
 Iliac crest fragment
 Acetabular fragment
 Right femur, 2 complete diaphyses
 " " 1 shaft
 3 femoral shaft fragments
 Right tibia, complete diaphysis
 " " distal half
 " " distal end
 Left tibia, 2 diaphyses, distal ends damaged
 Right fibula, virtually complete diaphysis
 Left " " "
 2 fibular shaft fragments
 Left 1st metatarsal
 Metatarsal fragment
 6 longbone shaft fragments

Infant

5 skull fragments
 7 rib fragments
 Left femur, proximal end
 Femur, distal end fragment

185 Scapular body fragment
 Ribs: 9 fragments
 Right ulna, distal end
 Right femur, proximal half
 Left 1st metatarsal
 Foot phalanx

Sub-adult

Vertebrae: 3 unfused centra, 1 unfused arch, 4 unfused sacral
 fragments, 1 lumbar vertebra, recently fused
 5 metacarpals
 10 hand phalanges
 Right and left os ischium, unfused
 Right os pubis, unfused
 Right femur, complete diaphysis
 Right and left tali
 Cuboid, unidentified to side
 2 foot phalanges

- 189 Sacral fragment
 Ribs: 8 fragments
 Left radius, shaft fragment
 Left 1st metacarpal
 " 3rd "
 " 4th "
 Iliac fragment
 Femoral head fragment, unidentified to side
 Fibula, shaft fragment
 1 unidentified longbone shaft fragment
- 190 Left scapula, acromion and spine
 Left tibia, distal end fragment
 Tibial tubercle fragment
 Left calcaneus, fragment
 Right 1st metatarsal
 Left 5th "
 Foot phalanx fragment
 3 small longbone shaft fragments
- 191 Xiphoid process
 Left pubic symphysis fragment
 Right 2nd metatarsal
- 195 Vertebrae: Cervical - arch fragment
 Thoracic - arch "
 Lumbar - spinous process
 Scapula, axillary border
 Ribs: 12 fragments
 Right 3rd metacarpal
 Hand phalanx
 2 iliac fragments
 Right patella
 2 left 5th metatarsals, heads missing
 3 foot phalanges
 1 calcified cartilage fragment
 10 small unidentified fragments
- 196 Rib fragment
 Ischial fragment
 Longbone shaft fragment
- 198 Talus fragment, unidentified to side
 Left 1st metatarsal
 Metatarsal/metacarpal shaft fragment
- 203 4 loose teeth - 1 lower incisor, 1 lower right canine, 1 lower
 right 1st premolar, 1 lower right 2nd premolar
 Acetabular fragment
 6 longbone shaft fragments

221 Vertebrae: Thoracic - one, damaged
 Lumbar - one, with spondylolysis and osteophytes
 Right clavicle, acromial half
 Scapular fragment
 Ribs: 14 fragments
 Right humerus, complete
 3 radius/ulna shaft fragments
 Right innominate: ilium in several pieces
 pubic symphysis

Sub-adult

3 rib fragments
 Right ulna, diaphysis
 3 longbone shaft fragments

Infant

Skull: Squamous part of occipital
 Greater wing of sphenoid
 Right maxilla, teeth missing post-mortem
 Atlas half
 Right scapula

223 Skull: 5 vault fragments
 Left temporal bone, squamous part damaged
 Vertebrae: Cervical - 2, both incomplete
 Thoracic - 2 fragments
 Sacral - 1 fragment
 3 vertebral arch fragments
 Right and left clavicles, complete, same skeleton
 Clavicle, shaft fragment
 Ribs: 3 fragments
 Right 2nd metatarsal
 Right 4th "
 Left " "

Sub-adult

Ribs: 4 fragments
 Left humerus, diaphysis with distal end damaged

226 Incomplete mandible: 5 4 3 2 1 | / / 3 4
 Rib fragment
 Left humerus, distal end
 Right radius, " "
 Right ulna, " "
 Foot phalanx

229 Skull: 10 vault fragments
 Right malar
 Mandible fragment — 3 4 5 6 7 8
 Vertebrae: Atlas
 One lumbar, damaged
 Virtually complete sacrum
 Right scapula, broken
 Right scapula, glenoid cavity and acromial spine
 Right clavicle, acromial half
 Ribs: 6 fragments
 4 hand phalanges
 Right pubic symphysis

