

Human Skeletal Remains from Wolsey Street, Ipswich (IAS5003)

Sue Anderson, December 2003. Revised with additional skeletons, January 2009.

Introduction

This report covers the human skeletal remains excavated at Friars Lane/Wolsey Street in three phases of archaeological investigation carried out in 1990, 2003 and 2006.

Three areas of burial were identified at the site. One was distinct and consisted of a small group of individuals to the east end, close to the church of St. Nicholas (Group 1), presumed to be early medieval. The other two merged slightly and it was difficult to decide to which group some of the individuals belonged (Groups 2-3). For the purposes of this report, Group 2 is defined as the bulk of the skeletons excavated in 2002 and 2006, which are assumed to relate to the Franciscan Friary. Group 3 comprises the distinct group towards the centre of the site, excavated in 1990, together with outliers to the north and west. This group is thought to be largely post-medieval, although some earlier graves in this area may also relate to the friary (J. Newman, pers. comm.). The inclusion of some graves, particularly those to the southern end of Group 2, is largely subjective, but is based on the presence of two multiple burials (2055 and 1016) and a distinct gap between the south of the intensive cluster of Group 2 and graves 3080 and 3063. However, all graves in this area were within the assumed precinct boundary of the friary (Loader, in archive).

The total number of individuals excavated was 150, divided into groups as follows: Group 1, four individuals; Group 2, 87 individuals; Group 3, 59 individuals. The assemblage is reported on by Group, and a comparison of the two larger groups with each other and with other sites in the region is presented following the report for Group 3.

Method

Measurements were taken using the methods described by Brothwell (1981), together with a few from Bass (1971) and Krogman (1978). Sexing and ageing techniques follow Brothwell (1981) and the Workshop of European Anthropologists (WEA 1980), with the exception of adult tooth wear scoring which follows Bouts and Pot (1989). Stature was estimated according to the regression formulae of Trotter and Gleser (Trotter 1970). All systematically scored non-metric traits are listed in Brothwell (1981), and grades of cribra orbitalia and osteoarthritis can also be found there. Pathological conditions were identified with the aid of Ortner and Putschar (1981) and Cotta (1978). Disarticulated bone was re-united with the individual to which it belonged as far as possible, but recorded in a different colour on the skeleton sheet. Full catalogues and lists of metric and non-metric traits are available in archive.

Group 1 – ?St Nicholas Church burials, east of site

Four complete or partial skeletons were excavated close to the eastern edge of the site. These are thought to be outliers to the churchyard of St Nicholas and may be of medieval or post-medieval date. Residual Late Saxon and early medieval pottery was recovered from the grave fills. All four skeletons were in good or very good condition. Table 1 shows the distribution by age and sex.

Skeleton	Age	Sex	Completeness
0086	Y-MA	Female	Near-complete
0088	Adult	Female?	Lower legs and a few vertebrae only
0102	c.6	-	Missing lower left leg and feet
0152	MA	Male	Near-complete

Table 1. Age and sex of Group 1 skeletons.

Stature was estimated for all three adult skeletons. The results for the two females were 158.9cm (5' 2½") and 162.0cm (5' 4"), and for the male 170.7cm (5' 7"). These heights are all around the average for medieval and post-medieval groups. It was possible to calculate the cranial index for female 0086 and male 0152; the former was 74.9 (on the boundary of narrow and medium), and the latter was 86.2 (broad). Broad heads are more commonly found in medieval than earlier or later groups, but the group is too small for further speculation.

Non-metric traits were scored systematically for all four individuals, although few could be recorded for 0088. Sk. 0086 and 0152 had an unusual trait in common, the presence of an ossicle at the lambda. Both also had a single zygoma-facial foramen on the right side only, with none on the left. Post-cranially, both had a right lateral atlas bridge, bilateral vastus notch of the patellae and couple calcaneal facets. The two individuals had other traits which were not shared but the traits mentioned are not frequent in most groups, so this range of traits in common may indicate a family relationship between the two.

Sk. 0086 and 0152 had full sets of teeth. The two lower first molars of 0086 had been lost ante-mortem, whilst 0152 suffered from carious lesions in six of his molars and abscesses below four of them, but no loss. The upper left second premolar of 0086 was slightly rotated and there was a gap (diastema) between her upper incisors.

A few minor pathological conditions were noted in the group. Pitting and thickening of the parietals was noted in 0086 and 0102, and porotic cribra orbitalia was present in the orbits of 0102 and 0152; these conditions have been linked to iron deficiency anaemia. Sk. 0086 had a calcified xiphisternum, which in view of her relatively young age was probably congenitally or developmentally determined. A bony tubercle of the right C7 (left side broken) of 0152 represents the minimum expression of a cervical rib (I), another congenital or developmental condition. Degenerative changes in 0152 included Grade II osteoarthritis in some rib facets and calcification of the thyroid cartilage. The few surviving thoracic vertebrae of 0088 had small osteophytes of the bodies. Traumatic and stress-related lesions affected the spine, left knee and ankles of 0152: Schmorl's nodes were present in his lower thoracic and lumbar vertebrae, there were stress lesions in the tarsal bones, and a healed osteochondritic lesion in the posterior part of the left lateral femoral condyle (6 × 5mm). Small ossified haematomata of both cuneiforms at the joint for the first metatarsal were observed in 0086.

Group 2 – ?Friary burials, north-west of site

Minimum number of individuals

Eighty-nine context numbers were issued for skeletal remains, but three of these were the other halves of skeletons excavated in two seasons, and one number represented two individuals. Disarticulated remains from related graves were re-united with the main skeleton where possible, resulting in a minimum number of individuals from this area of 87.

Condition

Bone condition was assessed on the basis of preservation, not on completeness of the skeleton. Table 2 shows the numbers of individuals in each category. The method of assessment is acknowledged to be subjective, and simply provides an idea of the general preservation of the skeletal material; it is not intended for comparison with other groups.

This shows that about 63% of the skeletons in this group were thought to be in good or very good condition. This is unusual for skeletal groups from East Anglia due to the normally acidic soil conditions. However, urban groups are generally better preserved than their rural contemporaries, particularly where the cemetery is located on ground previously used for

habitation and rubbish disposal.

Condition	No.
Very good	17
Good	38
Fair-good	1
Fair	25
Poor-fair	3
Poor	3

Table 2. Condition of skeletons in Group 2.

Demographic analysis

Juveniles

Of the 87 individuals, twenty-two were below the age of 18 at death. This proportion of 25.3% is relatively low, but within normal limits for medieval groups. The distribution of age at death for the twenty-two juveniles is shown in Table 3.

Age group	No.	%
0-2	0	-
3-6	1	4.5
7-12	2	9.1
13-16	9	40.9
16-18	10	45.5

Table 3. Distribution of juvenile age at death.

No infant bones were found in this cemetery, even amongst the disarticulated remains. This is unusual, particularly given the high proportion of well-preserved skeletons. The age distribution of the juveniles as a whole is biased towards the older end of the scale, and suggests an unusual source population.

Eleven individuals aged between c.15 and 18 years were sexed: ten were male or ?male and one was ?female.

Adults

Sexing of this group as a whole was unusually difficult, especially in view of the excellent preservation of many of the skeletons. It was often noted that sexing characteristics were very mixed, with individuals having very masculine skulls but feminine pelves, and vice versa. Several of the individuals thought to be female were relatively tall, and could easily be gracile males.

Of the 65 adults, forty-three were male, six were ?male, seven were female, seven were ?female, and two were unsexed. For the sexed individuals, this gives a male to female ratio of 1 : 0.29, which is clearly abnormal. If the sexed sub-adults are included, the ratio is 1 : 0.25, an even greater disparity between the sexes.

Table 4 shows the distribution of adult and sexed sub-adult age at death. Categories of age rather than actual age ranges are employed because estimation of adult age at death is difficult with currently available techniques. The data should be taken to represent *biological* rather than chronological age at death.

Age group	Male		Female		Total*	
	No.	%	No.	%	No.	%
<18	10	16.9	3	17.6	13	16.7
Young	15	25.4	0	0.0	16	20.5
Young/Middle-aged	5	8.5	3	17.6	8	10.3
Middle-aged	7	11.9	5	29.4	13	16.7
Middle-aged/Old	9	15.3	2	11.8	11	14.1
Old	9	15.3	3	17.6	12	15.4
Unaged adult	4	6.8	1	5.9	5	6.4
Total	59		17		78	

Table 4. Age distribution of adult and sexed sub-adult skeletons in Group 2

*total includes unsexed adults

Of the adult males, a high proportion individuals appear to be in the younger age categories (20), compared with those in the middle-aged or older categories (25), although the addition of the female group makes the older group much larger than the younger (35 and 23 individuals respectively). Nevertheless a significant proportion of the group appears to have died before the age of approximately 35–40 years.

Age distribution by sex is shown in Fig. 1.

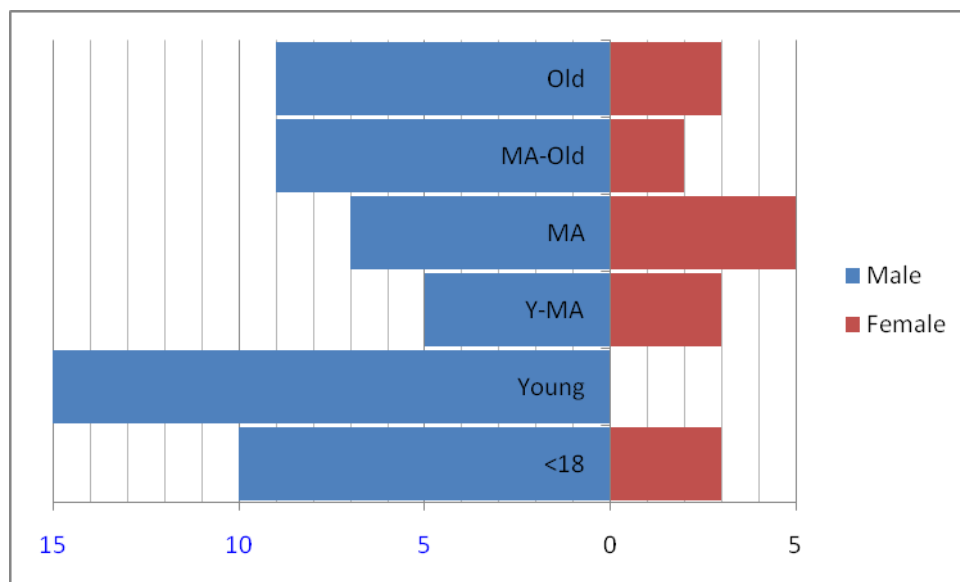


Figure 1. Age distribution of adults and sexed sub-adults.

Study of the distribution of sexes within the cemetery shows that the majority of the graves forming a north-south row within the 2002 excavated area were male, and a similar row of largely male graves ran parallel to it to the west in the 2006 area. A small cluster of female burials (3117, 3045, 3019, 3008) appears between the two main rows, and other female burials are scattered through the west row and to the northern end of the east row. There is no particular temporal pattern to the inclusion of female burials, as they both cut and are cut by male and sub-adult graves.

Metrical and morphological analysis

Tables of measurements are provided in archive.

Stature

The means and ranges of estimated stature for adult males and females are presented in Table 5.

Sex	No.	Mean	Range
Male	48	170.5cm (5' 7")	157.0cm (5' 2") – 182.9cm (6' 0")
Female	12	159.3cm (5' 3")	150.6cm (4' 11¼") – 172.8cm (5' 8")
Unsexed (male formulae)	2	166.5cm (5' 5½")	164.7cm (5' 5") – 168.3cm (5' 6")

Table 5. Stature means and ranges.

The male mean is comparable with medieval sites in the region, but slightly taller than post-medieval groups. The female mean is slightly high for both periods, and this is further evidence that some of the less securely sexed females could be male.

Cranial indices

The cranial index (length/breadth) could be calculated for 37 males, ten females and two unsexed adults. For males, the mean was 79.8 and the range was 72.5 to 85.1. For females, the mean was 81.0, and the range was 77.6 to 83.7. Unsexed individuals ranged from 76.1 to 87.2, with a mean of 82.6.

Two skulls (both male) were dolichocranial or narrow-headed, twenty-six were mesocranial or medium-headed (twenty male, four female, two unsexed), and twenty-five were brachycranial or broad-headed (fifteen male, six female, four unsexed). Overall the mean was 80.4, just within the brachycranial range.

Post-cranial indices

The means and ranges of the meric and cnemic indices, which measure the relative flattening of the shaft of the femur and tibia respectively, are shown in Table 6.

	Male		Female	
	R	L	R	L
<i>Meric index</i>				
Mean	81.1	82.4	80.1	77.1
No.	44	44	13	14
Range	71.1–93.8	70.3–103.7	71.4–89.3	70.6–89.3
<i>Cnemic index</i>				
Mean	72.6	69.2	74.0	72.5
No.	42	40	10	11
Range	59.5–108.7	57.5–89.7	63.3–80.0	61.3–78.6

Table 6. Meric and cnemic indices in Group 2.

The majority of femora were narrow (platymeric, 37 right and 41 left; hyperplatymeric, eight right, ten left), with only a few broad (eurymeric, fourteen right, six left; stenomic, two left). The tibiae were generally broad (eurycnemic, 31 right, 22 left), with fewer medium or narrow bones (mesocnemic, 18 right, 19 left; platycnemic, three right, eight left). Narrowing of both bones is thought to be more common in modern 'primitive' groups and earlier populations (Brothwell 1981, 89), but as the causes of femoral and tibial flattening are uncertain, further discussion of these indices is not worthwhile at present.

The robusticity of the femur was calculated where possible. There was a slight difference between the male and female means, but the ranges overlapped to a great extent. The male mean was 12.6 for both the right and left femurs, compared with 12.4 and 13.1 for female right and left femurs respectively. The male range was 11.3–14.9 and the female 11.4–14.6.

Non-metric traits

Non-metric traits are small asymptomatic deviations from the 'normal' skeletal anatomy and are scored on a present/absent basis. A number have been shown to be of genetic origin, and this

may be the case for others. Tables of scores and percentages for each trait are included in the Appendix. Comparisons with other groups are discussed below with Group 3.

Distribution of non-metric traits within a cemetery may sometimes produce clusters which may be related to the burial of family groups. The metopic suture commonly occurs in groups at other sites, but here the twelve examples appear to be scattered through most of the cemetery. Sks 3016 and 3106, adjacent burials to the south of the 2006 area, both had the trait, and Sks 2193 and 2180 in a group of intercutting burials to the north of the 2002 area were also affected. Parietal notch bones were present in three of the four burials cut into pit 3025 (Sks 2123/3024, 3010 and 3047), and the presence of both parietal notch bone and epipteric bone in four of the earliest graves within the western row (Sks 2211, 2111, 2100, 2117) may indicate a link between these burials, even though they are relatively widely dispersed. Several skeletons in the west row had an ossicle at the lambda, a relatively rare trait in most populations, but again these individuals were generally at least 2-3 graves apart. Sacralisation of the fifth lumbar vertebra occurred in only two individuals in this group, Sks 3097 and 3175, the latter cutting the former; this proximity of a probable congenital anomaly is the best evidence for a family burial plot in this Group. Sk 3175 was cut by 3074, who had a trait in common with 3097 (parietal notch bone). Supra-scapular foramen occurred in three individuals, two of whom were in intercutting graves (2162 and 2143). A range of traits within the intercutting graves to the northern end of the west row hint at possible family plots in this area too, but the evidence is tenuous.

Racial affinities

At least four skulls in this group showed evidence of negroid characteristics, in particular, 2162 (Fig. 2). The evidence consisted of broad U-shaped palates, broad flat nasal bones, guttering of the nasal border, and prognathism, though not all these skulls shared every characteristic. There is likely to be a degree of mixing in the population anyway.



Figure 2. Skull of 2162 with negroid characteristics.

Dental analysis

Dental remains of thirty-nine males (thirty-nine maxillae, thirty-six mandibles), ten females (eight maxillae, nine mandibles), two unsexed adults (two maxillae, two mandibles) and fifteen juveniles (fifteen maxillae, fifteen mandibles) were present, a total of sixty-six individuals.

The adult dentitions, if complete, would contain a total of 1632 tooth positions, but 172 of these

were uncertain or missing. This left 1460 positions which could be recorded. From these, 111 (7.6%) teeth had been lost after burial, 107 (7.3%) had been lost during life and 59 (4.0%) were unerupted/partially erupted or congenitally absent. This left a total of 1183 teeth in situ.

The fifteen juvenile dentitions provided 442 observable positions, of which seven contained deciduous teeth, 354 permanent teeth, 57 unerupted or congenitally absent permanent teeth, nineteen teeth had been lost post-mortem, and two ante-mortem.

Summary tables of male, female and juvenile teeth can be found in the Appendix.

Ante-mortem tooth loss

Eighteen of the thirty-nine males (46.1%), four of the ten females (40.0%) and none of two unsexed individuals had lost one or more teeth during life (43.1% overall). Table 7 shows the amount of loss by sex and jaw.

Sex	Jaw	Positions	Lost	%
Male	Maxilla	569	46	8.1
	Mandible	564	36	6.4
Female	Maxilla	119	14	11.8
	Mandible	144	11	7.6
Unsexed	Maxilla	32	0	-
	Mandible	32	0	-
All	Both	1460	107	7.3

Table 7. Ante-mortem tooth loss (Group 2).

This dental disease is normally related to longevity, and it is the males who more commonly reached old age in this population. However, female maxillary teeth appear to have had the most abscesses. The teeth most affected were molars, and first molars were noticeably more vulnerable. This is the norm, as they are the earliest permanent teeth to erupt, and consequently have the longest period of exposure to cariogenic bacteria.

Caries

Seventeen men (43.6%), two women (20.0%), and six sub-adults (40.0%) had one or more carious lesions (37.9% overall). Twenty-four individuals had one or two lesions, seven had three or four, four had five or six, one had eight and one had twelve. Table 8 shows the prevalence of caries by sex and jaw.

Sex	Jaw	Teeth	Caries	%
Male	Maxilla	449	23	5.1
	Mandible	469	18	3.8
Female	Maxilla	90	8	8.9
	Mandible	118	1	0.8
Unsexed	Maxilla	29	0	-
	Mandible	28	0	-
Sub-adults	Maxilla	180	8	4.4
	Mandible	187	6	3.2
All	Both	1544	64	4.1

Table 8. Caries (Group 2).

This shows that women were affected to a slightly greater degree than men, and that the prevalence was greater in maxillary than mandibular teeth. However the picture is somewhat skewed by the eight examples of female maxillary caries affecting a single individual. Whilst the differences between the upper and lower dentitions could be due to ante-mortem tooth loss removing some of the carious mandibular teeth, Table 7 shows that this is not the case, as ante-

mortem tooth loss is also lower in the mandible than the maxilla.

The teeth most affected by caries were the molars, as is normally the case, since these teeth have a greater surface area and are more likely to trap food particles. However, 28% of all carious lesions in this group affected non-molar teeth. Where it was possible to ascertain the origin of the lesion, this was generally occlusal or interstitial, the latter often resulting in the formation of a lesion in both adjacent teeth. Many lesions in this group were too far advanced to determine the origin however.

Abscesses

Nineteen males (46.2%), five females (50.0%), one unsexed adult and three sub-adults had at least one abscess (an overall rate of 40.9%). Twenty-two individuals had one or two abscesses, five had three or four, one had eight and one had thirteen. The latter was an elderly female with no evidence of caries. Table 9 shows the numbers of positions affected by sex and jaw.

Sex	Jaw	Positions	Abscesses	%
Male	Maxilla	569	27	4.7
	Mandible	564	11	1.9
Female	Maxilla	119	14	11.8
	Mandible	144	8	5.6
Unsexed	Maxilla	32	0	-
	Mandible	32	1	3.1
Sub-adults	Maxilla	218	1	0.5
	Mandible	230	4	1.7
All	Both	1908	66	3.5

Table 9. Abscesses (Group 2).

Seventeen of the thirty-eight male abscesses were found under a carious tooth, whilst two of the twenty-two female and three of the five sub-adult abscesses had this association. However, fifteen male, five female and two sub-adult positions affected with abscesses had lost the tooth either post-mortem or ante-mortem. A number of these recorded as lost post-mortem may in fact have been lost during life, leaving only partially healed septic lesions by the time of death. Six male, fifteen female, and one unsexed abscesses were associated with non-carious teeth, but the majority of these were heavily worn with open pulp cavities, possibly in some cases the result of decay which had left no definite trace.

Some abscesses were particularly large. A c.16–18 year old male, 2224, had a very large abscess which had caused inflammatory changes to the outer side of the right mandible with enlargement and both the second premolar and the first molar had been lost ante-mortem as a result; this could have originated on the deciduous second molar, perhaps with destruction of the unerupted premolar whilst still a germ. A middle-aged/old male, 2114, had very large abscesses on both sides of the upper left second molar alveolus. A ?middle-aged female, 3010, had a very large abscess below the lower right first molar, the left having been lost ante-mortem. A young/middle-aged female, 3220, had a single abscess on the upper left second molar which opened into the maxillary sinus and may have caused sinusitis, but the sinus was not assessable.

Periodontal disease

Thirteen males, two females and two sub-adults showed signs of periodontal disease, ranging from inflammatory changes to the tooth roots to chronic changes such as heavy resorption of the alveoli.

Unerupted/congenitally absent teeth

The overall frequency of unerupted or congenitally absent teeth (not including partially erupted)

amongst the adults in this group was 3.7%. The third molars were the most likely teeth to be affected. The overall frequency for third molar agenesis was 29.6%, with a noticeable difference between men (24.4%) and women (44.8%). This is the expected pattern, since the smaller jaws of women are more usually associated with this condition. In both sexes, the mandibular third molars were slightly more likely to be missing than those of the maxilla.

Other teeth were also congenitally absent or had unerupted. Both lower second molars of 2083, a ?middle-aged male, appeared never to have been present, and all his third molars were also missing. Amongst the sub-adults, a male aged c.15–16, 2171, also lacked all his second premolars, with retention of the mandibular second deciduous molars in their place. A 16-year-old ?male (2168) lacked one second premolar, the upper right. A c.16–18 year old male, 2224, lacked both upper second incisors and possibly also the upper left first molar, although several of his teeth had been lost before death, with caries and abscesses present in both upper and lower dentitions. The upper left second incisor of old male 3058 was missing with no space in the jaw.

Dental calculus

Calculus, or tartar, is a brownish deposit on the teeth which is easily removed after death, particularly during post-excavation washing. Although most skeletons in this group had signs of calculus deposition, a number had probably lost the greater part of it. Sixty-two individuals had some calculus *in situ*, and of these thirty-one cases were slight, nine were slight-medium, fifteen were medium and six were considerable. There was no particular difference between the sexes, but quantities were generally slighter in sub-adult individuals.

Enamel hypoplasia

Hypoplastic defects were seen on the teeth of twenty-eight individuals, four females, thirteen males, two unsexed adults and nine sub-adults. Generally the defects consisted of slight ridging on the teeth. The front teeth, particularly the canines and incisors, were most commonly affected and the ridges had formed between the ages of 2 and 6 years, with a peak between 3–5 years of age. Hypoplasia is probably a result of phases of poor growth and may represent periods of illness or malnutrition, although the correlation between the condition and such periods in modern children is not high. In this group it was not very marked in any of the individuals affected.

Miscellaneous dental pathology

A few other noteworthy conditions were observed. Slight impaction of the left second molar on the first molar had occurred in the mandible of ?female 3021. Fragments of the upper deciduous second molar roots had been retained in the jaw of a middle-aged ?female, 2205. Chips were observed on the upper and lower right mesial incisors, at corresponding positions, of sub-adult 3202.

Congenital and developmental anomalies of the teeth

Rotation and/or overcrowding of the teeth had occurred in four individuals. The teeth of 2083, a ?middle-aged male, were overcrowded but small, and the upper right second molar was rotated. Crowding of the upper left premolars with slight rotation of the second premolar, which is positioned lingually behind the first, had affected a c.16 year old ?male, 2180. The upper second premolars and lower right third molar of a middle-aged female, 2174, were rotated. There was slight overcrowding of the lower right second incisor and canine of young/middle-aged ?male 2202, and the lower anterior teeth were also affected in middle-aged/old male 3016..

Several individuals had teeth which were smaller than normal. All teeth of two men, 2083 and 2073, appeared small. The upper lateral incisors of 2190, a child aged c.13 years, were small and

peg-like.

Retention of deciduous teeth was seen in at least two individuals. A c.15-16 year old male, 2171, had retained the deciduous mandibular second molars, and all his second premolars were probably congenitally absent. An extra tooth socket was present in the central maxilla of young/middle-aged male 3071; the tooth had been lost post-mortem but was possible evidence for a retained deciduous incisor.

Middle-aged male 2186 had an undershot mandible which was too short for the maxilla.

Four individuals had gaps (diastemata) between their anterior teeth. This affected the upper first incisors of 2218, a young/middle-aged male; all upper incisors, the upper canines to first premolars and the lower first to second premolars of 2205, a middle-aged ?female; the upper lateral incisors and canines of unsexed middle-aged adult 2183; and the upper incisors and left second premolar to first molar of 2224, a c.16–18-year-old male.

Dental pathology by age group

Figure 3 shows the prevalences of the three main dental diseases by adult age group. The sexes were combined as there were so few females and unsexed adults.

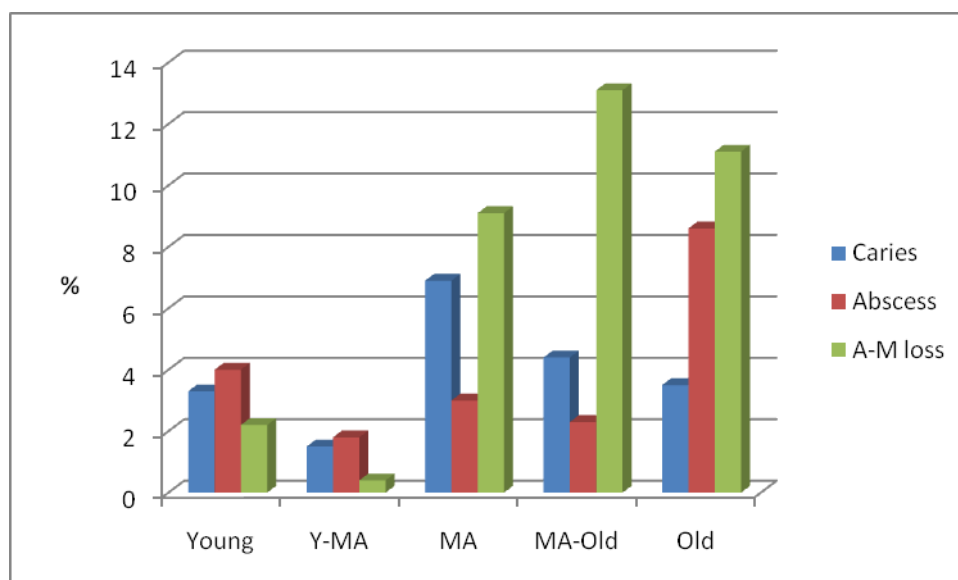


Figure 3. Dental disease by age group (Group 2).

Ante-mortem tooth loss generally increases with age, and a corresponding decrease can be seen in caries following middle-age, whilst abscesses increase noticeably amongst the older individuals but are fairly constant through the earlier age groups. The relatively high proportions of all three diseases in the young age group is unusual for a medieval group and is due to the presence of several lesions in two individuals, both buried at the southern end of Group 2 (2075, 3144) and perhaps potentially of post-medieval date and part of Group 3.

Skeletal pathology

Congenital and developmental anomalies

Minor congenital anomalies included so-called 'squatting facets' (2165 – but not recorded systematically), unusually large inion (2088, 2100), calcified xiphisternum (2073, 2088, 2149, 2186, 2205), and perforate or cleft sternum (2100, 2108). Other anomalies of the sternum included a lack of articulation in the left half of the manubrium and sternum of ?middle-aged

male 2083, and a very asymmetrical sternum with the right side larger than the left in young male 2100. The sternal manubria of two men, 2117 and 2146, were unusually elongated.

Several anomalies of the vertebral column and ribs were seen. Normally there are seven cervical, twelve thoracic, and five lumbar vertebrae, and five sacral segments. The twelve ribs are attached to the thoracic vertebrae, but occasionally the last cervical or the first lumbar can have a rib or ribs. A young unsexed adult, 2068, had possible cervical ribs but the C7 vertebral body was eroded at the relevant places so this is uncertain; the right rib had an enlarged end and may have been in contact with the clavicle shaft, which had a widened area at the appropriate point (the left did not). A young male, 2146, had C7 ribs bilaterally, although the left was fused to the vertebra, and the left twelfth rib was a horizontal lumbar-type rib. 2159, a c.16-18 year old male, had similar horizontal lumbar-type twelfth ribs. Possible lumbarisation of the first sacral segment had occurred in middle-aged male 2152 and sub-adult ?female 3004, and there was sacralisation of the sixth lumbar vertebra in middle-aged/old male 3175. Young male 2100 had very small transverse processes of the eleventh and twelfth thoracic vertebrae, and the left transverse process and part of the superior articular process of the first lumbar vertebra was detached — the right side was bifid but attached. Open foramina transversum of the atlas were seen in two individuals: 2075 right side, and 2120 left side. The right eighth rib of 2183, an unsexed middle-aged adult, was bifid with a large spur to the inferior edge, and an articular facet at the end.

Sixty individuals could be assessed for spina bifida occulta of the sacrum. Of these, four were not affected in any way and six could only be partially assessed but had no evidence of the anomaly. The majority were affected only in the lower half of the sacrum, usually the fourth and fifth sacral segments. Table 10 shows the quantities by segment.

Segment	S1	S2	S3	S4	S5	S6/C
Bifurcated	12	4	3	1	0	0
Cleft	4	2	7	29	42	2
Both	4	1	0	0	0	0
Not affected	37	50	44	30	8	0
Not present	3	3	6	0	10	0

Table 10. Spina bifida occulta by sacral segment.

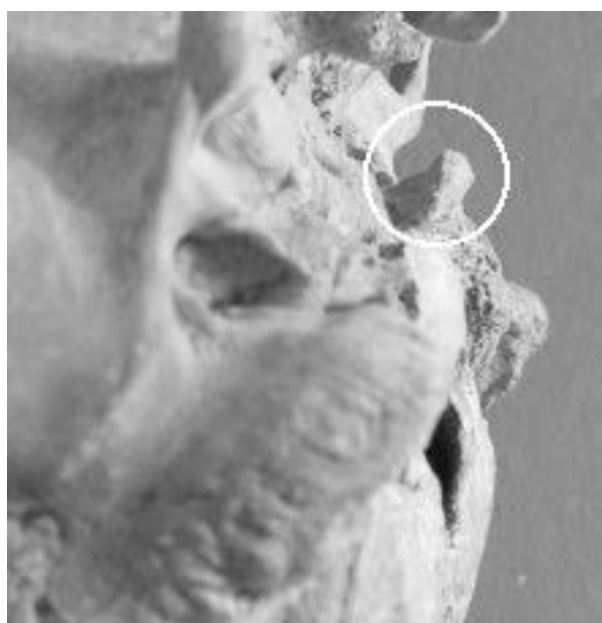


Figure 4. Bony process at base of skull 0999.

A few other vertebrae had cleft neural arches. The atlas was affected in three males (2073, 2117, 2159) and a female (3047).

Of the forty-one individuals assessable for detached neural arch of the fourth and/or fifth lumbar vertebra, this condition was present in two. It affected the fifth lumbar vertebrae of young/middle-aged male 3071, with slight spondylolisthesis (slipping), and ten-year-old 3094. The left side only of the second lumbar vertebra of 16-year-old ?male 3187 was also affected.

An old male 0999 had a bony process to the anterior of the left occipital condyle, 10 × 10mm, rounded (Fig. 4). This is a developmental condition caused by cranial shifting of the occipito-cervical border and it

may have made tilting the head forward slightly difficult. Young unsexed adult 2068 had unusually flat basi-occipital and first cervical vertebra articular facets. Ankylosis of the first cervical vertebra, which also had a cleft neural arch, was seen in sub-adult 3013.

Early closure (craniosynostosis) of one or more cranial sutures was seen in three skulls. A c.16-year-old male, 2180, had premature synostosis of the sagittal suture with deep cerebral impressions, particularly adjacent to midline. The zygoma-temporal sutures of middle-aged/old male 3175 were completely obliterated bilaterally, and the squamous suture of 2177/3068 was partially obliterated.

Both 2183 and 2186, middle-aged individuals, had very large mastoid foramina. Unsexed adult 2183 had two on the left and one on the right, and male 2186 had the opposite. Both also lacked ossification of the styloid process of the skull. Although these two individuals are not buried particularly close together, these traits may suggest a family relationship. However, they have few non-metric traits in common.

A young male, 2075, had an unusually short and broad skull and a long face, possibly caused by a congenital syndrome such as Down's (Fig. 5).



Figure 5. Down's Syndrome or similar congenital condition, 2075.

Os trigonum of both tali were probably present in a middle-aged ?male, 2120, but if so the bones had been lost post-mortem.

Arthropathies and degenerative disease

The most common pathological changes to be found in skeletal groups are those associated with degeneration and old age, particularly osteophytosis or lipping of the joints, and osteoarthritis. Table 11 shows the number of adults affected by these two diseases in the major joints of the body out of the total number of joints of which at least one articular facet remained. Although this is not as accurate as scoring each individual bone, the method chosen provides more useful results in terms of comparing individuals. A full listing for the spine is included in archive.

Both sexes were most affected in the spine, as is invariably the case. The shoulders, hips and ankles/feet of the men were the next most frequently affected joints, whilst the women were also affected to a high degree in the shoulders, hips and knees. All these major joints are commonly

affected in other groups, but there is no particular pattern of involvement other than the high frequencies associated with the vertebral and costal joints.

	Tot	Males				Tot	Females				Total including unsexed				
		OP	%	OA	%		OP	%	OA	%	Tot	OP	%	OA	%
Neck	35	14	40.0	7	20.0	10	6	60.0	3	30.0	47	20	42.6	10	21.3
R shoulder	36	10	27.8	9	25.0	8	1	12.5	0	0.0	46	11	23.9	9	19.6
L shoulder	36	9	25.0	7	19.4	9	3	33.3	1	11.1	47	12	25.5	8	17.0
Sternal joints	36	8	22.2	4	11.1	8	2	25.0	1	12.5	46	10	21.7	5	10.9
Mid spine/ribs	39	24	61.5	11	28.2	12	10	83.3	9	75.0	53	35	66.0	20	37.7
R elbow	35	4	11.4	0	0.0	12	1	8.3	0	0.0	49	5	10.2	0	0.0
L elbow	42	3	7.1	0	0.0	10	1	10.0	1	10.0	54	4	7.4	1	1.9
R wrist	34	3	8.8	1	2.9	10	0	0.0	0	0.0	46	3	6.5	1	2.2
L wrist	39	5	12.8	3	7.7	12	0	0.0	0	0.0	53	5	9.4	3	5.7
R hand	37	3	8.1	1	2.7	11	0	0.0	0	0.0	50	3	6.0	1	2.0
L hand	37	2	5.4	0	0.0	13	1	7.7	1	7.7	52	3	5.8	1	1.9
Lower spine	41	15	36.6	5	12.2	12	11	91.7	7	58.3	55	27	49.1	12	21.8
Pelvic girdle	39	4	10.3	2	5.1	12	3	25.0	3	25.0	53	7	13.2	5	9.4
R hip	40	7	17.5	1	2.5	12	5	41.7	3	25.0	54	12	22.2	4	7.4
L hip	42	5	11.9	0	0.0	13	4	30.8	2	15.4	57	9	15.8	2	3.5
R knee	43	4	9.3	0	0.0	12	2	16.7	1	8.3	57	6	10.5	1	1.8
L knee	43	3	7.0	0	0.0	12	1	8.3	0	0.0	57	4	7.0	0	0.0
R ankle	41	4	9.8	1	2.4	11	0	0.0	0	0.0	54	4	7.4	1	1.9
L ankle	37	4	10.8	1	2.7	8	1	12.5	1	12.5	47	5	10.6	2	4.3
R foot	35	5	14.3	2	5.7	8	0	0.0	0	0.0	45	5	11.1	2	4.4
L foot	36	5	13.9	3	8.3	8	1	12.5	1	12.5	46	6	13.0	4	8.7

Table 11. Percentages of osteophytosis (OP) and osteoarthritis (OA) in adult skeletons.

Arthritic changes, although associated with old age, have a number of other causative factors including genetic predisposition, sex, weight and movement (Waldron 1994). It is likely that various combinations of these factors arise in different individuals, so it is not possible to suggest a single cause either for particular skeletons or the group as a whole.

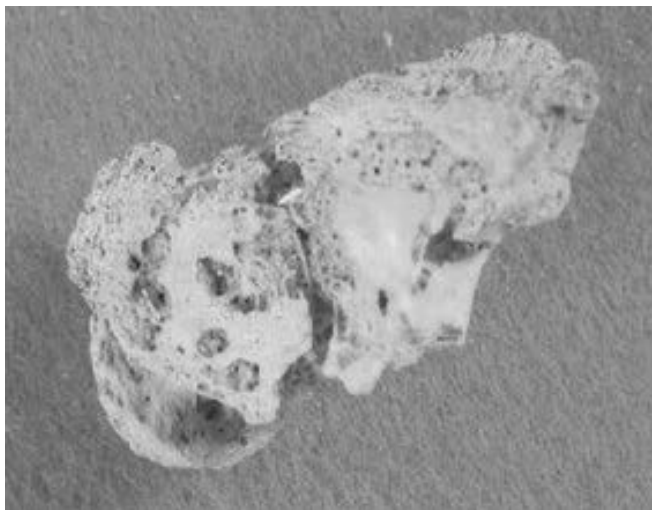


Figure 6. Fused wrist bones of 2156.

Extensive erosive changes in the hands and feet of a middle-aged/old male, 2156, may be evidence of a sero-negative spondyloarthropathy. Unfortunately much of the upper body of this skeleton was missing, and two disarticulated vertebrae were all that survived of the spine. The distal left radius and ulna were enlarged, with pitting around the joints and onto the shaft of the radius, eburnation, and osteophytes. Only two wrist bones were present, the right trapezium and trapezoid (Fig. 6), and these were fused together at the joint, with eburnation on all other joint surfaces, porosity and new bone growth. A small patch of eburnation was also present

on the proximal first metacarpal, and the proximal third metacarpal was pitted. There was partial destruction with pitting and eburnation of both fifth metacarpal proximal facets. The middle left finger was ankylosed at the proximal interphalangeal joint, but all other finger phalanges were normal. In the feet, there was ankylosis of the cuneiforms and porosity of all the tarsals and metatarsals. The second metatarsals were fused to the cuneiforms, and the left proximal third and fourth metatarsals were probably also fused. The metatarso-phalangeal joints of both first toes were ankylosed (Fig. 7), and also the interphalangeal joint of the right only, with hallux valgus as a consequence. Pitting of the shafts of the fourth and fifth metatarsals suggested inflammatory changes, and the tibia were also affected with periosteal changes. Given that the grosser changes

in this individual appear to have affected the lower extremity, a diagnosis of Reiter's disease, rather than psoriatic arthritis, would seem most appropriate. This type of arthritis commonly occurs after an intestinal or sexually transmitted infection is acquired (Rogers and Waldron 1995).

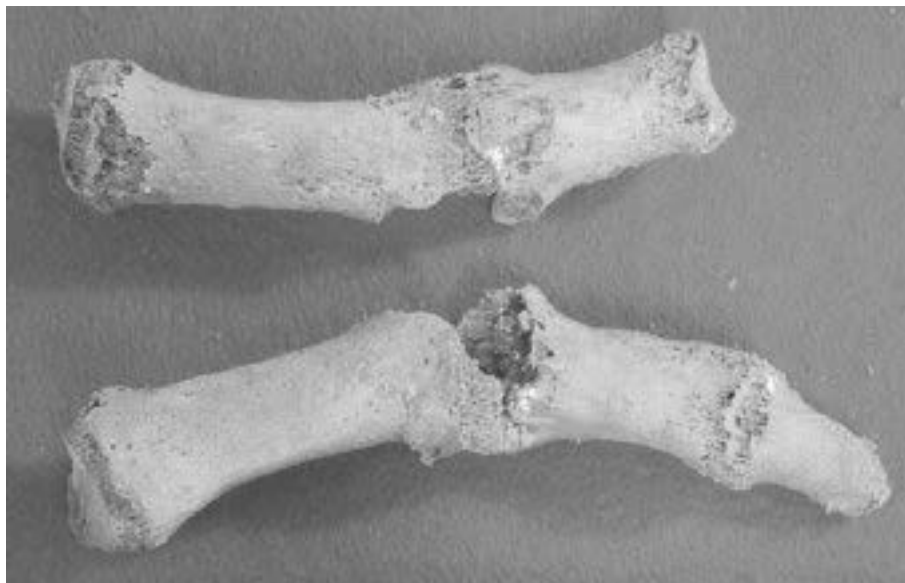


Figure 7. Ankylosed joints to both big toes of 2156.

Proliferative new bone growth around the left tarsal bones of old ?female 3053 had resulted in ankylosis of the navicular and medial cuneiform, and other tarsal bones were close to being fused at the time of death and the proximal end of the second metatarsal was also involved.. A possible lytic lesion was present in the joint of the cuboid to the cuneiform, and further lesions at the distal end of the proximal hallucial phalanx with new bone growth around this joint of the big toe. This is suggestive of a proliferative arthritic condition of uncertain type, but most likely reactive or psoriatic. The individual was also affected with large DISH-like osteophytes on the right side of the lower thoracic vertebrae, again close to fusion at the time of death, and most joints and muscle attachments showed signs of new bone growth, including ossification of the costal cartilage.

Four individuals showed signs of generalised osteoporosis. Three women (2070, 2078, 3097) showed signs in the post-cranial bones and occasionally in the skull, and one ?male (2120) had biparietal thinning.

Diffuse idiopathic skeletal hyperostosis (DISH) is a disease which tends to be associated with middle-aged and older adults, often in association with late-onset diabetes and obesity, and is more common in men than women. The main diagnostic changes consist of large wax-like osteophytes on the vertebral bodies, often fused or close to fusion at the time of death, and profuse new bone growth on the ligamentous attachments. Clinically, four contiguous vertebrae have to be ankylosed for a diagnosis of DISH, although in dry bone it is usually clear that the disease has been present even without this level of fusion (Rogers and Waldron 1995, 51). Nine men and three women were probably affected in this group, although none fulfilled the clinical criteria. The disease has been associated with monastic and high-status burial grounds, so it is interesting to find it in relatively high proportions of a group which is thought to be part of a friary burial ground. Four men (2088, 2114, 2126, 3175) and a ?woman (3053) were most affected in this group, all with proliferation of new bone at most ligamentous attachments, and near- or complete ankylosis of parts of the thoracic spine. The ankylosis seen in the tenth to twelfth thoracic vertebrae of 3175 had resulted in the loss of joint space with no large osteophyte formation and was more like the more serious condition of ankylosing spondylitis, but this would

normally begin lower down in the spine and work upwards, and the lumbar vertebrae were not affected in this individual.

Calcified thyroid and/or costal cartilage was present in three females and nine males.

General spinal pathology

Schmorl's nodes are lesions in the surfaces of the vertebral bodies which have been formed due to pressure from rupture of the intervertebral disc. They occur in the thoracic and lumbar regions of the spine and are related to physical stress in young adult life. Overall 56 out of 71 (78.9%) assessable individuals were affected in at least one vertebra. In general the males had more and larger lesions than the females, as well as a greater prevalence. A full listing by skeleton is included in archive, but Table 12 presents a summary of the results.