229 Right femur, proximal end fragment
 cont. Patella, damaged and unidentified to side
 Tibia, shaft fragment
 Right fibula, complete
 Left fibula, distal end
 Left calcaneus
 Left talus
 Left 4th metatarsal
 Foot phalanx

230 Skull: 32 vault fragments
 Right temporal fragment
 2 sphenoid fragments
 Mandible fragment T — 5 6 7 8
 Vertebrae: Cervical - 2 complete (incl. axis), 1 arch fragment
 Thoracic - 1 complete, 3 fragments
 Lumbar - 2 complete, 1 arch fragment
 Sacrum - 4 fragments
 Manubrium fragment
 Left scapula, acromion only
 2 scapula body fragments
 Right clavicle
 Left clavicle
 Ribs: 49 fragments
 Right humerus, distal half (with supracondyloid foramen)
 Left humerus, proximal end
 Humerus shaft fragment
 Right radius, 2 distal halves
 2 radius head fragments
 3 radius/ulna shaft fragments
 Left 1st metacarpal
 Left 2nd "
 2 right 2nd metacarpals
 4 hand phalanges
 Right innominate: 1 complete, prob. female
 1 incomplete, prob. female
 Iliac fragment
 Left " Ischial fragment, iliac fragment
 Right femur, complete
 " " proximal end
 " " distal end, damaged
 Left femur, distal end missing
 Femur, condylar fragment
 Right tibia, proximal end
 2 tibial shaft fragments
 Right fibula, distal half
 4 fibular shaft fragments
 Metatarsal head fragment
 3 foot phalanges

Sub-adult

Skull: 5 vault fragments
 Deciduous upper left central incisor
 Rib fragment
 Humerus, distal half, damaged and unidentified to side
 Metacarpal diaphysis
 Right tibia, distal end damaged
 1st metatarsal, damaged and unidentified to side

- 232 Fibula, shaft fragment
Left 3rd metatarsal
Left 4th metatarsal
3 longbone shaft fragments
- 238 Left scaphoid
Tibia, proximal end fragment
4 longbone shaft fragments
- Sub-adult
6 cranial fragments
Right scapula, incomplete
Ribs: 4 fragments
Right os ilium
2 longbone shaft fragments (possibly ulna and femur?)
- 257 Right mandibular condyle
Lumbar vertebra, arch fragment
Rib fragment
Left radius, proximal end
2 iliac fragments
Left tibia, distal end fragment
2 tibial shaft fragments
Left fibula, distal end
Left calcaneus
Left talus, fragment
4 unidentified fragments
- Sub-adult
Skull: 7 vault fragments
Left temporal bone, petrous portion
Mandible, incomplete e d / / / | / / / / e
(age ca 1-2 years)
Ribs: 9 fragments
Left femur, proximal half
Right tibia, distal half
Left tibia, distal half
2 longbone shaft fragments
- 259 Left 4th metacarpal
? sacral fragment
- 261 2 thoracic vertebrae
Metatarsal fragment
- 264 3 cranial vault fragments
Thoracic vertebra
2 rib fragments
- 270 Occipital fragment
Upper right central incisor
Rib fragment
1 unidentified fragment
- 280 Right 4th metacarpal

- 232 Fibula, shaft fragment
Left 3rd metatarsal
Left 4th metatarsal
3 longbone shaft fragments
- 238 Left scaphoid
Tibia, proximal end fragment
4 longbone shaft fragments
- Sub-adult
6 cranial fragments
Right scapula, incomplete
Ribs: 4 fragments
Right os ilium
2 longbone shaft fragments (possibly ulna and femur?)
- 257 Right mandibular condyle
Lumbar vertebra, arch fragment
Rib fragment
Left radius, proximal end
2 iliac fragments
Left tibia, distal end fragment
2 tibial shaft fragments
Left fibula, distal end
Left calcaneus
Left talus, fragment
4 unidentified fragments
- Sub-adult
Skull: 7 vault fragments
Left temporal bone, petrous portion
Mandible, incomplete e d / / / / / / / e
(age ca 1-2 years)
- Ribs: 9 fragments
Left femur, proximal half
Right tibia, distal half
Left tibia, distal half
2 longbone shaft fragments
- 259 Left 4th metacarpal
? sacral fragment
- 261 2 thoracic vertebrae
Metatarsal fragment
- 264 3 cranial vault fragments
Thoracic vertebra
2 rib fragments
- 270 Occipital fragment
Upper right central incisor
Rib fragment
1 unidentified fragment
- 280 Right 4th metacarpal