Vert	N	0	+	++	%
T1	59	59	0	0	0.0
T2	58	58	0	0	0.0
T3	58	57	1	0	1.7
T4	57	50	7	0	12.3
T5	55	44	10	1	20.0
T6	56	37	17	2	33.9
T7	57	28	23	6	50.9
T8	58	26	27	5	55.2
T9	62	23	32	7	62.9
T10	58	25	29	4	56.9
T11	55	20	29	6	63.6
T12	57	26	29	2	54.4
L1	58	33	20	5	43.1
L2	56	29	25	2	48.2
L3	61	40	18	3	34.4
L4	55	44	10	1	20.0
L5	53	50	3	0	5.7
S1	60	59	1	0	1.7

Table 12. Schmorl's nodes (Group 2).

From this it can be seen that the greatest prevalence occurred in the seventh thoracic to second lumbar vertebrae.

Large nodes, or anterior epiphyseal dysplasia, at the front of the vertebral body had caused anterior wedging in six males and may have resulted in a slight kyphosis, or anterior-posterior bending of the spine. Scoliosis (lateral bending), caused by wedging of one or more vertebral bodies to the right or left sides, may have been present in three men and one unsexed adult. This occurred in the sacrum of one individual, in the thoracic region of three, and the neck of one. In middle-aged male 2083, there was slight wedging of the eighth thoracic vertebra to the right and the first sacral segment was tilted to the left. Possible facial scoliosis was seen in 2183 affecting the left side of the mandible, which was noticeably bigger than the right, and this individual was also affected in the neck region (atlas-axis), although there appeared to be compensatory wedging in the third cervical vertebra.

Metabolic and nutritional disorders

Metabolic diseases are largely dietary or hormonal in origin and rarely affect the skeleton. Those which might be expected to leave a trace include iron deficiency anaemia, scurvy (Vitamin C deficiency) and rickets (Vitamin D deficiency). Osteoporosis is partly a result of hormonal changes and dietary deficiency, but is included in the section on degenerative disease above.

Pitting, porosis or new bone formation may occur in the roof of the eye socket, and is known as

cribra orbitalia. It may be associated with anaemia. In this group 65 individuals were assessable in one or both orbits, and the condition was found in 3 out of 10 females (30.0%), 6 of 39 males (15.4%), 1 of 2 unsexed adults and 5 of 14 children (35.7%), 23.1% overall, although in most cases it was very slight. The lesions were classified following the scheme devised by Knip (in Brothwell 1981), and the distribution is shown in Table 13. No one was affected to the highest (trabecular) degree in this group.

Sex		Total			Class	
		N	+	%	Porotic	Cribriotic
Male	R	36	4	11.1	4	0
	L	39	6	15.4	5	1
Female	R	9	2	22.2	2	0
	L	10	3	30.0	3	0
Unsexed	R	2	1	50.0	0	1
	L	2	1	50.0	0	1
Children	R	14	4	28.6	3	1
	L	14	5	35.7	4	1
Total	R	61	11	18.0	9	2
	L	65	15	23.1	12	3

Table 13. Cribra orbitalia.

Only one possible example of porotic hyperostosis, a condition also associated with iron deficiency anaemia, was found in this group, in 2180, a 16-year old ?male. There were porotic patches on the superior part of both parietals and both sides of the frontal. The lesions could be associated with rickets (see below) rather than iron deficiency, and there was no cribra orbitalia.

Five adult and one sub-adult skulls showed slight pitting or striation over the cranial vault, which may indicate a healed state of the lesion, but could equally be within normal variation or due to an inflammation of the scalp. Only one of these individuals had cribra orbitalia.

Both ulnae and radii of 2180 (?male, c.16) showed highly vascular cortices and reduced medullary spaces at the distal ends where they were broken. The appearance was similar to Pagetic bone, but the individual was too young. Some of the other bones may also have been affected, for example the fibulae and clavicles. Some vascularity is normal in growing bone, but this appeared to be abnormal. A metabolic disease, possibly rickets, seems the most likely cause, and this individual also had bowing of both tibiae proximal thirds laterally. A c.13-year-old, 2190, had similar changes to the radius and ulna.

Hyperostosis frontalis interna is an increased cortical thickening of the inner surface of the cranial frontal bone and is found almost exclusively in post-menopausal women. However, in this group it was seen in 2169, an old man who had suffered from Paget's Disease of the skull (see below), and in this case the lesions may be associated with that.

Circulatory disturbances

These conditions are caused by a disruption in the blood supply to part of a bone. This results in the 'death' of that area and part of the bone may become detached. The original cause of the circulatory disturbance may be physical stress, prolonged pressure or trauma, or it can occur spontaneously.

The most common disease belonging to this category to be found in archaeological material is osteochondritis dissecans. This involves the breaking away of part of a joint surface, which may be resorbed or reunited and healed. Occasionally it remains in the joint space and causes the individual great pain on movement. In modern groups the condition is common in young active men, and is particularly common in the femoral condyles (knee).

True osteochondritic lesions (as defined by Rogers and Waldron 1995, 28–30) were found in the skeletons of two men and two women. Young male 2146 was affected in one of the superior facets of the axis (small pit left side, but also several possible developmental defects in the facets of some thoracic vertebrae). This individual also had a pit in the distal lateral humerus facet for the radius (7 × 5mm), and an old female, 3207, was also affected in the right elbow joint at the epicondylar facet. The superior facet of the talus was affected in young male 2108, who had a healed lesion in the right side (9 × 6mm) with two deep pits on the posterior edge of the lesion, and ?middle-aged female 3097, with a small pit (4 × 2mm) on the medial edge of the superior facet.

In addition to osteochondritis dissecans, small ‘stress’ lesions, consisting of small pits or fracture lines in the joints, were noted in twelve males, two females and one unsexed adult. The majority affected the bones of the feet and ankles. In particular, these were noted in the proximal facet of the proximal hallux phalanx (seven individuals), the inferior large facet of the talus (three individuals), lunate areas of missing bone with pitting at the anterior superior border of the calcaneus (two individuals) and the posterior inferior border of the talus (one individual), the talus-navicular joints (one individual), and the posterior part of the anterior facet of the superior calcaneus (one individual). The only other area affected was the centre of the scapula glenoid part of the shoulder joint (one individual).

Infectious diseases and inflammatory responses

Periostitis and non-specific infections

Periostitis is a common finding in most archaeological groups. It is an inflammatory condition of the outer layer of a bone and is most often found in the lower leg. Although it can be caused by a non-specific infection, it is generally of uncertain aetiology. The tibiae and/or fibulae of 46 men, 14 women, two unsexed adults and twenty children were assessable, and of these twelve men, seven women, one unsexed adult and three juveniles showed signs of periosteal changes in one or more bones. The changes ranged from slight graining and new bone formation, through patches of lumpy periosteal new bone, to gross periostitis associated with other pathology. In two cases the periostitis had spread to the lower femora, and in one adult male (2221) it affected the left femur but not the tibia.

Periosteal changes to the lower arm were present in two individuals. An inflammatory response may have been present on the proximal third of the left radius shaft of middle-aged/old male 2156, although this was in poor condition. In middle-aged/old male 3195 the midshaft of the left radius was enlarged, with slight porosity of the surface and ‘lumpiness’, extending for c.95mm. Similar lesions were present on both femurs and the right tibia, with the latter showing signs of periosteal graining, perhaps as a result of ulcerative sores.

Sub-adult 3202 had signs of porosity and thickening of the anterior portions of four left mid ribs, with some new bone growth, and similar changes on the right ribs. This may be a result of normal growth but the appearance is also consistent with periostitis.

One individual had inflammatory responses which may have been related to stress or trauma. Torn ligaments in the right foot may have caused the new bone formation and pitting on the shafts of the right fourth and fifth metatarsals of ?middle-aged male 2083.

Eight females, 31 males and two unsexed adults were assessable in one or both ischial tuberosities for the presence of bursitis. This consisted of pitting, lipping and/or new bone formation and is caused by long-term movement on a hard seat, as seen for example in weavers, hence the name ‘weaver’s bottom’. It was found in three women and one man. This suggests a

significantly higher prevalence in female skeletons (37.5%) than in males (3.2%) in this group.

One consequence of the excellent preservation of skulls in this group was that very few individuals could be assessed for the presence of maxillary sinusitis. Six juveniles, an unsexed adult and seventeen men could be assessed, of whom ten males, two sub-adults and the unsexed individual had signs of the condition, mostly porosity rather than new bone growth. It was likely that many more had been affected due to abscesses draining into the sinuses, but this could not be confirmed.

A lytic lesion with destruction, porosity and some new bone formation was present in the left ear of adult female 3048b.

Specific infections

Possible evidence for tuberculosis was seen in three individuals, but none was typical. An old male, 2162, had lytic lesions in the left side of the neural arch of the ninth thoracic vertebra, which measured 15 x 8mm and had rounded borders, and centrally into the left side, measuring 18+mm wide and 11mm deep, both of which broke through to the spinal canal. There was also partial destruction to the tenth vertebra upper right facet. The vertebral arch is an unusual, but not unknown, site for tuberculous lesions. An adult female, 3047, had a destructive lesion of the superior third lumbar vertebra with thickening at the anterior border and some signs of healing. Destructive porous lesions of the second to fifth lumbar vertebrae of ?middle-aged female 3097, with some collapse of the second and forth bodies, were present and may also have affected the left sacro-iliac joint. New bone growth was present internally on one left rib, in the form of thick ivory bone. There is a possibility that the lumbar lesions were due to arthritis rather than tuberculosis in this individual, however.

Patches of new bone growth, in the form of small wart-like spots, on the inner surfaces of one or more ribs were seen in seven individuals (2126, 2193, 2208, 3035, 3053, 3058, 3097). It has been suggested (Roberts et al. 1998) that these are related to tuberculosis, although recent work at Wharram Percy has discounted this theory (Mays et al. 2002).

A c.16-18 year old male, 2159, may have had leprosy, but the evidence was thin and consisted only of slight pitting along the midline of the nasal floor and the anterior alveolar bone around the right first incisor. He also had thick woven bone in both maxillary sinuses, a form of sinusitis which was not common in this group. Pitting on the nasal floor is pathognomic of leprosy (C.A. Roberts, pers. comm.).

Three other individuals had changes which could possibly be associated with leprosy. Volar phalangeal grooves were noted in the fingers of middle-aged ?male 2120. There was pitting on the palate of a c.16 year old ?male, 2168. Enlargement of the palatal fossa with porosity was seen in middle-aged/old male 3195, but no other evidence was present in this individual.

Trauma

Exostoses and minor trauma

Many examples of mild trauma were seen in the form of exostoses, the results of torn muscles or ligaments. Seven males and two females were affected, the majority in the knees, ankles or feet. Full details are available in the catalogue (Appendix 1). Old female 3207 had a small exostosis at the medial end of the left mandibular condyle, c.4mm long, curving to the anterior, and young/middle-aged female 3047 had an enlarged right condyle which may have been caused by chronic stress on the joint.

A few small stress fractures across joint surfaces were seen, particularly in the bones of the feet.

The superior edge of the right proximal hallucial phalanx, proximal facet, was affected in young male 2075. The left second toe proximal phalanx of middle-aged/old male 2114 had two curving fracture lines to the medial side and some lipping. Old male 2088 had a slight stress fracture across the joint surface of the left talus inferior large facet.

Two individuals had a more serious type of exostosis, myositis ossificans, which forms as a result of bleeding into a torn muscle, the resultant blood clot becoming ossified and attached to the surface of the underlying bone. Old male 3035 had a possible example on the medial midshaft of the right tibia, although the area of elongated new bone (26mm long) had a rounded surface and could be an osteoma. A small hole was present in a similar position on the left tibia with slight loss of bone surrounding it; this had the appearance of a cloaca associated with osteomyelitis, but there was no real evidence of infection in the bone. A much larger lesion was seen in middle-aged/old male 3195, who had an area of smooth new bone c.145mm in length on the midshaft right femur, raised c.8mm above the shaft. This individual also had new bone growth on the volar surface of the right second finger proximal phalanx which had a lumpy, healed appearance but which may have been caused by torn ligaments..

A slightly raised area at the bottom of the left tibia soleal line in young ?male 2131 had graining and new bone growth over its surface. It may be an ossified haematoma (bruise of the bone), but a radiograph would be required to confirm this.

Fractures

Fifteen individuals had suffered one or more fractured bones.

The skull was affected in four people: small circular depressed fractures of the left side of the frontal bone were seen in an old man (2169) and a six-year-old child (3007); a slight depressed fracture of the left brow ridge and another possible healed linear scar just above it were present on the skull of middle-aged/old male 3136; a shallow depression on the left parietal of ?middle-aged female 3097 just adjacent to sagittal suture, with slight pitting, was possibly a small depressed fracture. The fact that all four lesions were on the left sides of these individuals' skulls may suggest that they were attacked by right-handed assailants, although accidental wounds are also possible, particularly in the case of the young child.

Seven individuals had fractures to bones of the torso. A possible fracture of the left innominate bone of the pelvis of sub-adult ?female 3004 consisted of a partially healed hairline crack through the edge of the sciatic notch and into the sacro-iliac joint facet, curving medially on the posterior of the bone. A probable fracture of the right clavicle was seen in old male 2126, and one left mid rib was also fractured close to the head end. Middle-aged/old male 2114 had a fracture of the neck of the left eleventh rib. The individual with the fracture of his brow, middle-aged/old male 3136, also had two well-healed fractures to two right mid ribs. Fractures of five right and one left ribs were seen in old female 3207, all with flattened areas and slight misalignment, but all well healed and old wounds at the time of death. A possible fracture of the left side of the fifth lumbar vertebra neural arch, just below the superior facet, had affected young male 2081, with only slight remodelling to suggest healing. Partial healing was also seen in fractures through the upper edge of the superior left facet of the eighth thoracic and the superior right facet of the ninth belonging to ?middle-aged male 2083. The second to third cervical vertebrae were affected in old male 2126, with fusion at the bodies and arches. The underlying cause of all these vertebral fractures is hard to determine, but they could be traumatic in origin, related to osteoporosis in the older individuals, or in the thoracic and lumbar examples, the result of a tuberculous lesion.

Two fractures of the arm were identified in connection with the rib fractures noted above, both in

radii: 2114 in the distal third of the left radius and 3207 at the distal end of the right radius, possibly also with a fracture of the ulnar styloid process (Colles fracture). A fracture of the distal shaft of the left ulna was noted in old male 3106; the lesion had well rounded callus and was probably an old injury, but the radius was not affected.

Three individuals had fractures of the legs. A possible greenstick fracture of the left femur midshaft had caused a slight bulge to the lateral side of the shaft in young/middle-aged ?male 2202, but there was no obvious change of alignment; the lesion could be due to an infection, but a radiograph would be required to confirm this. Another greenstick fracture had affected c.15–16-year-old male 2171, this time with slight deviation of the linea aspera, thin periosteal new bone growth, and anterior bowing. A c.16–18-year-old male, 2093/3169, had an avulsion fracture of the left femoral lesser trochanter (Fig. 8), which was displaced anteriorly, possibly a result of chronic stress, rather than an acute trauma, as the right side also seemed to be slightly further forward than normal.



Figure 8. Avulsion fracture of the left femur in 2093.

A possible healed fracture through the superior part of the proximal facet of the left first metatarsal was seen in mature ?male 3076, and there was a partially healed fracture through the proximal end of the left fifth metatarsal of middle-aged/old male 0932.

Wounds

A lesion of the left side of the frontal bone, 17mm left of the midline and 28mm above the orbit on a slight diagonal (17mm long and 4mm wide) with a slightly raised central area on a shallow fossa, was a healed cut on the skull of middle-aged male 2117, and did not penetrate the diploë.

Other trauma

The medial facet of the right patella of mature male 2109 had a lumpy appearance with new bone growth, possibly remodelling following trauma or osteochondritis.

Old male 2088 had slight enlargement of the distal end of the right first metatarsal with proliferation of new bone on both sides, pitting and slight new bone growth on the volar surface and possible porosity on the plantar surface of the articulation. There was a large lip of new bone to the lateral side of the head and a ‘bunion’ to the medial, possibly due to trauma.

Old ?female? 3053 had an ankylosis of the superior part of the left sacro-iliac joint with thick new bone growth (the area was incomplete). Exostoses or osteophytes on the right side were possibly similar but were not fully fused. The condition may be of traumatic or arthritic origin.

Neoplasms

Benign wart-like growths, osteomata, of the skull were not common in this group. They occurred on the frontal bones of two men (2126, 2186), and an enlarged area at the left asterion of another man (2162) may have been an osteoma, but there was slight enlargement on the right side at this point too. A large osteoma, c.21mm in diameter, was present on the right side of the occipital of adult female 3048b. ?Middle-aged female 3097 had a small osteoma on the right parietal.

Miscellaneous pathology

Diseases of unknown aetiology

Paget's Disease of bone is a condition which affects older individuals, most commonly men over the age of 50 years. It is of unknown cause, but the symptoms are clear in dry bone specimens. There is a proliferation of poorly-formed new 'Pagety' bone which is easily diagnosed from radiographs. In this group it appears to have affected two individuals.

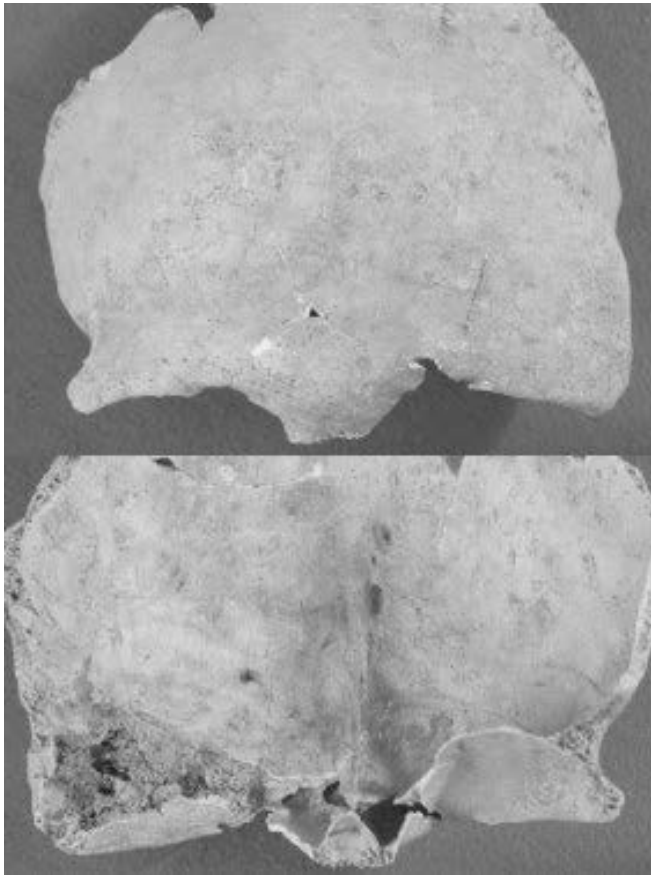


Figure 9. Paget's Disease of frontal in 2169.

In old male 2169, the left side of the frontal bone has dense new bone with enlargement of the diploë but thinning of the cortical bone (Fig. 9). This had caused deformation of the superior temporal line and zygomatic process. The new bone had spread into the orbital plate and the remaining fragment of sphenoid bone where it articulates with the left frontal. The disease was also present at both frontal processes of the maxilla (visible where these had broken post-mortem), and spreading into the maxillary sinuses. The inner table of the frontal bone had new bone growth which looked like the post-menopausal female condition of hyperostosis frontalis interna, but these changes could be related to Paget's Disease.

The shaft of the left radius of old male 0999 was enlarged and appeared to have an infection, perhaps related to trauma, but an x-ray of the bone suggested that the deformities were the result of Paget's Disease (Cox 1991).

General observations

Abnormal curvature of the leg bones was seen in seven individuals. Genu valgum or knock-knee, caused by bilateral curvature of the proximal thirds of both tibiae, was present in unsexed young adult 2068, middle-aged/old male 2165, and c.16 year old male 2180. In two cases there were associated changes to the heel bones due to the change in pressure at this point. This condition can be related to rickets, but is also common idiopathic deformity of childhood. An increase in the normal angle of the femoral neck, coxa valga, was seen in old male 0999; the

condition can be caused by congenital dislocation of the hip (unlikely in this case) or infantile paralysis. Young/middle-aged ?female 2215 showed possible modification of the left femur shaft to some unknown stress, with the lateral side curving outwards in the upper half, where it was wider than the right femur. Anterior torsion was present at the superior parts of both femora of middle-aged/old male 3016, and there was slight lateral curvature of the femora of young/middle-aged female 3047.

Anomalies of the skeleton involving asymmetry of the bones were seen in three individuals. The bones of the right arm were more developed than the left in ?middle-aged male 2083, and the curvature of the right ulna suggested that this forearm was much broader than the other. The right arm of c.16–18-year-old male 2193 was also more robust than the left. The lower third of the right humerus of middle-aged male 2149 curved laterally, deviating from the normal midline (in comparison with the left) by 11 degrees.

Three c.16–18-year-old males, 2193, 2159 and 3187, had very thin skulls for their age. Other anomalies of the cranial vault included two individuals who had slight ‘lumps’ externally due to large and deep arachnoid granulations inside the skull. These are more typically associated with older individuals, but 2174 was a middle-aged female, and 2171 was a c.15–16-year-old male. It is possible that these lesions might be caused by a cyst or tumour on the brain. Old male 2162 had very large mastoid processes, which could simply be developmental or congenital.

A c.16-year-old ?male, 2180, had a possible lytic lesion of the right humerus distal end. This could be a developmental defect caused by the epiphysis not fusing correctly.

Anomalies of the feet were seen in seven individuals. The metatarsals of young male 2090 were unusually curved at the distal thirds. Metatarsal pitting, a pathology of unknown cause and significance (Rogers and Waldron 1995, 30) was present in the third metatarsals of young/middle-aged male 2211 and middle-aged ?male 2120. Thick bars of new bone had formed on the lateral sides of the metatarsal shafts in middle-aged/old male 2114, old male 2126 and old ?female 3053; these may form in response to external stresses on the foot, or they could be related to bone formation in DISH. Middle-aged/old male 3175 had extreme hallux valgus of the right foot with destructive cyst-like lesions at the head of the first metatarsal and modification of the metatarso-phalangeal joints; the condition was also present to a lesser degree in the left foot.

Four individuals had a shallow bar of bone on the anterior-medial femur shaft, of the type described by Wells (1971) as an *eminencia intervastum*. This was bilateral in middle-aged male 2149 and ?middle-aged male 2083, on the left femur of unsexed middle-aged adult 2183, and on the right of old female 2078. It is thought to be related to repetitive muscle movements, for example ‘the rhythmic hoeing of seed beds’ (Wells 1980).

Group 3 – ?Post-medieval burials, centre of site

Minimum number of individuals (MNI)

Fifty-nine context numbers were issued for skeletal remains in this group, and this figure was also the MNI. Disarticulated remains from related graves were re-united with the main skeleton where possible, but seven contexts contained small quantities of additional bone.

Condition

Table 14 shows the numbers of individuals in each condition category. In this group, 64% of the skeletons were thought to be in good or very good condition, and none were poor.

Condition	No.
Very good	15
Good	23
Fair-good	8
Fair	13
Poor-fair	0
Poor	0

Table 14. Condition of skeletons in Group 3.

Demographic analysis

Juveniles

Six individuals were below the age of 18 at death, of which two were in the '7-12' range, two were '13-16' and two were '16-18'. The proportion of children to adults in this group (10.2%) is very low. Again, no infant bones were recovered in this area of the site.

Two individuals aged between c.16 and 18 years were sexed: one was ?male and one was ?female.

Adults

Like Group 2, sex was difficult to determine for some skeletons in this group.

Of the fifty-three adults, thirty-four were male, three were ?male, eight were female, five were ?female, and three were unsexed. The adult group has a male to female ratio of 1 : 0.35, and if the sexed sub-adults are included, the ratio is 1 : 0.36. Like Group 2, the sex ratio is statistically significant.

Table 15 shows the distribution of adult and sexed sub-adult age at death.

Age group	Male		Female		Total*	
	No.	%	No.	%	No.	%
<18	1	2.6	1	7.1	2	3.6
Young	4	10.5	3	21.4	8	14.5
Young/Middle-aged	17	44.7	4	28.6	22	40.0
Middle-aged	7	18.4	-	-	7	12.7
Middle-aged/Old	5	13.2	2	14.3	7	12.7
Old	4	10.5	4	28.6	9	16.4
Total	38		14		55	

Table 15. Age distribution of adult and sexed sub-adult skeletons in Group 3

*total includes unsexed adults

The largest group appears to have died in young or young/middle-age (30), although 23 individuals were middle-aged or older. Proportionately there were more older females than males. Age distribution by sex is shown in Fig. 10.

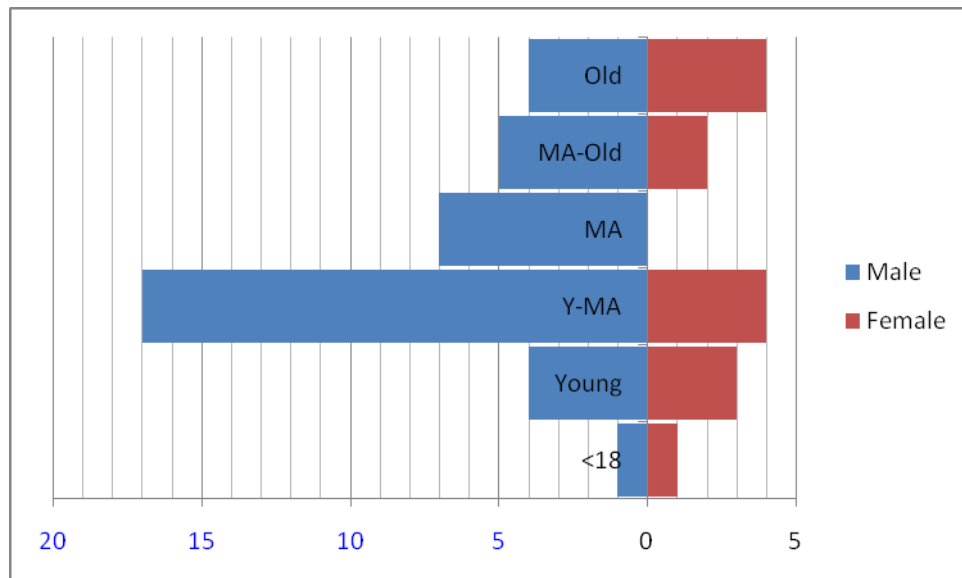


Figure 10. Age distribution of adults and sexed sub-adults (Group 3).

Metrical and morphological analysis

Tables of measurements are provided in the archive.

Stature

The means and ranges of estimated stature for adult males and females are presented in Table 16.

Sex	No.	Mean	Range
Male	36	170.4cm (5' 7")	161.4cm (5' 3½") – 181.9cm (5' 11½")
Female	13	162.4cm (5' 4")	153.8cm (5' 0½") – 174.0cm (5' 8½")
Unsexed (male formulae)	3	169.6cm (5' 6¾")	168.5cm (5' 6") – 170.8cm (5' 7")

Table 16. Stature means and ranges.

The male mean is comparable with medieval sites in the region, but slightly taller than post-medieval groups. The female mean is slightly high for both periods, and higher than Group 2, again suggesting that some of the less securely sexed females could be male.

Cranial indices

The cranial index (length/breadth) could be calculated for thirty males, eleven females and three unsexed adults. For males, the mean was 77.9 and the range was 71.9 to 95.0. For females, the mean was 78.3, and the range was 74.3 to 84.5. Unsexed individuals ranged from 69.0 to 81.8, with a mean of 76.0.

Ten skulls (eight male, one female, one unsexed) were dolichocranial or narrow-headed, twenty-three were mesocranial or medium-headed (fifteen male, seven female, one unsexed), and eleven were brachycranial or broad-headed (seven male, three female, one unsexed). Overall the mean was 77.9, towards the upper end of the mesocranial range.

Post-cranial indices

The means and ranges of the meric and cnemic indices, which measure the relative flattening of the shaft of the femur and tibia respectively, are shown in Table 17.

The majority of femora were narrow (hyperplatymetric, fourteen right, seventeen left; platymetric, thirty right and twenty-seven left), with only a few broad (eurymeric, eleven each side). The tibiae were generally broad (eurycnemic, 40 right, 33 left), with fewer medium or narrow bones

(mesocnemic, 11 right, 17 left; platycnemic, three right, four left).

	Male R	L	Female R	L
<i>Meric index</i>				
Mean	80.0	79.2	78.9	78.9
No.	36	36	14	14
Range	64.7–96.8	64.9–96.9	70.6–90.6	66.7–96.4
<i>Cnemic index</i>				
Mean	73.1	72.3	74.7	74.5
No.	36	36	13	13
Range	56.4–86.1	59.0–108.0	65.6–87.5	64.5–87.5

Table 17. Meric and cnemic indices in Group 3.

The robusticity of the femur was calculated where possible. There was a slight difference between the male and female means, but the ranges overlapped to a great extent. The male mean was 13.2 for both the right and left femurs, compared with 12.5 and 12.6 for female right and left femurs respectively. The male range was 11.6–15.0 and the female 11.1–14.2.

Non-metric traits

Tables of scores and percentages for each trait are included in the Appendix. Distributions of the more unusual traits in this cemetery were plotted and show some clustering. Sks 0343 and 0344 at the south-eastern edge of the cemetery, in adjoining graves, both had double hypoglossal canals and extra infra-orbital foramina. Metopism was present in three individuals in the south-east corner: 0317, 0611 and 0569. Four in this area had supra-scapular foramina (0342, 0343, 0611 and 0868), which otherwise occurred in only one other skeleton in Group 3 (0924).

The prevalence of epipteric bone was very high in this group. Seventeen individuals showed evidence for the trait, with frequencies of 25% on the right side and 32% on the left. It occurred in clusters of several individuals in the eastern half of the cemetery, but these individuals showed few other traits in common. The trait was also relatively common in Group 2, though there the frequencies were 10% on the right and 24% on the left. Frequencies in other populations are usually around 10–20% (Brothwell 1981, table 4), so Group 2 was probably within normal limits. Both groups were significantly higher than the recorded presence of the trait at Ipswich Blackfriars.

Racial affinities

Five individuals, all male, in this group also showed evidence of negroid characteristics. In this case all five were buried in a single row of the cemetery — skeletons 0881, 0924, 0925, 0942 and 0971 — although probably not at the same time based on their stratigraphic relationships with other graves in the row.

Dental analysis

Dental remains of thirty-four males (thirty-one maxillae, thirty-three mandibles), thirteen females (thirteen maxillae, twelve mandibles), three unsexed adults (three maxillae, three mandibles) and four juveniles (two maxillae, four mandibles) were present, a total of 54 individuals.

The adult dentitions, if complete, would contain a total of 1600 tooth positions, but 177 of these were uncertain or missing. This left 1423 positions which could be recorded. From these, 108 (7.6%) teeth had been lost post-mortem, 108 (7.6%) had been lost ante-mortem and 58 (4.1%) were unerupted/partially erupted or congenitally absent. This left a total of 1149 teeth *in situ*.

The four juvenile dentitions provided eighty observable positions, of which none contained deciduous teeth, there were 64 permanent teeth, 12 unerupted permanent teeth, and four teeth had been lost post-mortem.

Summary tables of male, female and juvenile teeth can be found in the Appendix.

Ante-mortem tooth loss

Fourteen of the thirty-four males (41.2%), eight of the thirteen females (61.5%) and one of three unsexed individuals had lost one or more teeth during life (46.0% overall). Table 18 shows the amount of loss by sex and jaw.

Sex	Jaw	Positions	Lost	%
Male	Maxilla	472	22	4.7
	Mandible	510	31	6.1
Female	Maxilla	169	29	17.2
	Mandible	176	23	13.1
Unsexed	Maxilla	48	3	6.3
	Mandible	48	0	0
All	Both	1423	108	7.6

Table 18. Ante-mortem tooth loss (Group 3).

The women in this group were most affected by ante-mortem tooth loss, probably in part due to the greater proportion of older women, but also to a large degree due to the presence of one older female who was almost edentulous (2070). Overall the teeth most likely to be affected were molars, particularly amongst the men.

Caries

Sixteen men (47.1%), seven women (53.8%) and three unsexed adults had one or more carious lesions (48.1% overall). Sixteen individuals had one or two lesions, five had three or four, four had five or six, and one had twelve. Table 19 shows the prevalence of caries by sex and jaw.

Sex	Jaw	Teeth	Caries	%
Male	Maxilla	399	30	7.5
	Mandible	431	19	4.4
Female	Maxilla	115	7	6.1
	Mandible	122	9	7.4
Unsexed	Maxilla	36	5	13.9
	Mandible	46	2	4.3
Sub-adults	Maxilla	30	0	-
	Mandible	34	0	-
All	Both	1213	72	5.9

Table 19. Caries (Group 3).

This shows that women men and women in this group were affected to a similar degree, although the mandibular teeth of males had a slightly lower frequency than the rest. The slightly greater rate of ante-mortem tooth loss in male mandibles is the likely explanation for this. Caries was most frequent in the molars, but 32% of all carious lesions in this group affected non-molar teeth. The origin of the lesion was generally occlusal or interstitial.

Abscesses

Fourteen males (41.2%), seven females (53.8%), two unsexed adults and one sub-adult had at least one abscess (an overall rate of 44.4%). Twelve individuals had one or two abscesses, nine had three or four, two had five and one had ten. The latter was the same individual, a young to middle-aged male 0893, who had the most carious lesions. Table 20 shows the numbers of

positions affected by sex and jaw.

Sex	Jaw	Positions	Abscesses	%
Male	Maxilla	472	35	7.4
	Mandible	510	11	2.2
Female	Maxilla	169	10	5.9
	Mandible	176	9	5.1
Unsexed	Maxilla	48	6	12.5
	Mandible	48	0	-
Sub-adults	Maxilla	32	1	3.2
	Mandible	48	0	-
All	Both	1503	72	4.8

Table 20. Abscesses (Group 3).

Twenty-nine of the 46 male, ten of the nineteen female and five of the six unsexed abscesses were found under a carious tooth. However, thirteen male and seven female positions affected with abscesses had lost the tooth either post-mortem or ante-mortem so this association could not be tested for over a quarter of the total.

Some abscesses were particularly large. For example, a young female, 0865, had a very large abscess on the upper right first molar which had broken through to the maxillary sinus and had probably caused sinusitis, although this was not assessable. An unsexed adult, 0834, had a very large abscess into the palate on the upper left first molar. An abscess on the lower left third molar of young/middle-aged male 0893 had, unusually, broken through to the inner surface of the mandible.

Periodontal disease

Eight males and four females showed signs of periodontal disease, ranging from inflammatory changes to the tooth roots to chronic changes such as considerable resorption of the alveoli.

Unerupted/congenitally absent teeth

The overall frequency of unerupted or congenitally absent teeth (not including partially erupted) amongst the adults in this group was 3.9%. The third molars were the most likely teeth to be affected. The overall frequency for third molar agenesis was 25.7% and, like Group 2, affecting men (27.3%) noticeably more frequently than women (17.6%). In both sexes, the mandibular third molars were almost twice as likely to be missing than those of the maxilla.

Other teeth were also congenitally absent or had unerupted. A young/middle-aged male, 0987, lacked all four second premolars and the upper left first premolar, and another young/middle-aged male, 1018, also lacked all four second premolars. This might indicate a genetic relationship between the two, but there was no other evidence — they only shared two commonly occurring cranial non-metric traits — and they were buried at opposite sides of the cemetery.

Dental calculus

Forty-one individuals had some calculus *in situ*, and of these twenty-seven cases were slight, thirteen were moderate and two were considerable. There was no particular difference between the sexes.

Enamel hypoplasia

Hypoplastic defects were seen on the teeth of nine individuals: one female and eight males. Most individuals had ridges which had formed between the ages of 2 and 6 years, with a peak between 3-5 years of age.

Miscellaneous dental pathology

The lower left second molar of a young/middle-aged ?male, 0826, was not fully erupted due to lack of space and had impacted into the first molar. There was uneven wear on the anterior teeth of 0318, a middle-aged/old male, and the upper right second incisor may have been broken in life, possibly indicating some occupational use of the teeth.

Congenital and developmental anomalies of the teeth

Four individuals had rotation and/or overcrowding of the teeth. The upper left second premolar of 0907, a c.16-year-old ?male, was slightly rotated and misshapen. The upper second incisors of 0987, a young/middle-aged male were slightly rotated. Middle-aged/old male 0318 had severe overcrowding, with the upper left canine pushed to the front and the first premolar rotated, and the lower right second incisor pushed to the back. There was overcrowding of the upper left canine to second premolar of 2134, a young male, with slight displacement of the canine to the lingual side.

Smaller than normal teeth were present in five adults. The upper left second incisor of old male 0971, and the upper right second incisor of young/middle-aged male 0835 were small, but the latter had an extranumerary upper right incisor, also small. Peg-like or small upper third molars were present in the maxilla of young/middle-aged ?female 0611 (left side only) and young/middle-aged male 0788. All first premolars of 0987, a young/middle-aged male, were small (the seconds were congenitally absent, see above).

Three individuals had retained deciduous teeth. A middle-aged male, 0924, had a deciduous upper right canine, behind which the unerupted permanent canine was visible. The lower left deciduous second molar of 0987 was probably retained in the jaw for a while, although it had been lost before death — this individual had several congenitally absent permanent teeth (see above). 1018, a young/middle-aged male, had probably retained his upper deciduous second molars, but again they had been lost ante-mortem.

There was a slight underbite to c.16–18-year-old ?female 0908's palate, which was very short and wide and straight anteriorly.

Two individuals had gaps (diastemata) between their anterior teeth. This was observed in the upper incisors and right canine of 0341, a young/middle-aged male, and the upper first incisors of 0343, a middle-aged male.

Dental pathology by age group

Figure 11 shows the prevalences of the three main dental diseases by age group for all adults.

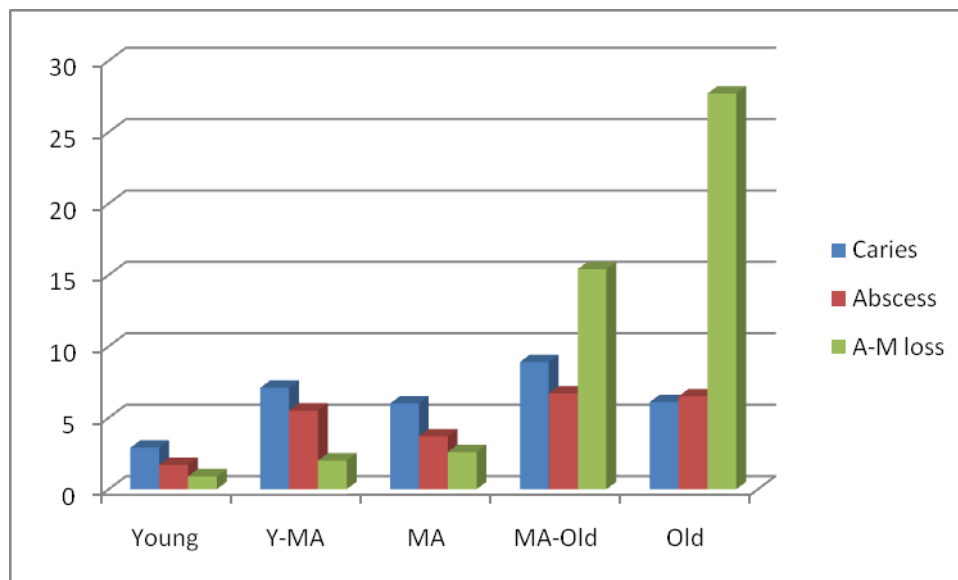


Figure 11. Dental disease by age group (Group 3).

There is a clear increase in ante-mortem tooth loss with age. Both caries and abscesses fluctuate slightly with a decrease in middle-age, followed by a rise and then a slight fall in old age.

Skeletal pathology

Congenital and developmental anomalies

Minor congenital anomalies included so-called ‘squatting facets’ (0305, 0317, 0342 – but not recorded systematically), occipital bun (0317, 0569, 0837, 0926), calcified xiphisternum (0343, 0569, 0852, 0925, 0943, 0987, 2058), and perforate or cleft sternum (0305).

There was lumbarisation of the twelfth thoracic vertebra of young/middle-aged male 0788, with a small lumbar-type rib on the right and no rib facet on the left. A middle-aged male, 0868, had a lumbar rib of the first lumbar vertebra on the left side. Possible lumbarisation of the first sacral segment had occurred in young/middle-aged males 0942 and 2056, and unsexed adult 0945, the latter with sacralisation of the coccyx. The twelfth ribs of 0569, a young/middle-aged female, were very small.

Anomalies of the first cervical vertebra were noted in some individuals. An extra bony spur was present in the left transverse process in middle-aged male 0925. Young/middle-aged male 2056 had a similar bony extension to the left transverse process of the atlas, curving upwards, as did old male 2058; these two were buried in the same grave. Open foramen transversum of the atlas was also present in 2058 (right side).

Fifty-two individuals could be assessed for spina bifida occulta of the sacrum. Of these, eleven were not affected in any way and two could only be partially assessed but had no evidence of the anomaly. The majority were affected only in the lower half of the sacrum, usually the fourth and fifth sacral segments. A fifth lumbar vertebra in 0835 also had a bifurcated arch (see below). Table 21 shows the quantities by segment.

Segment	S1	S2	S3	S4	S5	S6/C
Bifurcated	4	1	0	1	1	0
Cleft	0	1	4	24	34	3
Both	0	0	0	0	0	0
Not affected	46	42	46	25	15	-
Not present	2	3	2	2	2	-

Table 21. Spina bifida occulta by sacral segment.



Figure 12. Bifid detached neural arch of 0835.

Of the forty-nine individuals assessable for detached neural arch of the fourth and/or fifth lumbar vertebra, this condition was present in six. It generally affected the fifth lumbar vertebra (0305, 0342, 0834, 0835, 0860). In 0834 the arch was unusually small suggesting partial sacralisation. In 0835 the left side of the arch was fused to the sacrum, but the arch was bifid and the left side was loose; both sides had an unusually broad appearance with enlarged facets (Fig. 12), and there was scoliosis. One young female, 0793, was affected in the fourth lumbar vertebra only.

Four individuals had been affected by early closure (craniosynostosis) of one or more cranial sutures. The squamous sutures of 0788 were partially obliterated. Young/middle-aged male 0848 had coronal

craniosynostosis. There may have been premature fusion of the posterior part of the sagittal suture in an unsexed young/middle-aged adult 0834.

Scaphocephaly, or keeling of the sagittal suture due to early fusion, was present in 0870, a middle-aged/old ?female. However the most marked example was in old male 0958: there was bilateral lambdoid and sagittal synostosis, although the sagittal had not resulted in keeling, but there was a marked doming of the frontal bone and flattening of the occipital (Fig. 13). The palate of this individual was straight across the anterior and relatively high, and the mandible was slightly child-like in appearance, although flaring at the sides. This may be a minor type of one of the more serious syndromes associated with early cranial suture closure.