282

Ribs: 21 fragments
 Left humerus, complete
 Left radius, complete
 Left radius, distal end missing
 Right ulna, distal end missing
 Left 2nd metacarpal
 Left 5th metacarpal
 Metacarpal, proximal end damaged
 5 hand phalanges
 Right innominate, incomplete, probably female
 Right femur, distal end
 Left femur, proximal half (head missing)
 " " distal end
 Right tibia, distal end
 Left tibia, proximal end fragment
 2 tibial shaft fragments
 Left fibula, distal end
 14 femur/tibia shaft splinters
 2 left 2nd metatarsals
 Left 4th metatarsal

291

Left navicular
 Right 2nd metatarsal
 Right 3rd metatarsal
 2 foot phalanges

294

Mandible fragment $\overline{8 \ 7 \ 6 \ - \ - \ - \ 1}$
 Mandible fragment $\overline{c \ 1 \ - \ - \ - \ 6 \ X \ X}$
 Broken petrous portion of temporal bone
 Atlas fragment
 2 thoracic vertebrae

296

Skull: Relatively complete calvarium
 4 sphenoid fragments
 Right malar $\begin{matrix} A \\ C \end{matrix}$
 Right maxilla $\overline{X \ X \ 6 \ 5 \ 4 \ / \ - \ - \ 1}$
 Loose upper right incisor
 Loose molar
 Thyroid cartilage, partially calcified
 Manubrium
 Left scapula, several pieces, with os acromiale
 Clavicular fragment
 Ribs: 11 fragments
 Vertebrae: Cervical - 2 rel. complete (incl. axis),
 2 fragments
 Thoracic - 3 complete
 Left humerus, shaft fragment
 Humerus head, unidentified to side
 Left radius, proximal end
 Left trapezoid
 Left 2nd metacarpal
 9 hand phalanges
 Iliac fragment
 Right and left patellae, both with slight lipping
 2 right 1st metatarsals
 Left 5th metatarsal
 7 foot phalanges

- 299 Sub-adult
Left fibula, distal epiphysis
Left calcaneus
4 metatarsal diaphyses
- 300 Skull: Maxilla fragment 4 3 2 1 | 1 2 3
 Cranial vault fragment
 Left mandibular condyle
 Zygomatic arch fragment
Manubrium, incomplete
Left coracoid process
Right os acromiale
Ribs: 3 fragments
- 302 Sternal end of clavicle, unidentified to side
Ribs: 7 fragments
Vertebrae: Thoracic - Body fragment
 Lumbar - 1 complete, probably L5, with
 spondylolysis and osteophytes
Humerus head fragment
Right 4th metacarpal
Left cuboid
Left 5th metatarsal
2 small unidentified fragments
- 304 Right fibula, distal third
Right calcaneus, posterior half
Foot phalanx
- 306 Left calcaneus, posterior half
Right 1st metatarsal, fragment
- 307 Skull fragment
Small mandibular fragment 1 / 5 6 7
Thoracic vertebral arch fragment
Sacral fragment, S2-S5
Manubrium fragment
Right scapula fragment
Ribs: 3 fragments
Right radius, proximal end
Right ulna, complete, medium lipping of distal end
Right ulna, proximal end
2 left 1st metacarpals
6 hand phalanges
Left innominate, complete, probably male
Left iliac fragment, wide sciatic notch, deep preauricular
 sulcus, probably female
Right innominate, complete, probably male
Left femur, proximal half
Femoral head fragment
Right tibia, complete, slight periostitis on lower two-thirds of
 shaft laterally and medially
Right fibula, proximal end missing; slight periostitis
Fibular shaft fragment
Foot phalanx