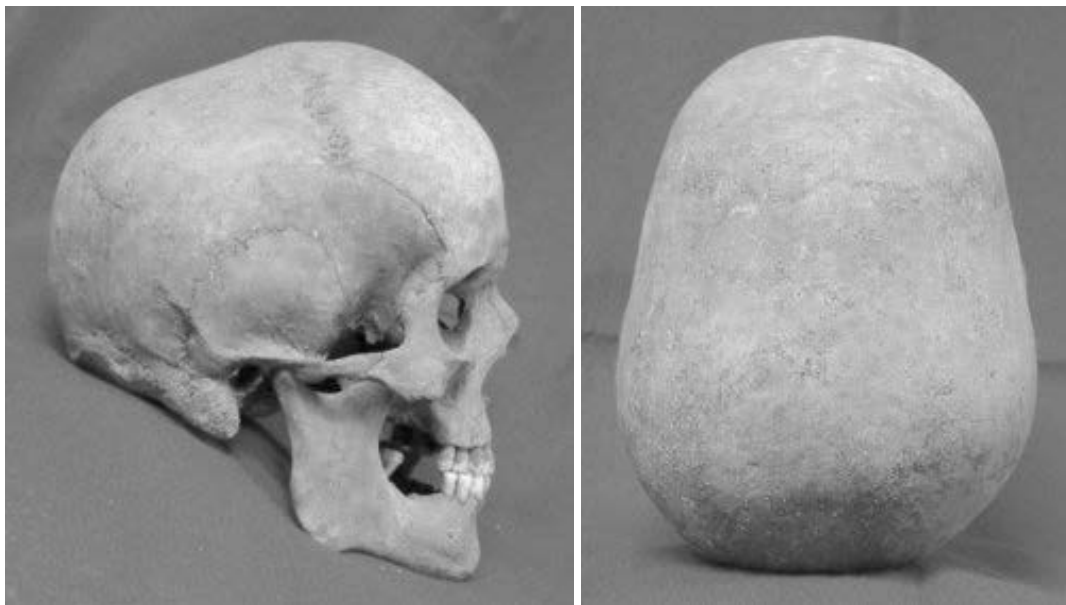


Figure 13. Craniosynostosis of sagittal and lambdoid sutures in 0958.

A very large lambdoid wormian bone, 55 × 37mm, was present in the right lambdoid suture of unsexed old adult 1036.

A young unsexed adult, 0945, had an enlarged conoid tubercle of the left clavicle with an oval ?articulation measuring 12 × 9mm. The scapula was incomplete and it is not clear what may have caused this, unless it was simply a developmental anomaly.

A middle-aged/old ?male 0860 had an anomalous articulation between the right first and second metatarsals with an additional rounded area of bone on the second metatarsal superior medial border, c.6mm distal to the proximal facet, with facets for the first metatarsal and cuneiform.

Some features of Down's Syndrome were seen in two individuals. 0987, a young/middle-aged male, had small nasal bones, a short jaw, a very short head with a flat occipital (although this may be caused by early fusion of the sagittal suture), dental abnormalities and some small teeth. All the face bones were thin and the sphenoid may have been a little under-developed, and the finger bones may be relatively short for the size of the individual. Against this diagnosis, the frontal and sphenoid sinuses appeared fairly normal, and the individual was relatively tall (173.5cm, 5' 8"). Most adult Down's Syndrome males today are below 5' 5" in height. A child of c.10–11 years, 0965, had two ossification centres in the manubrium, as well as several in the sternal body. This is a symptom of Down's Syndrome, although developmental defects could also be the cause. This individual was buried next to 0987.

Arthropathies and degenerative disease

Table 22 shows the number of adults affected by osteoarthritis and osteophytosis in the major joints of the body out of the total number of joints of which at least one articular facet remained. A full listing for the spine is included in archive.

	Males					Females					Total including unsexed				
	Tot	OP	%	OA	%	Tot	OP	%	OA	%	Tot	OP	%	OA	%
Neck	34	11	32.4	3	8.8	12	4	33.3	2	16.7	49	16	32.7	6	12.2
R shoulder	36	5	13.9	3	8.3	12	5	41.7	4	33.3	51	10	19.6	7	13.7
L shoulder	36	5	13.9	2	5.6	13	4	30.8	2	15.4	52	9	17.3	4	7.7
Sternal joints	37	4	10.8	2	5.4	12	1	8.3	1	8.3	52	5	9.6	3	5.8
Mid spine/ribs	35	23	65.7	6	17.1	13	7	53.8	2	15.4	51	31	60.8	8	15.7
R elbow	36	1	2.8	1	2.8	13	2	15.4	1	7.7	52	3	5.8	2	3.8
L elbow	35	2	5.7	1	2.9	13	0	0.0	0	0.0	51	2	3.9	1	2.0
R wrist	36	2	5.6	1	2.8	13	0	0.0	0	0.0	52	2	3.8	1	1.9
L wrist	35	3	8.6	2	5.7	13	2	15.4	0	0.0	51	5	9.8	2	3.9
R hand	35	4	11.4	3	8.6	13	2	15.4	1	7.7	51	6	11.8	4	7.8
L hand	36	3	8.3	2	5.6	13	1	7.7	1	7.7	52	4	7.7	3	5.8
Lower spine	35	14	40.0	5	14.3	13	6	46.2	2	15.4	51	20	39.2	7	13.7
Pelvic girdle	36	1	2.8	1	2.8	13	1	7.7	0	0.0	52	2	3.8	1	1.9
R hip	37	9	24.3	7	18.9	13	4	30.8	1	7.7	53	14	26.4	9	17.0
L hip	37	6	16.2	5	13.5	13	4	30.8	1	7.7	53	11	20.8	7	13.2
R knee	36	4	11.1	1	2.8	13	2	15.4	2	15.4	52	6	11.5	3	5.8
L knee	36	5	13.9	2	5.6	13	3	23.1	2	15.4	52	8	15.4	4	7.7
R ankle	35	1	2.9	1	2.9	13	1	7.7	0	0.0	51	2	3.9	1	2.0
L ankle	34	2	5.9	1	2.9	13	0	0.0	0	0.0	50	2	4.0	1	2.0
R foot	35	3	8.6	2	5.7	13	4	30.8	0	0.0	51	7	13.7	2	3.9
L foot	34	1	2.9	1	2.9	13	3	23.1	0	0.0	50	4	8.0	1	2.0

Table 22. Percentages of osteophytosis (OP) and osteoarthritis (OA) in adult skeletons.

Both sexes were most affected in the spine, although the women were more affected in the right shoulder than the neck. The hips, knees, elbows and hands of the women were the next most frequently affected joints. The men also had high frequencies of the conditions in the hips, knees and shoulders, as well as the right hand.

Several examples of arthritic change in this group were noteworthy. A middle-aged/old male, 0829, had enlargement of the left second metacarpo-phalangeal joint, with flattening of the joint surface, loss of joint space, pitting and lipping (Fig. 14). The joint was probably almost immovable, and the arthritic changes may have been secondary to trauma. Osteoarthritis of both hip joints was severe in an old male, 0971, with eburnation of all joint surfaces, proliferation of new bone surrounding both acetabuli (Fig. 15) and extending along the pubic ramus, and extensive remodelling of both pubic symphyses and new bone growth around and on the joints.



Figure 14. Osteoarthritis of the left second metacarpophalangeal joint of 0829.

Six proximal and one middle finger phalanges of middle-aged/old male 0882 survived, and all the proximal interphalangeal joints, with the exception of the left thumb, showed slight enlargement of the facets with areas of destruction and lipping around the joints, with pitting on the right fifth proximal phalanx. Despite the symmetry, and the joints involved, this is unlikely to be rheumatoid arthritis as that disease does not cause proliferation of new bone. However, the pattern would be unusual for 'normal' osteoarthritis and the cause is uncertain.

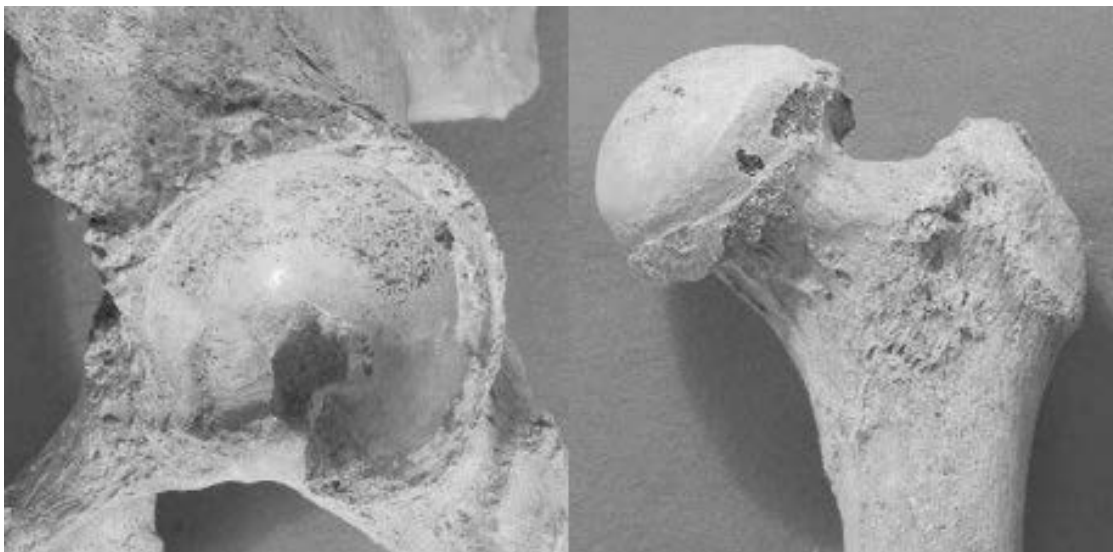


Figure 15. Severe osteoarthritic changes to the left hip joint of 0971.

Old female 3082 had proliferative and healed erosive lesions of the wrists and hands. In the left hand the distal thumb phalanx showed slight loss of bone at the tip (Fig. 16) and there were osteophytes around the metacarpophalangeal joint of the thumb and the proximal interphalangeal joints of the fingers, particularly the middle finger. Eburnation was present on the joint of the thumb with the wrist (greater multangular). Similar changes were present in the right hand, and there were also destructive changes to the distal ends of three phalanges with healing. A few changes were also present in the feet, including proliferative new bone growth around the head of the left first metatarsal, and small cystic lesions in the heads of both fifth metatarsals. These lesions are not typical of osteoarthritis and may have been caused by psoriatic or reactive arthritis.



Figure 16. Finger bones of 3082: partial destruction of the left thumb tip (far left); new growth proximally on one finger phalanx (next left) and distally on two others (right).

Four women (0870, 0873, 0926, 2070) and an unsexed adult (1036) showed signs of generalised osteoporosis in the post-cranial bones and occasionally in the skull.

Three men and three women had signs of DISH. Large osteophytes on the vertebrae of male 0958 and female 3082 were both close to ankylosis at the time of death, but there were no examples in this group which would fulfill the clinical criteria (see above, Group 2). Calcified thyroid and/or costal cartilage was present in two females and four males.

General spinal pathology

Overall 50 out of 56 (89.3%) assessable individuals were affected with Schmorl's nodes in at least one vertebra, with males had generally being more at risk than females. A summary of the results is presented in Table 23. As with Group 2, the greatest prevalence occurred in the seventh thoracic to second lumbar vertebrae.

Vert	N	0	+	++	%
T1	49	48	1	0	2.0
T2	49	47	2	0	4.1
T3	48	46	2	0	4.2
T4	48	41	7	0	14.6
T5	46	32	11	3	30.4
T6	50	24	19	7	52.0
T7	53	18	27	8	66.0
T8	51	12	30	9	76.5
T9	52	13	26	13	75.0
T10	51	15	22	14	70.6
T11	50	16	21	13	68.0
T12	49	15	21	13	69.4
L1	52	18	24	10	65.4
L2	51	20	23	8	60.8
L3	50	28	15	7	44.0
L4	49	34	13	2	30.6
L5	52	42	9	1	19.2
S1	50	46	3	1	8.0

Table 23. Schmorl's nodes (Group 3).

Large lesions at the front of the vertebral body had caused anterior wedging in three males and two females, generally in the lower thoracic or upper lumbar areas. In addition to these, slight

wedging of the anterior of one or more vertebrae of uncertain cause, which would have caused kyphosis in life, was seen in the thoracic region of four men and one woman. Two individuals, young/middle-aged unsexed adult 0834 and middle-aged male 0868, had unusually curved sacrums.

Scoliosis caused by wedging of one or more vertebral bodies to the right or left sides, may have been present in three men. This occurred in the lower spine and sacrum of one individual and in the thoracic region of two. In all three there was compensatory wedging with adjacent or non-adjacent bodies being wedged on opposite sides. Possible facial scoliosis was seen present in 0834 affecting the left side of the palate, which was larger than the right. Slight scoliosis of the sternum was present in middle-aged male 0868.

Metabolic and nutritional disorders

In this group 46 individuals were assessable for cribra orbitalia in one or both orbits, and the condition was found in four out of eleven females (36.4%), eleven of 29 males (37.9%), one of three unsexed adults and two of three sub-adults (66.7%), 39.1% overall. The distribution is shown in Table 24. No one was affected to the highest (trabecular) degree in this group.

Sex		Total			Class	
		N	+	%	Porotic	Cribriotic
Male	R	28	10	35.7	6	4
	L	28	11	39.3	7	4
Female	R	10	3	30.0	2	1
	L	10	3	30.0	3	0
Unsexed	R	3	1	33.3	1	0
	L	3	1	33.3	1	0
Children	R	3	2	66.7	2	0
	L	3	2	66.7	2	0
Total	R	44	16	36.4	11	5
	L	44	17	38.6	13	4

Table 24. Cribra orbitalia.

Seventeen adult skulls showed slight pitting or striation over the cranial vault, which may indicate a healed state of porotic hyperostosis, but could equally be within normal variation or due to an inflammation of the scalp. Six of these individuals had cribra orbitalia. Perhaps the most likely case to be the result of a metabolic disturbance was seen in young/middle-aged male 0341, who had a high degree of pitting on the frontal and parietals with some possible new bone growth and changes to the centre of the frontal bone, as well as porotic cribra orbitalia bilaterally.

A c.13–16-year-old, 2096, had vascular cortices of the radius and ulna, possibly a result of a metabolic disturbance similar to that seen in Group 2 Sk. 2180.

Hyperostosis frontalis interna was seen in 0875, a middle-aged male, who had very large nodules of new bone on the inner surface of the frontal bone.

Circulatory disturbances

True osteochondritis dissecans affecting convex joint surfaces (Rogers and Waldron 1995, 28–30) was identified in five men, two women, and one unsexed adult. The most common place for these lesions in modern populations is in the distal femoral condyle (knee), and three individuals in this group were affected in this joint: 0305, a middle-aged male, had an unusually deep but small lesion (oval, 4 × 6mm) in the posterior part of the right lateral condyle; 0868, also a middle-aged male, had an oval healed lesion (15 × 12mm) in the distal part of the left medial

condyle, and also a healed lesion in the head of the femur ($17 \times 12\text{mm}$); an old ?female, 0873, had a lesion in the posterior part of the left medial conyle ($13 \times 6\text{mm}$). In this group, the next most common place was in one of the superior facets of the axis, which occurred in two individuals: a young/middle-aged male 0827 ($5 \times 7\text{mm}$, right side, healed) and another young/middle-aged male 0851 (5mm diameter, possibly also healed lesion on left side). Another common place was in the ankles. The superior facet of the talus was affected in an unsexed old adult 1036, with lesions in both sides (left $6 \times 4\text{mm}$, right $3 \times 3\text{mm}$), and also in the superior facet of the left calcaneus ($6 \times 3\text{mm}$). Two other individuals, a middle-aged/old male 0882, and a c.16–18-year-old ?female 0908, had pits in the superior large facet of the left calcaneus. The heads of the first metatarsals may have been affected in two individuals, although the lesions were more like stress lesions as described below.

Small ‘stress’ lesions were noted in twenty males, three females and one unsexed adult. The majority affected the bones of the feet and ankles. In particular, these were noted in the proximal facet of the proximal hallucial phalanx (four individuals), the proximal ends of first metatarsals (three individuals) and the second metatarsal (one individual), the distal ends of the first metatarsals (two individuals), the inferior large facet of the talus (two individuals), lunate areas of missing bone with pitting at the anterior superior border of the calculus (three individuals), the talus-navicular joints (one individual), the posterior part of the anterior facet of the superior calcaneus (four individuals), the distal tibia (one individual), and the superior anterior facet of the cuneiform (one individual). Other areas affected were the centre of the scapula glenoid part of the shoulder joint (two individuals), and the left capitate joint for the lesser multangular (one individual, although the cause of this was uncertain).

A lesion at the medial end of the left clavicle of a young/middle-aged male 0851 (c. $14 \times 13\text{mm}$), which consisted of bone loss without pitting, may also have been caused by some form of aseptic necrosis.

Infectious diseases and inflammatory responses

Periostitis and non-specific infections

The tibiae and/or fibulae of thirty-six men, thirteen women, three unsexed adults and six children were assessable for periostitis, and of these twenty-five males, two females, one unsexed adult and three juveniles showed signs of periosteal changes in one or more bones. The changes ranged from slight graining and new bone formation, through patches of lumpy periosteal new bone, to gross periostitis associated with other pathology. In three cases the periostitis had spread to the lower femora.

Periosteal changes to the lower arm were present in one individual. Young male 2135 had enlargement of the lower halves of the shafts of both radii and ulnae, on the right more than the left. These changes could be the result of continual chafing of manacles, but the individual who was buried with these still in place, 0837, had no such lesions.

Possible osteomyelitis of the lower arm bones was seen in old female 0873. The distal third of the left ulna was slightly enlarged and the infection may have been related to a fracture of the radius.

Two individuals had inflammatory responses which may have been related to stress or trauma. Pitting and enlargement of ligamentous insertions on the clavicle was seen in young/middle-aged male 0852 and c.16–18 year old ?female 0908.

Both cheek bones of middle-aged male 0924 had thin layers of new fibre bone growth on the

lower halves, possibly related to an infection or trauma to the skin in this area. The skull of old female 0926 had new bone growth internally along the central part of the sagittal suture, the cause of which is unknown. A lump on the side of the mandible of ?old male 2058 just below the second molar could be related to an underlying abscess.

Thirty-four males, thirteen females, and three unsexed adults were assessable in one or both ischial tuberosities for the presence of bursitis. It was found in three women and three men. Like Group 2, there was therefore a significantly higher prevalence in female skeletons (23%) than in males (8.8%) in this group.

Four out of five women, seven out of thirteen men and none out of one sub-adult were affected with maxillary sinusitis, most with pitting rather than new bone growth. It was likely that others had been affected due to maxillary abscesses, but this could not be confirmed.

Specific infections

Possible evidence for tuberculosis was seen in two individuals. A young/middle-aged male, 0827, had a severe lytic lesion of the the left acetabulum with a large cavity running into the ilium (Fig. 17). The cavity had a fairly smooth floor and had removed the cancellous bone. There was lipping and pitting of the superior acetabular rim and periosteal hyperostosis above the acetabulum and on the anterior at the junction of the ilium and pubic ramus. A more likely example of the disease was noted in a young/middle-aged male, 0835, who had a lytic lesion in the superior anterior body of the second lumbar vertebra with anterior wedging, which could be due to trauma, but also partial destruction of the left scaphoid, and pitting and new bone growth on the lunate and capitate joint surfaces, which was probably caused by tuberculosis of the wrist.



Figure 17. Lytic lesion in left acetabulum of 0827.

Patches of new bone growth in the form of small wart-like spots on the inner surfaces of one or more ribs, possibly related to TB (see above, Group 2), were seen in three individuals (0835, 0945, 0971).

One of these individuals, young unsexed adult 0945, also had slight pitting either side of the nasal aperture and periosteal pitting and thickening of the left first and both second metatarsals. There was a small oval lesion roughly central to the left parietal, 3mm x 2mm, with a smooth base and a depressed and slightly pitted area surrounding it. Whilst this could be related to the general pitting and inflammation seen on the parietals, there is a possibility that it could be the early stages of a syphilitic gumma.

This group, despite its presumed late to post-medieval date, produced at least two lepers, both ?female. Leprosy was no longer endemic in England by this period, although it was still common elsewhere in Europe, particularly Scandinavia, so there is a possibility that the two women were foreigners. 0611, young/middle-aged, had pitting and thinning of the nasal floor/palate, loss of bone around the nasal border and complete resorption of the nasal spine with pitting of the anterior alveolar bone (Fig. 18), but no changes to the hands and feet. Middle-aged/old ?female 0870 had slight pitting on the nasal floor, especially along the midline, the nasal spine was resorbed and there was some pitting around the nose. There were deep volar phalangeal grooves in all the surviving finger phalanges and enlarged nutrient foramina in the metatarsals. Pitting was also present in the distal ends of the proximal toe phalanges. This individual also had cyst-like lesions and striated bone formation in the fourth sacral segment, which could have been caused by another infection such as tuberculosis. Both women had moderate to gross periosteal lesions of the lower leg bones. Pitting of the superior and inferior palate with anterior resorption was seen in another old female, 2070, but with no changes to the feet or legs; this is presumed to be another case of leprosy.



Figure 18. *Facies leprosa* in 0611.

Three other individuals had changes which could possibly be associated with leprosy. A possible infection was seen around the incisive foramen of young/middle-aged ?female 0828, with spiky new bone growth inferiorly, and possible enlargement of the nasal cavity with pitting around the sides. Enlargement of the incisive foramen with a very sharp inferior nasal border, possibly affected by resorption, was observed in a middle-aged male, 0343. Three phalanges, one toe and two fingers, found with c.16 year old ?male 0907 (but which may be intrusive) had destructive lesions at the distal ends which would be compatible with leprosy.

A possible example of poliomyelitis was noted in young/middle-aged male 0341. Although there was no shortening of the left leg, the femur and tibia shafts were very narrow, with loss of the linea aspera, and the patella was noticeably smaller than the right. The left femoral neck was shorter than the right and there was slight coxa valga. There was pitting on the palate, but only on the inferior surface.

Trauma

Exostoses and minor trauma

Evidence for mild trauma in the form of exostoses, the results of torn muscles or ligaments, was seen in thirteen males, three females and an unsexed adult. Table 25 provides a summary of the number of individuals affected in generalised areas of the skeleton (some individuals were affected in more than one area). Full details are available in archive.

Area	M	F	?
Skull		1	
Shoulder girdle	1	1	
Arm/elbow	1		
Hand/wrist	4		
Pelvic girdle	1		
Leg/knee	2		1
Foot/ankle	7	3	

Table 25. Generalised areas affected by torn ligaments/muscle attachments.

A few small stress fractures across joint surfaces were identified, particularly in the bones of the big toe. Young/middle-aged ?female 0828 had one on the medial edge of the right proximal first toe phalanx proximal facet. Young/middle-aged male 0826 had a similar lesion to 0828, and another across the centre of the proximal facet of the first metatarsal. Middle-aged/old ?male 0318 had a stress fracture in the proximal facet of the left first toe distal phalanx on the lateral side. A middle-aged male, 0305, had a stress fracture across the medial side of the proximal facet of the right proximal phalanx of the ?fourth toe. Young/middle-aged male 0852 was affected in the right middle finger joint between the proximal and middle phalanges, through the lateral side of both facets, with two cyst holes in the proximal phalanx and slight enlargement on the lateral edge with lipping. A sesamoid bone from this skeleton also had a fracture through the narrow end.

Myositis ossificans was seen in four individuals. In two men, 0826 and 0943, it affected the back of a right proximal finger phalanx, where the tear may have occurred due to the finger being pushed too far back. An unsexed old adult, 1036, had a large triangular exostosis just lateral to the linea aspera on the midshaft of the right femur (Fig. 19). The right humerus was affected in young/middle-aged male 0851, with an exostosis arising from the deltoid muscle attachment just below midshaft.

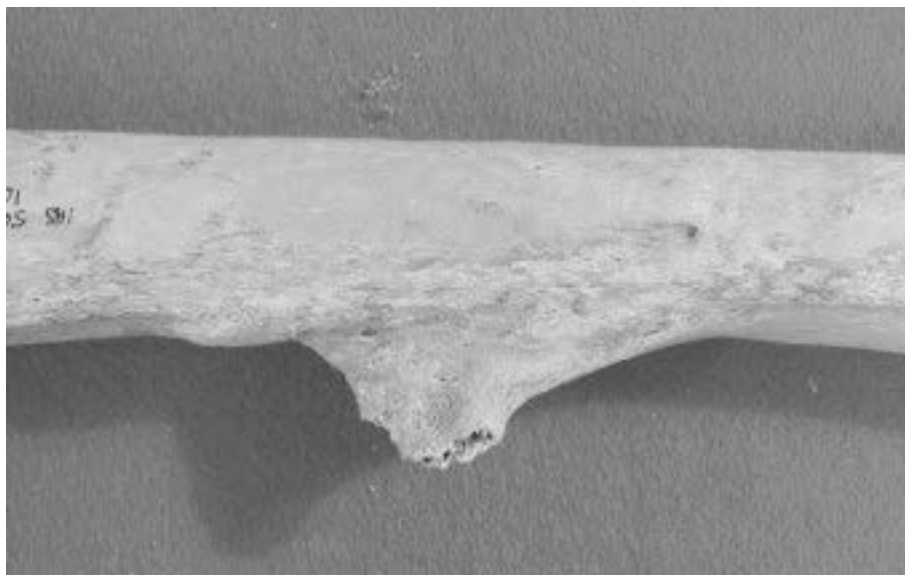


Figure 19. Myositis ossificans on the rear of the right femur of 1036.

Fractures

Seventeen individuals had one or more fractured bones.

The skull was affected in three people: a small circular depressed fractures of the left frontal bone was found in a young/middle-aged unsexed adult (0834); a similar lesion had occurred slightly to the right of the midline in a young/middle-aged male (0852); and a young female (0865) had a small circular depressed fracture to the superior right parietal close to the sagittal suture, with healed 'cracks' to the rear of this bone running horizontally (c.75mm long), and vertically meeting the horizontal approximately a third of the length from the front (c.47mm long).

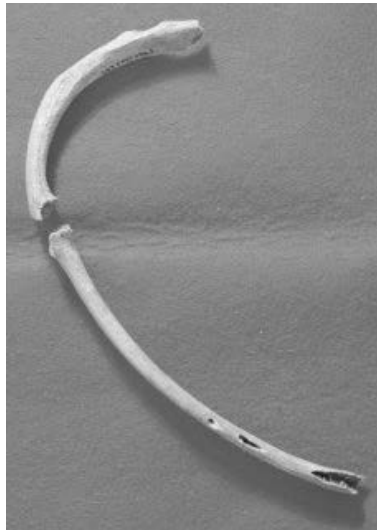


Figure 20. Ununited rib fracture in 0943.

Twelve individuals had fractures to bones of the torso. An old man, 0958, had a fracture of the right clavicle. Three left ribs (second, tenth, eleventh) were fractured in middle-aged/old ?male 0860, and the left transverse process of the second thoracic vertebra had been remodelled. A left mid rib had been fractured in an old ?female, 0873, and she also had a fracture of the lower third of the radius shaft. An ununited fracture with a pseudo-joint had occurred in a right mid rib of 0943, a middle-aged/old male (Fig. 20). Three right ribs of old male 0971 were affected, and the state of remodelling suggested that the ninth (midshaft) had been fractured earlier than the third and fourth (anterior). The neck of a rib collected with disarticulated remains 0806 was also fractured. One right mid rib was affected in ?old male 2058, and he also had a crush fracture of the second to third thoracic vertebrae with splitting of the T2 body and partial fusion of the anterior right side, without fusion of the facets, whilst the second and third cervical facets were fused, but not the bodies. One right rib of old female 3082 had small amounts

of callus with exostoses on the superior and inferior edges, and ankylosis of the second and third cervical vertebrae may also have had a traumatic origin. At least three left ribs had been fractured no more than a few weeks before the death of old female 2070; she had also suffered a crush fracture to the left side of the first lumbar and possibly also the twelfth thoracic vertebrae, probably due to osteoporosis. A crush fracture of the fifth to seventh thoracic vertebrae of old female 0926 had resulted in fusion of the bodies and arches, with complete collapse and wedging of the fifth and sixth bodies (Fig. 21). Similarly, middle-aged/old female 0342 had a crush fracture with fusion of the twelfth thoracic and first lumbar vertebrae with wedging and massive thickening at the front of the first lumbar body, and possibly fracture of the second lumbar left transverse process. Cervical vertebrae were affected in young/middle-aged male 0942 (sixth and seventh) with fusion at bodies and arches. Whilst these vertebral fractures are likely to be traumatic in origin, they may have a pathological cause related to osteoporosis or possibly the result of a tuberculous lesion.

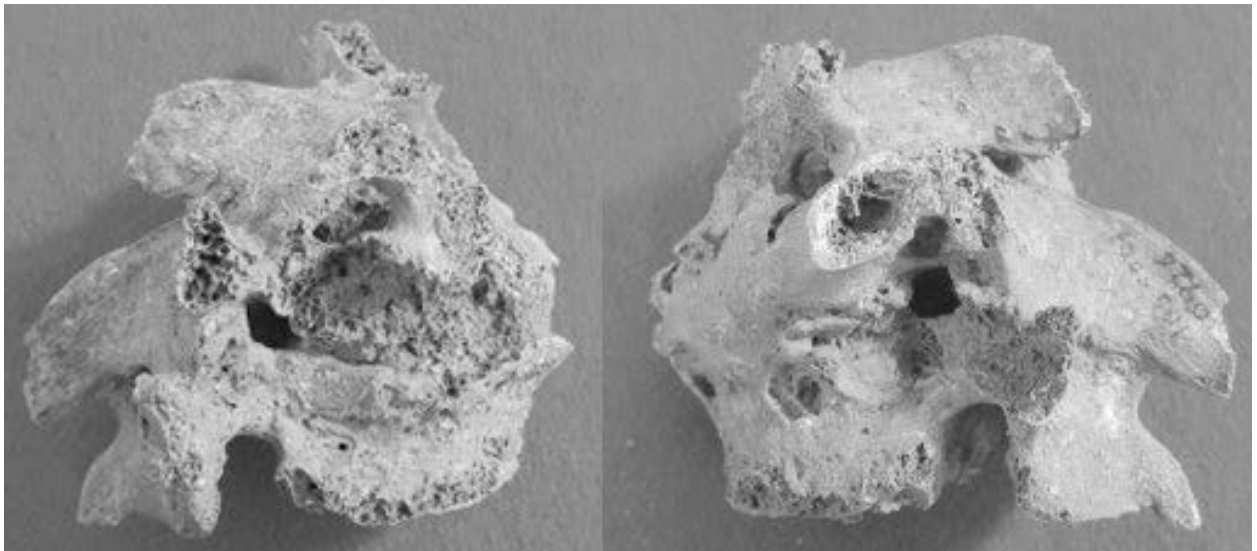


Figure 21. Crush fracture of the thoracic vertebrae in 0926.

Fractures of the arm affected two males and a female. Middle-aged male 0305 was affected at the left elbow: there was a fracture of the proximal ulna with non-union (Fig. 22), very porous new bone growth and enlargement, and some destructive lesions to the distal humerus and proximal radius, probably resulting in difficulty straightening the joint. An unsexed old adult, 1036, had three fractures of the ulnae, two on the right and one on the left, all well-healed with large rounded callus formations (one of which appeared Pagety in section), and new bone growth on the corresponding area of the left radius with no fracture (Fig. 23). A young/middle-aged male, 0341, had a well-healed fracture of the distal quarter of the left humerus with slight misalignment but little callus; he also had a fracture of the left knee (see below).



Figure 22. Elbow fracture of 0305.

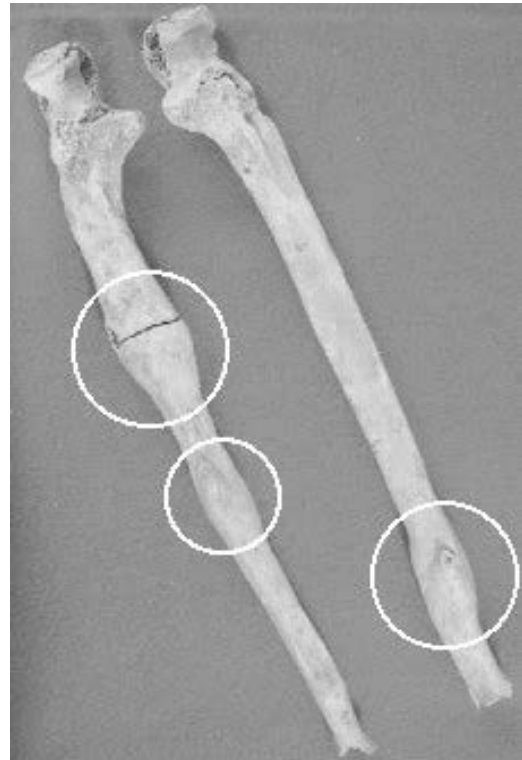


Figure 23. Three ulna fractures of 1036.

A fracture of the greater tuberosity of the left humerus of old female 3082 had resulted in displacement inferiorly and malformation. The fracture had healed but the individual was left with an unreduced dislocation of the shoulder and a large false glenoid had formed on the

anterior surface of the scapula (Fig 24). This individual also had a fracture of one right rib and possibly the neck (see above), as well as the right tibia (see below).



Figure 24. False glenoid of scapula (left) and fractured left humerus head (right) of 3082.

Sk. 0341 had a ?compression fracture of the left knee (Fig. 25): the area was in poor condition but there appeared to be flattening of both femoral condyles (medial more than lateral), with proliferation of new bone around the lateral and displacement of the medial tibia condyle to the posterior. The surfaces of the joint were grooved, there was healed pitting, and a cyst may have formed in the metaphysis of the femoral medial condyle. The intercondylar notch was much higher than normal anteriorly, and the patellar articular surface was also affected, with a loss of articular surface on the medial surface, and pitting and slight lipping at the superior edge. Both proximal ulnae of this individual appear enlarged, as did the medial epicondyles of humeri, suggesting pressure on the elbow joints, and there was a stress lesion in the right proximal articular surface of the ulna (oval 12 x 7mm), possibly suggesting the use of crutches. This would have put pressure and strain on the both metatarso-phalangeal joints of the big toes, which were flattened and widened with slight lipping and exostoses on the superior surface of the right.

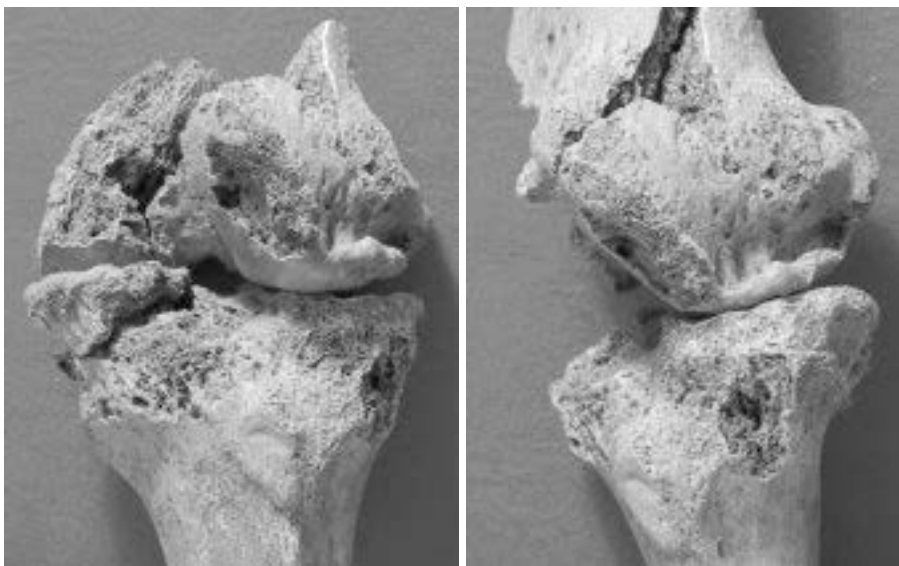


Figure 25. Fractured knee in 0341.

Young/middle-aged male 1018 had a vertical fracture of the left patella and possibly also of the

right (Fig. 26): both were flatter than normal on the articular surface, as was the right femoral condyle (left lost), perhaps suggesting that the lesions occurred in childhood or adolescence, before the joint took on its adult form.

The right tibia of old female 3082 was fractured just below midshaft with little distortion or callus. The fibula was unaffected and had probably aided in forming a splint to the tibia.

A possible fracture of the proximal phalanx of the right fifth toe had resulted in slight misalignment, callus and pitting in middle-aged/old male 0882.



Figure 26. Fractured patella of 1018.

Wounds

Healed head wounds were seen in four individuals. A middle-aged male, 0305, had a wound on the right side of the frontal on the superior temporal line, which was misaligned as a result (Fig. 27). The inner table appeared to have been pierced; there was new rounded bone formation inside and out, but the internal remained open, with rounded new bone in the diploë. An old female, 0926, had a partially healed cut to the lateral side of the left parietal, with an irregular oval open area 28×5 mm, new bone growth internally, and healed cracks extending to the coronal suture anteriorly and in an arc to the squamous suture posteriorly (Fig. 28). A large flattened area over the centre of the left parietal of young/middle-aged male 0837 may be a slice-type head wound which removed part of the outer layer of cortical bone; this individual also had a linear lesion to the superior right side of the frontal bone which also seems to be a healed wound. A similar indentation on the left of the frontal bone, V-shaped in section, of young/middle-aged female 0828 was another possible healed wound.



Figure 27. Head wound to right side of frontal bone in 0305.



Figure 28. Open head wound in left parietal of 0926.

?Old male 2058 had a possible wound to the manubrium of the breast bone. The lower half of the bone was thickened and a possible cloaca had formed centrally, suggesting secondary osteomyelitis. A split line in the distal facet suggested this was due to a piercing wound. It could have occurred at the same time as the crush fracture of the second and third thoracic vertebrae (see above).

Other trauma

The right mental tubercle of young female 0865's mandible was enlarged and flattened, possibly due to some form of trauma.

The distal left ulna of a middle-aged male, 0924, appeared wasted (Fig. 29) and possibly shortened, but it was broken post-mortem at this point and the cause is uncertain. A fracture before the bone was fully grown is one possibility. A large exostosis appeared to have formed just above the joint.



Figure 29. Shortened and wasted distal ulna in 0924.

Neoplasms



Figure 30. Sessile osteochondroma in 0317.

Two osteomata of the skull were found in males 0829 and 0848, both on the frontal bone.

A possible sessile osteochondroma of the right humerus was noted in young female 0317 (Fig. 30). This consisted of a swollen area with roughened surface at the insertion of the lateral head of the triceps. The diagnosis was made from a radiograph (Cox 1991).

Miscellaneous pathology

Diseases of unknown aetiology

An unsexed old adult, 1036, had possible Paget's Disease in one of two large rounded callus formations on the right ulna.

General observations

Genu valgum or knock-knee was present in middle-aged male 0305, and young/middle-aged male 2056 with slight coxa vara bilaterally. These conditions can be related to rickets, but are also common ideopathic deformities of childhood. The right femur of middle-aged male 0868 was unusually bowed antero-posteriorly and medio-laterally, but the cause of this is unknown.

The left leg of middle-aged/old male 0860 was at least 2cm longer than the right. His pelvis was oddly formed, both ilia being unusually flared, although the rest of the girdle was narrow and male in appearance, giving an almost ape-like appearance. Both femurs were abnormally bowed to the anterior and lateral sides at the proximal ends of the shafts. This individual had widespread osteoarthritic changes, particularly affecting the knees, spine and wrists. Given the deformities to his skeleton, it is possible he was reliant on crutches to walk.

Asymmetry of the bones was seen in four individuals. In ?old male 2058, the right femur was noticeably thinner than the left and could indicate a paralysis following fracture of the spine. Young male 2134 had noticeably more robusticity in the right clavicle than the left. The clavicles of c.13–16-year-old child 2096 seemed short and under-developed compared with the other bones, and the arm bones of a c.9–12-year-old child, 0975, appeared relatively short in comparison with the legs.

The left occipital condyle of middle-aged male 0924 was bigger than the right, and there was a bulge in the right occipital, with general slight asymmetry to the whole skull which may in part be related to the complete obliteration of the right temporal suture.

The face was affected in four individuals. Young/middle aged male 0826 had a very high and narrow palate with a slight overbite. A slightly asymmetrical nose was seen in c.16–18-year-old ?female 0908, although there was no evidence for trauma. The anterior nasal spine of young/middle-aged male 0942 may have been eroded, but could simply be not very prominent, as there was no sign of infection; this may be a negroid feature. A possible lytic or cystic lesion, circular in form, was present at the inferior end of the nasal bones of young unsexed adult 0945, but this could be within normal variation.

There was bilateral hallux valgus with pitting and some destruction of the left first metatarsal head in young/middle-aged ?female 0344; the condition can be related to the wearing of tight-

fitting shoes.

The mandible of young/middle-aged ?female 0344 was very thin and the mental foramina were unusually large, with a prominent chin. The brow ridges seemed enlarged with a thickened skull. The cheek bones were very sunken, but this is a relatively common finding in Suffolk medieval and post-medieval groups. One of the three surviving terminal finger phalanges appeared tufted. These observations could suggest that the individual suffered from acromegaly, a pituitary disorder, but the diagnosis in this case is by no means certain.

Comparative analysis of Groups 2 and 3

Comparison groups

Excavations at other contemporary sites in East Anglia and elsewhere have produced large groups of human skeletons which provide useful comparators for Wolsey Street. Other large friary groups of the same monastic order have been excavated at Carmarthen Greyfriars (Wilkinson 1991) and Hartlepool Greyfriars (Birkett 1986; Anderson forthcoming a). Locally, Ipswich Blackfriars (Mays 1991) is the most relevant group, being a contemporary friary group in the same town. A small, but well preserved, group was recently excavated from the Dominican Friary site at Thetford Grammar School (Anderson 2008). The majority of excavated East Anglian groups are earlier than the Wolsey Street population but some will be used for comparison as appropriate, particularly the early medieval Ipswich group at School Street (Mays 1989). A large group from Rivenhall in Essex included medieval and later burials (O'Connor 1993) from a secular churchyard.

Condition

In general, Group 3 skeletons showed slightly better preservation than those from Group 2. This may in part be related to their date of deposition, as Group 2 is thought to be slightly earlier than at least part of Group 3. No individuals from Group 3 were recorded as being in 'poor' or 'poor-fair' condition. Other groups from Ipswich tend to be moderately well preserved, with approximately a quarter of the burials at both School Street and Blackfriars described as 'poor'.

Demography

Group 2 produced a relatively normal figure of 25.3% children, whilst the low figure from Group 3 (10.2%) is well below the average for medieval and later groups. However both groups were unusual in having no infants or very young children, the youngest being a six-year-old from Group 2 and a c.10–11-year-old from Group 3.

Other friaries also tend to produce low frequencies of child burials: Hartlepool had 16.7%, Ipswich Blackfriars 10%, although Carmarthen Greyfriars, at 26%, was closest to the Wolsey Street Group 2 figure. Within medieval secular groups, the proportions of children vary from around 19% (Timberhill, Norwich; Anderson forthcoming b) to almost 50% (Rivenhall medieval groups B+C), with some urban post-medieval groups showing particularly high mortality rates (e.g. 69% under 16 years at Cross Bones, London; Brickley and Miles 1999, table 5). Other monastic groups, particularly friaries, have also produced a relatively high proportion of children over the age of twelve years. For example, at Hartlepool, two-thirds of the child burials outside the church were over 12 years old, whilst the majority inside were infants and younger children (Anderson forthcoming a).

As well as age differences, there are sometimes differences in the frequencies of children buried in different areas of a monastic cemetery, so the area excavated can have a bearing on the figures. At Wolsey Street the excavations were located to the south of the presumed church

building, and this area has rarely been excavated at medieval monastic sites. However at the Gilbertine Priory in York, two-thirds of all children excavated were from the cemetery to the south of the church (Anderson forthcoming a, based on data from Stroud 1993b), with fewer child burials found within the church building. As most friary and other monastic groups have been excavated within the body of the church, this may account for the low proportions of children recovered from many.

Both groups have an unusual sex ratio, with significantly more males than females — in Group 2 75% of the sexed adults were men, compared with 70% in Group 3. The small group of nineteen individuals from Thetford Dominican Friary contained only one female skeleton (disarticulated and probably early in the sequence) and may represent an area of the cloister which was set aside for burial of friars. Other friaries have produced significant sex differences. Ipswich Blackfriars was also dominated by males with 70% of the adult population, and males at Carmarthen Greyfriars made up 63% of the group, although 57% at Hartlepool was not statistically significant. The priory at Fishergate, York, also produced a high proportion of men, 76%. Most secular groups of the period tend to have roughly equal proportions of males to females and their sex ratios are generally not statistically significant, for example of the sexed individuals at Rivenhall, 74 were male and 76 female. The area excavated within the burial ground can have an effect on the proportions of men and women recovered. At Hartlepool, for example, only 30% of extra-mural adult burials were women, whereas six of the nine burials in the Choir were female.