- 309 Skull: Right zygomatic process fragment
 2 upper central incisors (right & left?)
 3 small cranial fragments
Ribs: 6 frgments
Left trapezoid
Left scaphoid
Left 1st metacarpal
Left 2nd metacarpal
Left 3rd metacarpal
6 hand phalanges
Foot phalanx
- 314 Left humerus, distal half; medium lipping of articular surface,
 small area of eburnation on capitulum
Left ulna, proximal end, slight lipping
Left ulna, distal end, medium lipping, area of eburnation
Hand phalanx
Left femur, distal end
- 317 Hand phalanx
- 325 Ribs: 2 fragments
Right 1st cuneiform
Right 2nd cuneiform
Right 2nd metatarsal
 " 3rd "
 " 4th "
5 foot phalanges
- 327 Upper incisor, probably lateral, right side
- 336 Ribs: 3 fragments
Left tibia, proximal end
- Infant
 Vertebral centrum (probably cervical)
- 338 Right fibula, distal third
Left fibula, distal half
Fibular shaft fragment
Right and left calcanei
Right and left tali
Right and left naviculars
Right and left cuboids
Right 1st cuneiform
Right 2nd cuneiform
Right 3rd cuneiform
Right and left 1st metatarsal
Right 2nd metatarsal
Right 3rd metatarsal
Right and left 4th metatarsal
Right and left 5th metatarsal
9 foot phalanges

- 338 Infant
cont. Skull: Left lateral of occipital bone
Sphenoid fragment
Left scapula
- 349 Right 4th metatarsal
- 350 On the basis of size, colour and articulation, most of this material belongs to the same skeleton, a male. * marks those bones which probably are not part of this individual.
- Vertebrae: Thoracic - 5 complete, 1 arch
Lumbar - 1 complete (probably L5)
Sacral - S1-S3, articulates with L5 above
- Manubrium & sternum with xiphoid process fused
Right clavicle
Ribs: 12 fragments
Right humerus, distal half, slight lipping, small area of eburnation on capitulum (NB other side to 314)
Right ulna, distal half, medium lipping and eburnation of head
*Right ulna, distal half
Right 1st metacarpal
" 2nd "
" 4th "
Metacarpal fragment
2 hand phalanges
Right and left innominates, virtually complete, probably male
*2 iliac fragments
*Acetabulum fragment
Right femur, distal end
Left femur, distal end
Left femur, proximal shaft fragment
2 left patellae (1 large, *1 small)
Right tibia, complete
Left tibia, complete
Right fibula, complete
Left calcaneus
Left talus
Left navicular
Right 2nd metatarsal
Right and left 3rd metatarsal
" " " 4th "
2 right 5th metatarsals
3 foot phalanges
- 352 Skull: 8 vault fragments
Maxilla fragment 5 4 3 2 1
Lumbar vertebra, arch fragment
4 scapula fragments, 1 with small piece of iron adhering
Right clavicle, acromial end missing
Clavicle shaft fragment, unidentified to side
Ribs: 3 fragments
Radius/ulna shaft fragment
Right hamate
Hand phalanx

352 2 iliac fragments
cont. Ischial tuberosity
2 acetabulum fragments
Foot phalanx
5 longbone shaft fragments

Subadult

Left clavicle, sternal end missing. Iron staining on acromial end - ?nail

361 Foot phalanx

Subadult

3 rib fragments
Vertebral centrum, unfused

362

Subadult

3 vertebral centra, unfused (ie <6 years)

365 3 cranial vault fragments
Rib fragment

368 Right fibula, proximal end

369

Skull

30 vault fragments

Right malar

3 temporal bone fragments

Greater wing of sphenoid

Maxilla fragment

Left mandibular condyle

Mandible, incomplete	8	7	6	5	4	3	2	/	/	/	/	/	5	6	7	/
----------------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Vertebrae:

Cervical - 3, including axis

Thoracic - 1 complete, 4 centra fragments,
3 arch fragments

Lumbar - 1 complete

Sacrum, virtually complete

12 small vertebral fragments

Sternal fragment

2 acromial spine fragments

Right clavicle, sternal half

Left clavicle, acromial half

Ribs: 42 fragments

Left humerus. proximal end missing

2 humeral head fragments

Left radius, complete

Left ulna, proximal end

Left ulna shaft fragment

3 radius/ulna shaft fragments

Right 1st metacarpal

Left 2nd metacarpal

" 3rd "