A high proportion of both groups had not reached middle-age when they died, although older individuals were proportionately more frequent in Group 2 than Group 3. Females in both groups were more likely to be older than younger. At Ipswich Blackfriars and Carmarthen Greyfriars, younger individuals were more commonly female than male. Hartlepool Greyfriars produced a high proportion of older individuals and is closest to Wolsey Street in that respect, but perhaps the closest pattern, with more young men than young women, was found at Blackfriars, Carlisle (Henderson 1991). Hartlepool also produced slightly more young males than females, but also more old males than females. The secular group at Rivenhall contained more young women and more older men, which is the normal pattern for medieval and early post-medieval groups of this type.

Overall the evidence points to the Wolsey Street groups representing selected parts of the population from which they derived. The friary group might be expected to have a greater proportion of men if the area excavated had been dedicated to the friars themselves at some point, but the dispersal of female and juvenile burials within the cemetery seems to indicate that this was not the case. The high proportion of older women may suggest that the group comprised mainly those who had lived long enough to achieve a degree of status in their community.

Metric analysis

The mean estimated living statures for the two groups were very similar for the males, but the Group 3 female mean was some 3cm taller than that of Group 2. Compared with the earlier Ipswich group from School Street, both Wolsey Street groups were slightly shorter for the male mean, but the female mean at School Street was close to that of Group 2. The Blackfriars males were 2cm taller than the Wolsey Street males on average, but the females there fell between the Group 2 and Group 3 means. The Group 3 means were almost identical to those of a small post-medieval group from St Margaret's Church, Ipswich (Anderson 2006). Other contemporary groups have produced slightly shorter means, for example the mean for the males at Thetford Dominican Priory was c.1cm shorter on average than Wolsey Street, and the male mean at Hartlepool was 2cm less. Saxon and medieval northern groups were often shorter than their southern contemporaries, however. Rivenhall means for the medieval group were slightly greater than those of the early post-medieval group, the latter being closest to Group 3 at Wolsey Street.

The cranial index was noticeably broader in Group 2 than Group 3, with the overall mean from the former being brachycranial, whilst the latter was mesocranial. The contemporary groups at Ipswich Blackfriars and Hartlepool were similar to Group 2 in producing a greater number of medium to broad skulls, whilst Group 3 contained fewer individuals in the broad range and more with narrow skulls than Group 2. The pattern exhibited by Group 3 is similar to that found at the Thetford Dominican Friary, where the mean was within the mesocranial range due to the high proportion of narrow skulls, and at Carmarthen which was also dominated by dolichocranial individuals. Broader heads tend to be the norm in medieval groups, but clearly there are exceptions. At Rivenhall the means of the cranial index can be shown to increase from the Saxon to the medieval period, and then fall again in the post-medieval phases (O'Connor 1993, fig. 49), and it is likely that the same pattern was occurring at Wolsey Street.

The broadness of the head has been linked with climate change (Beals *et al.* 1983) in different populations, with broader heads occurring more frequently in colder climates, but if so the higher frequencies of medieval brachycephalics would not fit well with the so-called 'medieval warm period', dated between the 10th-14th centuries. Other factors, such as genetics, are also likely to play a part. Plotting the distribution of the three types in the cemeteries shows no particular temporal distribution, with all three types either cutting or cut by the other types. Dolichocranial skulls in Group 3 do appear to show some spatial groupings, however, with three of the four individuals 0826–0829 having this type of skull, and it also occurs in two adjacent burials 0834–0835. Potentially the distribution of non-metric traits in these two areas might suggest genetic relationships.

The meric, cnemic and robusticity indices of the leg bones showed little difference between the two groups, and were broadly similar to other contemporary groups in the region.

Non-metric traits

Non-metric traits are difficult to compare between sites due to differences in methods and choice of traits used by various analysts. The statistic known as the Mean Measure of Divergence (MMD) has been used to compare the two larger Wolsey Street groups with other Norfolk and Suffolk cemeteries — the Late Saxon to early medieval Norwich groups from Castle Mall (Farmer's Avenue and Timberhill cemeteries; Anderson forthcoming b), the east Norfolk Middle to Late Saxon groups at Burgh Castle, Caister-on-Sea and Ormesby (Anderson and Birkett 1993; Anderson 1993; Anderson forthcoming c), Brandon Staunch Meadow (Anderson 1990), and Thetford St Michael (Stroud 1993a) — and two groups from Fishergate, York (Stroud 1993b) are also included. The formula published by Thoma (1981) has been used, and bilateral traits have been counted individually for each side. The results of the MMD analysis are shown in Table 26 (distances from Groups 2 and 3). Differences between groups are significant (*) if they are greater than twice the square root of the variance, and the closer the MMD is to zero, the closer the two populations are to each other.

	Norfolk						Suffolk				York	
	BC	CBY	ORM	FA	TH	TSM	BRD	ISS	IBF	IWS3	FG4	FG6
IWS2	0.154*	0.020	0.047	0.034	0.052	0.141*	0.165*	0.112*	0.085*	0.010	0.098*	0.153*
IWS3	0.170*	0.028	0.025	0.054	0.037	0.148*	0.149*	0.111*	0.063	-	0.120*	0.171*

Table 26. Mean Measure of Divergence (MMD) for sites in Norfolk, Suffolk and York

(* = significantly different from Wolsey Street).

Key: BC – Burgh Castle; CBY – Caister-by-Yarmouth; ORM – Ormesby; FA – Farmer's Avenue, Norwich; TH – Timberhill, Norwich; TSM – Thetford St. Mary; BRD – Staunch Meadow, Brandon; ISS – School Street, Ipswich; IBF – Blackfriars, Ipswich; IWS2/3 – Wolsey Street, Ipswich (Group 2/3); FG4 – Fishergate, York Saxon group; FG6 – Fishergate, York medieval group;

This shows that both Wolsey Street groups are not significantly different from each other, but are

significantly different to most of the other populations in this comparison, including earlier groups in Ipswich (although Group 3 is not significantly different from Blackfriars). The main exceptions are Farmer's Avenue and Timberhill in Norwich, Ormesby and Caister in north-east Norfolk; all of these groups belong to the Middle to Late Saxon periods. Farmer's Avenue shows no significant differences to any other East Anglian populations, and could be discounted. However, the closeness — in terms of non-metric traits — between Wolsey Street and the north-east Norfolk sites could perhaps be related to their coastal positions, with the possibility of foreign input into the gene pool. It may simply reflect greater heterogeneity within each group.

Cluster analysis of the groups, based on the MMD, produced the results shown in Figure 31. This suggests that Wolsey Street (IWS) is closest, in terms of non-metric traits, to Caister and Ormesby, and at some distance from the other Ipswich groups, which cluster with groups from York, Norwich and Thetford.

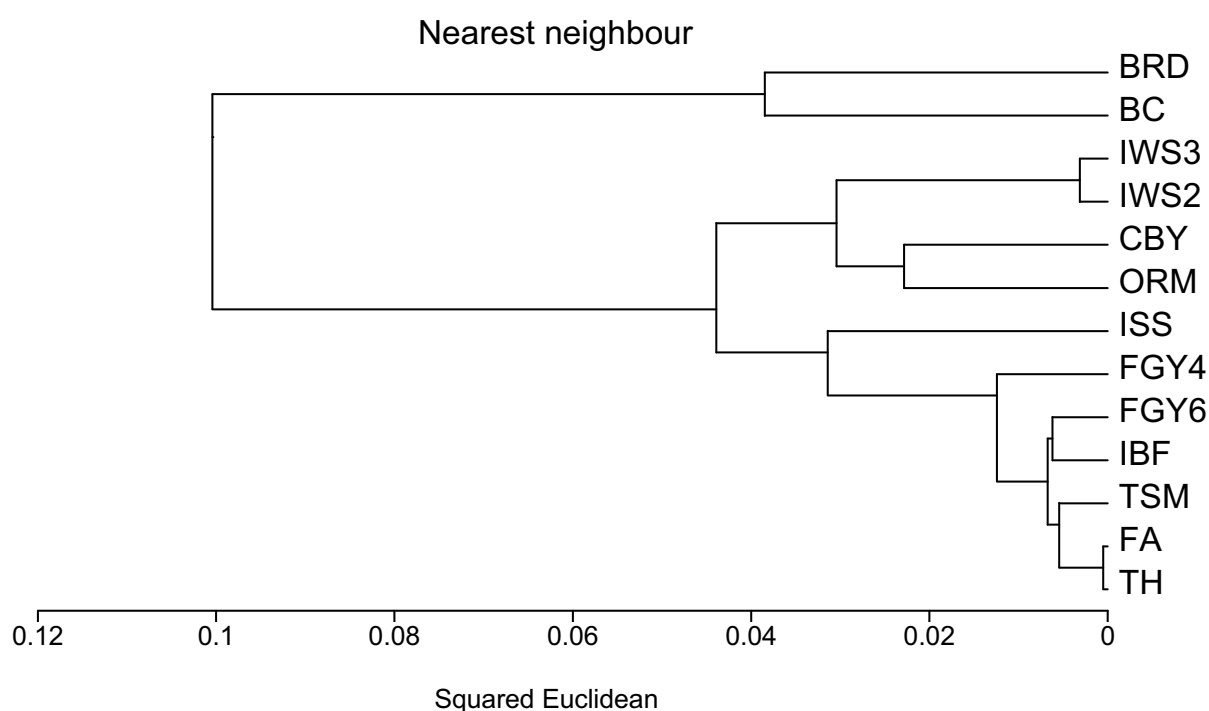


Figure 31. Cluster analysis of the MMD for thirteen sites (see Table 26 for key).

Dental pathology

A comparison of the prevalences of the three main dental diseases is shown in Table 27.

Site	Caries		Abscess		A-M loss	
	tooth	individual	position	individual	position	individual
Wolsey St 2	4.1	37.9	3.5	40.9	7.3	43.1
Wolsey St 3	5.9	48.1	4.8	44.4	7.6	46.0
Ipswich Blackfriars	10.4	69.2	15.5	53.3	17.4	69.9
Ipswich School Street	10.0	55.3	3.2	30.9	10.5	50.0
Thetford Dom. Friary	11.1	61.1	6.3	61.1	10.8	50.0
Hartlepool Greyfriars	10.2	45.3	2.0	26.7	17.1	61.3

Table 27. Prevalences of the main dental diseases by tooth/position and by individual at Wolsey Street and local and contemporary sites.

The prevalence of caries at Wolsey Street is considerably lower than in other friary groups, and also lower than was found at the earlier site of School Street. The reason for this is uncertain, as

the risk of caries is determined by both dietary factors and genetic predisposition, but it does appear to indicate a difference between groups living in Ipswich at approximately the same period. Blackfriars shows an unusually high rate of abscess formation in comparison with the other groups, and tooth loss was also a common occurrence there. It is possible that the people buried there were of much higher status than those from Wolsey Street, and that they had access to more carbohydrate-rich foods which resulted in particularly high rates of dental disease. The other groups with high rates of ante-mortem tooth loss in comparison with Wolsey Street generally had higher proportions of older individuals.

Although the figures are low in comparison with other groups, Group 3 showed a slightly greater level of all three dental diseases than Group 2, and this may be due to the slightly later date postulated for Group 3. However, less calculus was seen on the teeth of Group 3 individuals, which may suggest that they took greater care of their teeth or that they had a diet which incorporated more 'chewy' foods than sticky or stodgy ones. Slight differences in the rates of the three dental diseases were noted between the two Groups in the different age groups. Ante-mortem loss, for example, was highest in middle-age in Group 2, but in old age in Group 3. The expected pattern would be an increase in caries rates up to middle age, and then a fall as the loss of teeth increased into old age. Group 3 was closer to this pattern than Group 2, but the figures for the latter are slightly skewed by the presence of one male with six lost teeth and another with nine.

Skeletal pathology

Several unusual congenital or developmental traits were present in both Groups 2 and 3. Some of the less common non-metric traits were also present in both, and both groups also contained skulls which appeared to have negroid characteristics. This, together with the close similarity suggested by the MMD statistic (above), combines to suggest that both groups were from similar genetic stock. The main difference between the two groups, in this respect, was that occipital bun was only present in Group 3. This is a trait which has been associated with post-medieval groups in London, and the difference may be due to the suggested later date of Group 3. Three of the individuals were buried in graves which were not cut by later interments, although one was disarticulated and therefore earlier than the grave in which it was deposited.

Amongst the males, osteoarthritis and osteophytosis were more common in the upper half of the body and the ankles in Group 2, whilst in Group 3 the hips and knees were more frequently affected. However, the females seemed to show the opposite, with more hips and knees affected in Group 2, and more shoulders and wrists in Group 2. Overall the prevalence of osteoarthritis was greater for all joints in Group 2, except the knees and hips.

Stress lesions and physical trauma were noticeably more frequent in Group 3 than Group 2. More individuals were affected in Group 3, and often to a much greater degree. This was true of Schmorl's nodes, minor stress lesions of the joints, exostoses, fractures, wounds and other injuries. Other conditions, such as cribra orbitalia, periostitis of the shin, and maxillary sinusitis, were also more common in Group 3. The main exception to this pattern was ischial bursitis, which occurred most frequently in the women of Group 2. The specific infections, tuberculosis and leprosy, were found in both groups, but there were almost certainly more lepers in Group 3.

Conclusion

Comparative analysis of the two largest groups at Wolsey Street has shown them both to be anomalous populations in terms of their demographic make-up, but also that they are comparable with several other monastic groups throughout the country. The two groups appear to be very similar in terms of their genetic make-up, though less similar to other Ipswich groups. The

greatest differences between the two appear to be in the prevalence and severity of pathological conditions, with Group 3 generally being more affected than Group 2. This seems likely, in part at least, to be related to their date, but could also indicate that the later population was more vulnerable to injury and physical stress and was perhaps the case for the earlier group, which may indicate that they were drawn from a group of different status or types of occupations. The greater degree of osteoarthritis in Group 2 seems contrary to this, but may be due to the generally lower life expectancy of Group 3.

Summary and discussion of the whole group

One hundred and fifteen individuals were excavated from three separate burial areas at the Wolsey Street site, most of them in better than average condition. Four were found close to St. Nicholas' church, but on the opposite side of the road, and the remainder were divided between an area thought to be related to the friary and an area running approximately east-west across the centre of the site which may be partly related to the friary and partly post-Dissolution.

Of the 115 individuals, twenty were juveniles between the ages of six and eighteen years, of which eight were male and one ?female. No infants were found. The adults were often difficult to sex, but the group was heavily skewed in favour of men, and the sex ratio of 1 M : 0.2 F was significant. These factors alone make the group unusual.

Only three children were under 13 years of age, the majority being 13-18 years old at the time of death. The adult age distribution suggested a high mortality towards the younger age groups with relatively few people reaching old age. It was noticeable that there were proportionately more old women than old men in the group.

Stature was within normal limits for the period, although the female average was quite high. Cranial indices were also distributed in the expected way, the majority falling into the mesocranial category, although the average was close to the broad end of this group.

The Mean Measure of Divergence statistic has been used to compare non-metric trait prevalences with groups in East Anglia and York. Wolsey Street showed significant differences with other Ipswich sites, and cluster analysis suggested it was closest to some east coast sites in Norfolk and inland groups in Suffolk. However, the presence of some possible negroid characteristics in several skeletons, together with some pathologies which were no longer endemic in this country by the end of the medieval period, suggests that at least some of this group were probably foreigners. For this reason, the results of the MMD analysis need to be viewed with some degree of scepticism.

Plotting of non-metric traits and congenital anomalies on the cemetery plan has revealed some possible family relationships, though these are less clear than in some cemeteries. This may in part be due to the unusual nature of the population. In one area the high proportion of male burials may be due to the inclusion of friars, in the other to the inclusion of prisoners or sailors – neither of whom might be expected to be buried with family relations.

Dental analysis suggested that diseases of the teeth generally followed the expected patterns, with more ante-mortem tooth loss in older individuals. Prevalences were in the normal range for medieval groups, although there was a slight increase in prevalences of all three main dental conditions in the latest cemetery group. Comparison with other friary groups suggests that the Wolsey Street groups were less susceptible to these diseases and may not have had a diet so rich in carbohydrates as some of their contemporaries.

A number of unusual congenital and developmental anomalies in this group added to the general

impression of atypicality. There was possible evidence for Down's syndrome or a similar condition, and several individuals had suffered from craniosynostosis, which may have affected their mental abilities.

Degenerative lesions and lesions related to physical stress were extremely common. Whilst osteoarthritis is no longer considered to be entirely related to occupational stress on the joints, use wear does have a degree of influence on the disease. Lesions were particularly common in the feet and ankles, and this may be related to working and walking on uneven ground. Wells suggested this occurred in rural Anglo-Saxon populations due to working the land, with twists and sprains to the ankles being an inevitable consequence of inadequate footwear. One other possibility, given the potential for some of this group to be sailors based on the documentary evidence, is that living and working onboard ships might have a similar effect on the feet and ankles.

Unusually, the evidence for iron deficiency anaemia in this group was relatively slight. Other deficiencies, such as Vitamin D deficiency, may have been present amongst some of the younger individuals, and this is often found in later medieval and post-medieval groups.

Inflammatory changes to the lower legs were common, as they are in many groups, although not particularly gross except where other infections were present, in particular leprosy. Several individuals had inflammatory changes to the lower arm bones also. Some of the changes could be a consequence of ulcerative sores forming from wearing manacles or leg irons, but the individual who had been buried with manacles still in place was not affected. The prevalences of specific infections were probably roughly comparable with those of other contemporary groups, but the presence of leprosy is surprising and may indicate that some of the individuals came from elsewhere.

Physical trauma appeared to be common in this group. Other medieval urban groups have also shown evidence for a relatively high degree of physical violence, with some fractures more likely to have been caused in this way than accidentally. Head wounds and parry fractures to the lower arm bones especially fall into this category. There were no definite blade wounds in this group, although some of the head wounds would probably have been made with sharp implements. Some unusual fractures were seen in this group, and some of them could be related to the occupation of the individuals concerned.

Tumours were not common, as is normal in archaeological populations, and those few which were present were benign and unlikely to have affected the individuals to any degree.

Documentary evidence has suggested that some of the people buried in this area of Ipswich may have been sailors from a nearby hospital or prisoners from the Gaol (including pirates). The group is certainly unusual in terms of its demography, and there is evidence that some of the individuals were foreign. The presence of a manacled skeleton is further evidence for a prison burial, or alternatively for the burial of slaves.

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Appendix: Catalogue

Notes

Methods of age and sex determination are generalised to give an idea of the bones used. Sexing based on the pelvis used more traits than entries might suggest. "DF" stands for discriminant function, a statistical method of determining sex, where +2.0 is very male, -2.0 very female (WEA, 1980).

Teeth are recorded in the form illustrated below.

Maxilla	R.	8	7	6	5	4	3	2	1	1	2	3	4	5	X	7	U	L.
Mandible		O	7	6	5	4	-	-	-	/	/	3	4	5	6	7	C	
		A		C														

<u>Code</u>	<u>Meaning</u>
1 2 3 etc.	Tooth present in jaw.
X	Tooth lost ante-mortem.
/	Tooth lost post-mortem.
U, u	Tooth unerupted.
O, o	Tooth in process of erupting.
C	Tooth congenitally absent.
- - -	Jaw missing.
A	Abscess present (above/below tooth number).
C	Caries present (above/below tooth number).

Lower case letters a-e and u/o are used for deciduous teeth. Attrition patterns are coded according to the scores suggested by Bouts and Pot (1989, modified version of Brothwell's original tooth wear chart).

A few abbreviations have been used in the catalogue for commonly occurring pathological conditions and anatomical regions. These are as follows:

OA	osteoarthritis	MT	metatarsal
OP	osteophytosis, osteophytes	MC	metacarpal
C	cervical)	L.	left
T	thoracic) vertebrae	R.	right
L	lumbar)		

Any other abbreviations should be self-explanatory, since they are simply shortened forms of bone names or anatomical areas (prox = proximal, etc.).

Tables of measurements for the skull and major long bones are included after the catalogue of disarticulated remains. Tables of non-metric trait scores are also provided.