" 4th "

5 hand phalanges

Right innominate, damaged, ?male

Left innominate, damaged, ?male

369
cont. 5 iliac fragment
Right pubic symphysis
Right femur, proximal half
Left femur, complete
3 femoral shaft fragments
Right tibia, complete
Right tibia, proximal end missing
Left tibia, distal end
Left tibia, shaft fraagment
Fibular shaft fragment
Left talus
Navicular fragment, unidentified to side
Right and left 1st metatarsal
Left 2nd metatarsal
Right 4th metatarsal
Left 5th metatarsal
3 foot phalanges

Subadult

Parietal fragment
2 rib fragments
Right tibia, damaged diaphysis
Left tibia, damaged diaphysis

372 2 lumbar vertebrae
Left scapula, 2 fragments
Rib fragment
Left humerus, proximal end

374 2 iliac fragments

382 Right 4th metacarpal

Subadult

Skull: Squamous part of occipital
Left lateral " "
3 small vault fragments
2 rib fragments

383 Foot phalanx

Subadult

Right humerus, complete diaphysis

386 2 loose teeth: 1 canine, 1 upper premolar

387 Skull: Complete occipital bone
3 parietal fragments
Vertebrae: Cervical - 1 axis fragment
Thoracic - 1 complete, 2 arches
Lumbar - 1 complete
Left scapula, fragment
Right navicular

- 387 Subadult
cont. Right clavicle
 Right os ilium
 Right femur, complete diaphysis
- 388 2 cranial vault fragments
 Thoracic vertebra
 Rib fragment
 Left radius, complete
 Iliac fragment
 Femoral shaft fragment
- 389 Subadult
 Calvarium, in pieces. Age <6 years (basilar part of occipital
 unfused with laterals)
- 391 Vertebral fragment
 2 scapular body fragments
 Rib fragment
 Right 5th metacarpal
- Subadult
 6 cranial vault fragments
 Femoral shaft fragment
- 394 Right 3rd cuneiform
 Right and left 3rd metatarsal
 Right 4th metatarsal
 Right 5th metatarsal
 6 foot phalanges
- 399 Skull: Cranial vault fragment
 Right temporal bone, squamous portion missing
 Right malar
 Mandible 8 7 6 5 4 3 / / | / / 3 4 5 6 7 ?
 (lower right third molar impacted, lower left
 probably congenitally absent)
 2 loose teeth: upper left central incisor, upper right
 lateral incisor
 Greater horn of hyoid bone
- Vertebrae: Thoracic - 5 complete
 Lumbar - 4 complete, 1 centrum fragment
 Sacral fragment
- Xiphoid process
 Right scapula, relatively complete
 Right scapula, coracoid process
 Left scapula, coracoid process
 Ribs: 43 fragments
 Right humerus, complete
 Humeral head fragment
 Right radius, complete
 Right ulna, proximal half
 Ulna shaft fragment

399 Right scaphoid
cont. Right trapezium
Right trapezoid
Right 1st metacarpal
Right 2nd metacarpal
7 hand phalanges
Right femur, complete
Left femur, complete
Left femur, proximal shaft fragment
Left fibula, complete
Right calcaneal fragment
Left 2nd metatarsal
7 foot phalanges

Subadult

Squamous portion of occipital
3 cranial vault fragments

400 2 small skull fragments
Acromial fragment
Right 1st rib

401 Skull fragment
Rib fragment

Skull: Complete (minus mandible) - possibly female?

Maxilla: X X X 5 4 / / X | / / 3^c / 5 X - -

Incomplete vault, consisting complete left parietal, part of left temporal, part of right parietal and part of occipital

Incomplete vault, consisting of much of frontal bone, part of right and left parietals

Mandible: 8 7 / 5 4 3 2 1 | 1 2 3 4 / X / 8 -
c

Mandible: 8 7 6 / 4 3 2 1 | / 2 3 4 5 6 7 8
c c c c c

+ 10 parietal, 4 occipital, 5 frontal fragments
2 right temporal fragments

Vertebrae: Cervical - 5 complete (including atlas with double superior articular facet, left side)
Thoracic - 25, many incomplete. 11 with slight, 3 with medium osteophytes, 4 with Schmorl's nodes
Lumbar - 11, some articulating with each other and with sacra below
Sacra - 2, both relatively complete. One shows signs of ankylosis on right side to innominate

2 Sternal fragments

2 right scapulae, relatively complete

Right scapula, glenoid cavity and acromial spine only

3 left scapulae (2 very broken)

Coracoid process

Right clavicle

Left clavicle, sternal end missing

Ribs: 98 fragments, 2 with healed fractures

3 right humeri

Left humerus

Humerus shaft fragment

2 right radii

Left radius, distal end missing

" " distal half

" " proximal shaft fragment

3 right ulnae (1 with distal end missing)

2 left ulnae

Ulna shaft fragment

Right lunate

Metacarpals: Right Left

1st 3 -

2nd 1 2

3rd 3 1

4th 2 1

5th 3 2

Metacarpal head fragment

18 hand phalanges

402
cont.

2 right innominates, complete, possibly both male
Right pubic fragment
Right iliac fragment, possibly female
Right acetabular fragment
Left pubic fragment
5 iliac fragments, unidentified to side
Right femur, medium lipping of distal end
2 left femora, one with slight lipping of distal end, other with
medium lipping of head
2 femoral shaft fragments
Right tibia, complete
" " complete, with healed fracture at the midshaft, and
ca 35 cm shortening
" " proximal end damaged
" " proximal end missing, distal end damaged.
Periostitis on shaft, laterally and medially
Left tibia, complete, pair of fractured tibia above
" " virtually complete, distal end damaged, considerable
periostitis on shaft - prob. pair to
infected tibia above
Left patella
Right fibula, distal end fragment
Left fibula, proximal end fragment
Tarsals: Right Left
Calcaneus 2 1
Talus 1 1
Navicular 1
2nd cuneiform 1
1st metatarsal 1
2nd " 1
3rd " 3
4th " 2
5th " 1 1
4 foot phalanges

Skull: Part of calvarium, consisting of most of right and left parietals, occipital bone, right and left temporal bones.
 Left malar
 Left lacrimal
 Left sphenoid fragment
 Left maxilla fragment 1 2 3 4 5
 Mandible, complete, all teeth lost antemortem, alveolar resorption complete
 Body of hyoid bone
 Vertebrae: Cervical - 3 complete, incl. atlas
 Thoracic - 1 relatively complete, 3 central fragments, 2 arches, 1 spinous process
 Lumbar - 2 relatively complete, 1 arch
 Sacrum, complete
 2 sternal fragments (one with evidence of sternal foramen)
 Left scapula, virtually complete (scapular foramen present)
 Left acromion
 4 scapular body fragments
 Left clavicle, complete
 Left clavicle, manubrial end only
 Ribs: 34 fragments
 Left humerus, complete
 " " virtually complete (greater tubercle missing)
 " " distal end missing, head fusing
 Right ulna, complete, slight lipping both ends
 Radius/ulna shaft fragment
 Right and left trapezium
 Left capitate
 Right 1st metacarpal
 Left 2nd metacarpal
 2 right, 1 left 3rd metacarpals
 Left 4th metacarpal
 4 metacarpal distal end fragments
 5 hand phalanges
 Right iliac fragment
 Iliac fragment with iliac crest fusing
 Ischial fragment
 Acetabulum fragment
 Right femur, distal end missing
 " " proximal half, recent fusion of head
 " " distal shaft fragment
 " " condylar fragment
 Left femur, proximal shaft fragment
 Right patella
 Left tibia, shaft fragment
 Tibial tubercle
 5 fibular shaft fragments
 Right calcaneus, fragment
 Right talus
 Right navicular
 Right cuboid
 Left 1st metatarsal
 Right and left 4th metatarsal
 3 right and 2 left 5th metatarsals
 5 foot phalanges
 7 small longbone shaft fragments (probably femur/tibia)
 12 other unidentified fragments, including 2 pieces of probable calcified soft tissue

423 Cranial vault fragment
2 loose teeth, possibly mandibular premolars
Thoracic vertebra - spine, transverse process
Left innominate, iliac and ischial fragments

424 Small cranial vault fragment
Ribs: 3 fragments
Ulna shaft fragment
Left pubic fragment, with pubic symphysis
Left tibia, distal end, damaged
3 tibial shaft fragments
Fibular shaft fragment
9 unidentified longbone shaft fragments
9 small unidentified fragments

Infant

Left os ilium, virtually complete

425 Thoracic vertebra fragment, slight osteophytes
?Acromial end of clavicle
Right scapular fragment
Ribs: 6 fragments
Left 5th metacarpal

Subadult

Skull: Most of frontal bone
5 parietal fragments, 1 occipital fragment
2 sphenoid fragments
Right temporal bone
Mandibular condyle fragment
Unfused thoracic neural arch (<6 years old)
Ribs: 7 fragments
Radius, distal fragment
Left femur, complete diaphysis
Fibula, damaged diaphysis

429 3 foot phalanges

443 Skull: Occipital fragment
Mandible fragment, badly damaged 8 7 X 8 |
One loose molar
Vertebrae: Thoracic centrum, damaged, slight osteophytes
Thoracic transverse process
Ribs: 4 fragments
2 fragments of calcified costal cartilage
Right humerus, distal end damaged
Left trapezium
Hand phalanx
Left innominate, incomplete, possibly male
Left patella
Left tibia
Left fibula
Left calcaneus, damaged
Left 2nd metatarsal
Left 5th "
4 unidentified fragments

- 444 Skull vault fragment
 3 loose teeth (right and left upper central incisors, right upper canine)
 Lumbar vertebrae
 Ribs: 5 fragments
 2 hand phalanges
 Sacrum, virtually complete
 Small pubic fragment
 Fragment of femur/humerus head

Infant

Neural arch half, cervical vertebra

- 445 Ribs: 2 fragments
 Femur shaft fragment

Subadult

Right tibia, proximal half

- 447 Skull: 3 occipital, 4 parietal fragments
 Damaged mandible 8 7 // // // // // // // // // // -----
 (molars very worn indeed)
 Mandible fragments
 a) Ø X X 5 | | | | | | | | | |
 b) | X /
 (6 and 7 or 7 and 8)
 Vertebrae: Thoracic spine fragment
 3 small vertebral fragments
 Right scapula, damaged, in 4 pieces
 Left clavicle, acromial end damaged
 Ribs: 4 fragments
 Right humerus, distal half only, with area of eburnation
 2 left humeri, both complete
 Humerus shaft fragment (probably right side)
 Right radius, proximal end missing
 Right ulna, distal half only
 Left ulna, distal end missing
 Radius/ulna shaft fragment
 2 left innominates, both damaged and incomplete
 Right femur, relatively complete, distal end missing
 " " proximal half
 " " proximal end fragment
 " " 2 shaft fragments
 Left femur, relatively complete, distal end missing
 " " " " proximal end missing
 " " proximal third only
 3 condylar fragments (1 with eburnation)
 Right tibia, distal end missing
 Tibia, shaft fragment (possibly subadult?)
 3 fem/tib shaft fragments
 Left fibula, distal end fragment
 Fibula shaft
 1st proximal foot phalanx

Subadult

Right femur, proximal fragment
 Left femur, distal fragment

- 448 Lumbar vertebra
Ribs: 2 fragments
Left tibia, proximal end
- 449 Right side of frontal bone, damaged
- 455 Right 4th metacarpal
Hand phalanx
Left femur, proximal half
Left fibula, proximal end
- 460 Subadult
Skull: 5 small cranial fragments
deciduous incisor
Right and left costal elements of 1st sacral vertebra
Sternal fragment
Epiphysis of humerus head
Metacarpal fragment
2 hand phalanges
- 462 Right temporal fragment
Molar tooth
Xiphoid process
Rib fragment
2 fragments of calcified costal cartilage
- 463 Skull: 12 cranial vault fragments
Left malar
Petrous portion and mastoid process, right temporal
Left temporal fragment
2 sphenoid fragments
Right zygomatic
Upper premolar
Left maxilla fragment 8 7 6 5 4 / / / 1
Vertebrae: Cervical - 2 centra + atlas fragment
Thoracic - 3 fragments
Lumbar - 3, all broken
Coccyx
2 neural arch fragments
Left glenoid cavity of scapula
Left clavicle, sternal end (epiphysis fusing)
Ribs: 11 fragments
Radius/Ulna shaft fragment
Right trapezium
Left 5th metacarpal
Iliac fragment
Right femur, distal end
2 tibia fragments
Left fibula, proximal end
Left 4th metatarsal
Right 5th metatarsal
3 foot phalanges

Skull: Relatively complete calva - frontal bone, right parietal,
most of left parietal, some of occipital
Relatively complete frontal bone
Occipital and part of left parietal
Right temporal bone, damaged
9 small cranial fragments
Maxilla fragment 1 X 7 8
Maxilla fragment 1 3 4
Loose upper central incisor
Mandible, relatively complete
/ / 6 5 4 3 / / | / 2 3 4 5 6 7 8
(caries extensive; abscess opens buccally)
Vertebrae: Cervical - 8, incl. atlas, 3 with osteophytes and
osteochondrosis
Thoracic - 8 (2 with slight osteophytes)
Lumbar - 9 (4 with medium to considerable osteophytes)
+ 15 vertebral fragments and 10 sacral fragments
Acromion and spine - 1 left, 2 right
Coracoid process - 1 left, 2 right
2 glenoid cavity fragments
6 scapula body fragments
Right clavicle
Left clavicle, acromial end only
Clavicle shaft fragment
Ribs: 70 fragments
Right humerus, complete
" " shaft, both ends missing
Right radius, 2 complete
Left radius, 2 complete
" " proximal third
Right ulna, both ends damaged
2 radius/ulna shaft fragments
Left hamate
Left scaphoid
Right and left 1st metacarpal
Left 2nd metacarpal
Right 3rd "
" 4th "
Right and left 5th metacarpal
3 hand phalanges
Left innominate fragment, very wide sciatic notch (poss. female)
3 iliac fragments
Right femur, virtually complete
" " proximal end missing, slight lipping of distal end
Left femur, distal end, damaged
Right patella
Right tibia, distal end missing
Left tibia, distal end missing
Left tibia shaft
" " distal end fragment
Tibia shaft fragment, unidentified to side
Left fibula, proximal end missing
" " distal half
Fibula shaft fragment
2 left calcanei
2 right and 2 left tali
Right and left cuboids
Right 1st cuneiform

464
cont.

Right and left 2nd cuneiform
Right and 2 left 1st metatarsals
Right and left 3rd metatarsals
2 foot phalanges
+ 7 longbone shaft fragments
ca. 30 very small unidentified fragments

Subadult

Skull: Petrous portion of right temporal bone
Vertebrae: Lumbar - 3
 Sacrum - S1
Left radius, proximal end
Left 4th metacarpal
Right os ilium, complete
Left os ilium, incomplete
Left femur, distal end
Right tibia, virtually complete diaphysis
Left tibia, proximal fragment
Fibula, damaged diaphysis unidentified to side

Infant

Right humerus, distal end
Right femur, proximal end
Right femur, distal end
Left femur, 2 proximal ends

465

Sacrum, virtually complete
Rib fragment
Iliac fragment
Right fibula, distal end missing
Right navicular
Left 1st cuneiform
Right 2nd metatarsal

492

Mandible, complete apart from condyles
8 / 6 5 / 3 / / | / / / / NP 6 7 /

6 possibly congenitally absent
5 rotated mesiopalatally ca 70-80°

Axis
Acromial spine fragment
Right clavicle
Ribs: 13 fragments (including 1 and possibly 2 with healed fractures)
Right humerus
Right radius, distal end
Iliac fragment
Part of pubic area of pelvis, probably male; complete fusion of pubic symphyses
Left femur, proximal half
Right patella
Right talus

Subadult

Lumbar vertebrae
Left humerus, distal end
Ulna, distal end, unidentified to side

497 Femur, shaft fragment
 Subadult rib fragment

Uncertain

Part of frontal bone, badly eroded
Sphenoid fragment
Right temporal bone, complete