Lists of age and sex

Group 1

Grave	Sk. No.	Sex	Age
0058	0086	Female	Y-MA
0081	0088	Female?	Adult
0100	0102	Unsexed	c.6
0137	0152	Male	MA

Group 2

Grave	Sk. No.	Sex	Age
0931	0932	Male	MA-Old
0998	0999	Male	Old
2067	2068	Unsexed	c.18-20
2072	2073	Male	Y-MA
2074	2075	Male	Young
2077	2078	Female	Old
2077	2079	Male	c.20-23
2080	2081	Male	c.18-22
2082	2083	Male	MA?
2087	2088	Male	Old
2089	2090	Male	c.18
2092/3167	2093/3169	Male?	c.16-18
2099/0978	2100	Male	Young
2104	2105	Male	c.20-23
2107	2108	Male	Young
2107	2109	Male	Mature?
2110	2111	Male?	Young
2113	2114	Male	MA-Old
2116/0950	2117	Male	MA
2116	2118	Male?	Adult
2119	2120	Male?	MA
2122/3022	2123/3024	Female?	c.16-18
2125	2126	Male	Old
2130	2131	Male?	Young
2139	2140	Male	Young
2142	2143	Unsexed	c.13-16
2145	2146	Male	Young
2148	2149	Male	MA
2151	2152	Male?	MA
2155	2156	Male	MA-Old
2158	2159	Male	c.16-18
2161	2162	Male	Old
2164	2165	Male	MA-Old
2167	2168	Male?	c.16
2167	2169	Male	Old
2170	2171	Male	c.15-16
2170	2172	Unsexed	c.13
2173	2174	Female	MA
2173	2175	Unsexed	c.13-14
2176/3066	2177/3068	Female?	c.15-16
2179	2180	Male?	c.16
2182	2183	Unsexed	MA
2185	2186	Male	MA
2189	2190	Unsexed	c.13
2192	2193	Male	c.16
2195	2196	Male	c.18
2201	2202	Male?	Y-MA

Grave	Sk. No.	Sex	Age
2204	2205	Female?	MA
2207	2208	Female?	MA
2210	2211	Male	Y-MA
2214	2215	Female?	Y-MA
2217	2218	Male	Y-MA
2220	2221	Male	MA
2223	2224	Male	c.16-18
3001	3004	Female?	c.16-17
3005	3007	Unsexed	c.6
3008	3010	Female	MA?
3011	3013	Unsexed	c.15
3014	3016	Male	MA-Old
3019	3021	Female?	MA-Old
3033	3035	Male	Old
3036	3038	Unsexed	c.11
3045	3047	Female	Y-MA
3051	3048A	Male	Old
3051	3048B	Female	Adult
3051	3049	Male	Young
3054	3053	Female?	Old
3056	3058	Male	Old
3069	3071	Male	Y-MA
3072	3074	Male	MA-Old
3077	3076	Male?	Mature
3092	3094	Unsexed	c.10
3095	3097	Female	MA?
3100	3099	Male	Mature
3104	3106	Male	Old
3117	3116	Female?	MA-Old
3121	3120	Male	18-20
3122	3124	Male?	c.15-16
3134	3136	Male	MA-Old
3142	3144	Male	Young
3172	3171	Male	c.16-18
3173	3175	Male	MA-Old
3185	3187	Male?	c.16
3193	3195	Male	MA-Old
3200	3202	Unsexed	c.15
3017	3207	Female	Old
3221	3220	Female?	Y-MA

Group 3

Grave	Sk. No.	Sex	Age
0282	0305	Male	MA
0283	0317	Female	Young
0283	0318	Male	MA-Old
0334	0341	Male	Y-MA
0383	0342	Female	MA-Old
0384	0343	Male	MA
0379	0344	Female?	Y-MA
0328	0381	Male	c.20-23
0560	0569	Female	Y-MA
0610	0611	Female?	Y-MA
0787	0788	Male	Y-MA
0793	0793	Female	c.20-23
0826-9	0806	Male?	Y-MA
0826	0826	Male?	Y-MA

Grave	Sk. No.	Sex	Age
0827	0827	Male	Y-MA
0828	0828	Female?	Y-MA
0829	0829	Male	MA-Old
0834	0834	Unsexed	Y-MA
0835	0835	Male	Y-MA
0836	0837	Male	Y-MA
0847	0848	Male	Y-MA
0851	0851	Male	Y-MA
0852	0852	Male	Y-MA
0859	0860	Male?	MA-Old
0864	0865	Female	c.20-23
0867	0868	Male	MA
0869	0870	Female?	MA-Old
0873	0873	Female?	Old
0874	0875	Male	MA
0881	0882	Male	MA-Old
0892	0893	Male	Y-MA
0892	0894	Male	Y-MA
0892	0895	Unsexed	c.14-15
0906	0907	Male?	c.16
0906	0908	Female?	c.16-18
0923	0924	Male	MA
0923	0925	Male	MA
0923	0926	Female	Old
0941	0942	Male	Y-MA
0941	0943	Male	MA-Old
0944	0945	Unsexed	Young
0957	0958	Male	Old
0964	0965	Unsexed	c.10-11
0970	0971	Male	Old
0974	0975	Unsexed	9-12
0974	0976	Male	MA?
0986	0987	Male	Y-MA
1016	1017	Male	Y-MA
1016	1018	Male	Y-MA
1035	1036	Unsexed	Old
2055	2056	Male	Y-MA
2055	2057	Male	c.22-25
2055	2058	Male	Old?
2069	2070	Female	Old
2095	2096	Unsexed	c.13-16
2133	2134	Male	Young
2133	2135	Male	Young
3063	3065	Male	Old
3080	3082	Female	Old

Appendix: Skeleton Catalogue

GROUP 1

Sk. 0086



Condition
Description

Sex determination
Age determination

Stature
Cranial Index
Teeth

Calculus
Non-metrics
Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology
Porotic Hyp.
Spina Bifida
Congenital
Other Trauma

Good

Near-complete, skull fragmented and partially reconstructed for measurement, spine concreted together by estuarine clay.

Female: Cranium DF -0.1, Pelvis DF -2.0, long bones medium, gracile.

Y-MA: Medial clavicle fused, no degeneration, tooth wear moderate, pubis suggests young to middle-aged.

162.0cm from Fem+Tib

74.9

8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
8	7	X	5	4	3	2	1	1	2	3	4	5	X	7	8

Slight

diastema between upper incisors

upper L. PM2 slightly rotated; alveolar resorption medium, but heavy at upper left PM2.

2+	4	4+	4+	4+	4	3-	4+	4+	4	4	4	4	4+	4	2+
2+	3+	-	4	3	4	3	3+	3+	3	4	4	4	-	4+	2+

pitting to rear of both parietals with some thickening.

cleft S4-5

calcified and fused xiphisternum.

small ossified haematoma superior edge both cuneiforms at joint for MT1.

Sk. 0088



Condition
Description

Sex determination
Age determination

Stature
Notes

Pathology
Spinal Osteophytosis

Good

lower legs and left foot only. Also R. foot 0061 and a few other fragments from 0061 and 0066 probably belong.

?Female: Long bones medium-gracile.

Adult: Epiphyses fused.

158.9cm from Fibula

body of sternum from 0200 may also belong

Yes

Sk. 0932

Pathology
Spina Bifida
Spinal Osteophytosis
Osteoarthritis
Periostitis
Circ. Disturb
Schmorl's Nodes
Fracture

bifurcated/cleft S1, cleft S4-5
Yes
slight OP inf patellae.
slight graining lower half L. tibia medial surface.
area of os trigonum L. talus pitted semi-circular lesion.
T8, 10-11
partially healed fracture through proximal end L. MT5.

Teeth

Fair
Near-complete, ribs and vertebrae poor.
Male: Cranium DF +1.1, pelvis +1.8, long bones medium and fairly robust.
Old: Medial clavicle fused, tooth wear medium-heavy, degenerative changes.
169.0cm from Fem+Tib
76.3
1013: very thick adult frontal bone - not clear where this could have come from.

Pathology
Spina Bifida
Congenital

									A										
X	X	X	5	4	3	2	/	1	2	3	4	5	X	X	-				
Co	7	6	5	4	3	2	X	1	X	3	4	5	X	7	Co				
												A							
Slight																			
-	-	-	5+	5+	4+	3-	-					3-	4+	5	-	6-	-	-	-
-	5	5+	5+	4	4	2+	-					5	-	4+	5	6-	-	4	-

- Periostitis*
- Ischial bursitis*
- Schmorl's Nodes*
- Other Trauma*
- Misc Pathology*

clef S4-5
bony process to ant of L. occipital condyle, 10 x 10mm, rounded - cranial shifting of occipito-cervical border - may have made tilting the head forward slightly difficult.
Yes
Yes
OA III distal end prox L. 5th toe phal with slight destruction of head. OA II L. 4th toe interphal jts with large OPs. Also R. 2nd and 3rd? middle phals have large OPs sup at prox jt. OA II lat. R. clavicle. Slight OP scapula glenoids, acetabuli.
extensive calcification of costal cartilage.
possible low grade osteomyelitis affects most of the shaft of the L. radius, enlarged, thickened and pitted esp. towards distal. There is slight deformation of the jt surface, which is more angled than the R., possibly suggesting trauma/fracture was the cause. NB Cox says x-ray indicates Paget's Disease?
slight graining tibs and fibs.
new bone both sides.
T9-10
exostosis inf-lat prox end l. cuboid.
slight coxa valga bilat.

Sk. 2068



Condition
Description
Sex determination
Age determination
Stature
Cranial Index
Teeth

Calculus
Hypoplasia
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Congenital

Periostitis
Misc Pathology

Good
Near-complete, ribs slightly eroded.
Unsexed: Cranium DF -0.6, Pelvis +0.6, long bones smallish, gracile?
c.18-20: Epiphyseal fusion, tooth wear slight, open cranial sutures.
164.7cm from Fem+Tib
79.0

U	7	6	5	4	3	2	1		1	2	3	4	5	6	7	U
O	7	6	5	4	3	2	1		1	2	3	4	5	6	7	O
A																

Slight
c.2-5
- 2 2+ 2- 2- 2 2 2+ 2 2 2 2- 2- 2+ 2 -
1 2 2+ 2 2+ 3- 2+ 3- 2+ 2+ 2 2+ 2 2+ 2 1

S1-2 bifurcated, S3-4 cleft
basi-occipital condyles and sup atlas facets unusually flat. Frontal bossing.
Possible cervical ribs but C7 vert body is eroded at relevant places so can't be certain. The R. side has an enlarged end and may have been in contact with the clavicle shaft, which has a widened area at the appropriate point (the L. doesn't).
slight graining both tib shafts laterally.
lateral curving of prox tibs - genu valgum - probable cause of slight flattening of tali and lipping distal facet L.

Sk. 2073



Condition
Description
Sex determination
Age determination

Stature
Extra Bone

Teeth

Calculus
Hypoplasia
Caries
Non-metrics
Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology
Porotic Hyp.
Congenital
Spinal Osteophytosis
Osteoarthritis
Periostitis
Circ. Disturb
Schmorl's Nodes

Good
Fragmented, most of right side removed by machine.
Male: Cranium DF +1.9, Pelvis DF +1.8, long bones large and robust.
Y-MA: Medial clavicle fused, slight degeneration, tooth wear slight to moderate.
166.3cm from Radius
A few fragments - vertebrae, MTs, ribs, proximal femur etc., probably from 2088, 2117 or 2177.

CA								CA								
8	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1		1	/	3	4	/	6	7	8

Medium-Heavy
c.2-5
upper R.M1 int cerv, upper L.M2 advanced
small teeth
periodontal disease, pitting around maxillary abscesses, which are through to sinuses. Calc heavy on R. side especially molars, occlusal.
? 2 3 2+ 2+ 3 2+ 4 3 2+ 3 2+ 2+ 3+ - 2
2- 2+ 3 3- 2+ 3 4 5 5 - 3 3 - 3+ 2+ 2+

skull very pitted and thickened over sup part of frontal and both parietals.
cleft arch atlas, calcified xiphisternum.
Yes
OPs on vertebrae small.
L. tibia graining medially.
AED T11-12 and sup T10.
T3, 5-12

Sk. 2075



Condition
Description
Sex determination

Age determination
Stature

Cranial Index
Extra Bone

Teeth

Caries
Dental Path
Attrition Scores Max
Attrition Scores Mand

Pathology

Spina Bifida
Congenital
Circ. Disturb
Schmorl's Nodes
Other Trauma

Misc Pathology

V.Good

Near-complete, most ribs broken.

Male: Cranium DF +0.5, Pelvis DF +1.0, long bones large and robust, large pubic tubercles? Pelvis is very upright.

Young: Medial clavicle unfused, tooth wear light, pubis suggests young. 172.9cm from Femur

91.8

Another skull was labelled 2075, but prob = 2111.

A	CAA	CA								A	A	CA				
/	7	/	5	4	3	2	1		1	2	3	4	5	X	X	8
?	7	X	5	4	3	2	1		1	2	3	4	5	X	X	?
	C														A	

occlusal upper R.M2, interstitial lower R.M2

periodontal disease around upper L. molars

-	2+	-	2-	-	3+	2	2+	2+	2+	2+	2	1	-	-	-
-	2+	-	2-	1	3	2	2+	2+	2	2+	2-	2-	-	-	-

S5 only

R. atlas open foramen transversum.

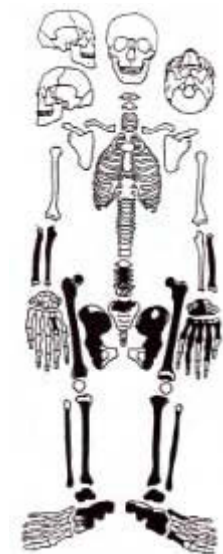
AED and ant wedging T4-9.

T5-12, L1-4

slight lipping prox end R. prox hall phal with possible slight stress fracture across sup edge. Poss stress lesions at hip and knee? - consist of slight depressions and lumpy areas in the joint surfaces - nothing specific. Small exostoses medial edge R. distal hall phal.

skull is unusually short and broad, may be thick (seems heavy), long face. Poss congenital disease, similar Down's Syndrome skull?

Sk. 2078



Condition
Description

Sex determination
Age determination
Stature
Extra Bone

Pathology
Osteoarthritis
Osteoporosis
Infection

Periostitis
Circ. Disturb
Schmorl's Nodes

Fair

Lower half only, from elbows down (upper half outside site boundary).

Long bone ends fragile/missing.

Female: Pelvis DF -1.5, long bones medium.

Old: Degenerative changes.

163.9cm from Tibia

See 2079.

pitting both SIJs, slight porosity sup part both acetabuli.

possible slight osteoporosis.

long narrow area of smooth new bone growth centrally to R. femur shaft ant-med edge 49 x 12mm - could be secondary to trauma, eg greenstick fracture, well-healed.

slight graining lat sides both fibs central shaft.

pits concave facets both naviculars.

L2-3

<i>Spinal Osteophytosis</i>	Yes
<i>Spinal Osteoarthritis</i>	Yes
<i>Osteoarthritis</i>	OA II lateral R. clavicle and acromion facet, slight pitting lat L. clavicle, but not acromion. Medial end R. clavicle lipped and slightly enlarged. calcified costal cartilage.
<i>Degeneration</i>	new bone formation with pitting lateral sides shafts R. MT4-5 with new bone growth at prox ends around facets - torn igs followed by inflammation.
<i>Infection</i>	
<i>Circ. Disturb</i>	R. calc ant med edge semi-circular pitted lesion removed ant part of facet - ant facet is slightly enlarged at sup edge, same on L. Pit at centre L. 1st hall phal prox end.
<i>Schmorl's Nodes</i>	T4, 7
<i>Fracture</i>	fracture through upper edge T8 sup L. zygapophyseal facet, partial healing but still patent across jt surface, same on R. side T9.
<i>Other Trauma</i>	stress lesions in lower L. zyg. L3-4. Ossified haematoma med surface upper third both fem shafts - R. c.41 x 13mm, 4mm high; L. c.27 x 15mm, 4mm high - slightly pitted but smooth, possibly 'eminetia intervastum'.
<i>Misc Pathology</i>	S1 slightly tilted to L., poss scoliosis. Slight wedging of T8 to R. Bones of R. arm more developed than L., R. ulna distal end more curving than L., broader forearm?

Sk. 2088



<i>Condition</i>	Good
<i>Description</i>	Near-complete, but R. leg and most foot bones lost. R. femur and fibula in 0949 belong here.
<i>Sex determination</i>	Male: Cranium DF +1.9, Pelvis DF +0.7, large robust long bones.
<i>Age determination</i>	Old: Medial clavicle fused, tooth wear moderate to heavy, degenerative changes.
<i>Stature</i>	172.1cm from Fem+Tib
<i>Cranial Index</i>	78.2
Teeth	A 8 7 6 5 4 3 2 / / 2 3 4 5 6 7 8 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
<i>Calculus</i>	Medium
<i>Dental Path</i>	alveolar resorption considerable
<i>Attrition Scores Max</i>	3+ 4 5+ 4+ 4 3- 2 - - 2 4 4 5 6- 4+ 3+
<i>Attrition Scores Mand</i>	4 4+ 5 4+ 4 3- 3- 3 3 3- 4 3 4+ 5+ 5 4
Pathology	
<i>Spina Bifida</i>	bifurcated S1, cleft S5
<i>Congenital</i>	calcified xiphisternum, not fused to body. V. large inion.
<i>Osteoarthritis</i>	OP scap glenoids, R. prox. Ulna, mid rib heads, acetabuli. OA II both lat clavicles and OP medial ends.
<i>DISH</i>	SIJs partially ankylosed bilat, sup edge of jt only. New bone linea aspera, soleal lines, prox fem trochanters, prox hum tuberosities, iliac crests, post calcs, dist fibs. AH T5-11 R. side, wax-like some calcified costal cartilage, esp on 1st rib to sternum. OPs, not quite fused.
<i>Periostitis</i>	graining and thickening medial side L. tibia and prox ant fibula, also small patch distal third lat tib, and slight graining distal third ant femur.
<i>Schmorl's Nodes</i>	T6-11, L2-4, S1
<i>Other Trauma</i>	slight stress fracture post L. talus inf large facet across jt surface. Distal end R. MT1 is slightly enlarged with proliferation of new bone on both sides, pitting and slight new bone growth on volar surface and possible porosity on palmar surface of articulation. Large lip of new bone to lateral side of head and 'bunion' to medial, possibly due to trauma?
<i>Misc Pathology</i>	slight wedging T6 to L., slight scoliosis.

Misc Pathology

bifurcated S1 with cleft, bifurcated S4, cleft S5
cyst-like lesion post surface R. femur close to distal end medial side on
line of adductor magnus, poss due to torn muscle?
slight scoliosis of sacrum at S3 to R. MTs unusually curved at distal
thirds.

Slight
Probably started buccally in fissures.
Crowding of upper teeth, both lateral incisors forced backwards behind mesials. Chip on lower R. I2.

-	1	3-	2-	2-	2-	2-	2+	2+	2+	2+	2-	2-	2+	2-	-
1	2-	-	2-	2-	2-	2-	2+	2+	2-	2+	2-	2-	2+	2-	1

Porotic
Porotic
post edges both talus, roughened with missing bone on R. and pitting/OP on L.
T11-12, L1-2
avulsion fracture of L. femoral lesser trochanter, well-healed, little callus formation but displacement anteriorly - may be due to chronic stress as R also seems slightly further forward than normal. See notes.

Sk. 2100



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Notes

Teeth

Calculus

Attrition Scores Max

Attrition Scores Mand

Pathology

Spina Bifida

Congenital

Circ. Disturb

Schmorl's Nodes

Other Trauma

V.Good

Near-complete (including 0978), some bones broken.

Male: Cranium DF +2.0, Pelvis DF +1.6, large robust bones.

Young: Medial clavicle unfused, tooth wear slight, pubis suggests young.

178.0cm from Fem+Tib

85.0

Lower half excavated in 1990 as 0978.

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

Slight

1 2+ 3 2+ 2+ 2- 2 2+ 2+ 2 2- 2+ 2+ 3 2+ 1

1 2+ 3 2+ 2+ 3 2+ 3 3 2+ 2+ 2+ 2+ 3 2+ 1

not in S1-2

T11 and T12 L. trans procs v. small. L1 detached L. trans process and part of sup artc process - R. side bifid but attached. Asymmetrical sternum, type II with caudal cleft, R. side of body wider than L. Large inion.

AED inf surface T11, large lesion - wedging, bone remodelling and new growth on front of vert body, probable kyphosis.

T7-12, L1-5

v. large Schmorl's nodes in T12, also inf T10. Exostosis 21mm long at post med border R. tibia distal end.

Sk. 2105



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Teeth

Calculus

Attrition Scores Max

Attrition Scores Mand

Pathology

Cribra Orbitalia R

Cribra Orbitalia L

Spina Bifida

Circ. Disturb

Schmorl's Nodes

Good

Near-complete, but missing scapulae and cervical vertebrae. Upper third removed by Gr. 2077 and collected as fill 2079.

Male: Cranium DF +0.8, Pelvis +1.4, medium-large bones.

c.20-23: Epiphyseal fusion, tooth wear slight, pubis suggests young.

167.8cm from Fem+Tib

81.4

- - - - - - - - - - - - - - - -

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

Slight

- - - - - - - - - - - - - - - -

1 2+ 3 2+ 2+ 3- 2+ 3- 3- 2+ 3- 2 2+ 3 2 1

Porotic

Porotic

bifurcated S1 and S3, cleft S5

small pit prox L. 1st hall phal.

T6-11, L1-2

Sk. 2108



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Extra Bone

Teeth

Calculus

Hypoplasia

Caries

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Cribra Orbitalia R

Good

Near-complete, but lower legs damaged and incomplete. Some erosion.

Male: Cranium DF +0.6, Pelvis DF +1.7, large robust bones.

Young: Medial clavicle partly fused, tooth wear slight, pubis suggests young, but cranial suture closure fairly advanced.

177.2cm from Femur

76.2

Fragments from intercutting graves and disarticulated remains on top.

C C

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

8 7 X 5 4 3 2 1 1 2 3 4 5 6 7 8

Slight

c.3-6

occlusal

slight pitting on L. maxilla around premolars

1 2- 2 2 2 2+ 2+ 2+ 2+ 2+ 2+ 2 2 3- 2- 2-

2- 2- - 2 2 2+ 2+ 2+ 2+ 2+ 2+ 2+ 2 3 2 2-

Porotic

Cribra Orbitalia L
Spina Bifida
Congenital
Maxillary Sinusitis
Circ. Disturb

Schmorl's Nodes

Porotic
 cleft S4-5
 caudal cleft in type II sternum.
 Pitting both sides
 R. talus healed lesion sup medial border 9 x 6mm, with 2 deep pits at posterior edge of lesion.
 T10-12, L1-3

Sk. 2109



Condition
Description

Sex determination
Age determination
Stature
Extra Bone
Notes

Pathology
Spina Bifida
Spinal Osteophytosis
Schmorl's Nodes
Other Trauma

Fair
 Disarticulated skeleton, fragments of skull, scapulae, arms, torso and a few pieces of legs.
Male: Pelvis DF +1.2, large robust bones.
Mature?: Some degeneration.
 166.1cm from Fibula
 L. clavicle and manubrium of younger adult. Some ribs may = 2111.
 Not certain that upper and lower halves belong together. L. humerus from 2227 belongs.

cleft and bifurcated S1, cleft S5

Yes

T9-10, L2

medial facet R. patella has lumpy appearance and new bone growth - remodelling following trauma/osteocondritis? Large facet has OP around lat and sup edges (could belong to 2114).

Sk. 2111



Condition
Description

Sex determination
Age determination

Stature
Extra Bone
Notes

Teeth

Calculus
Hypoplasia
Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Schmorl's Nodes

Fair
 Articulated skeleton consists of skull, shoulder girdle, cervical and upper thoracic vertebrae, a few ribs, the R. arm and part of the L., and the L. innominate. Skull fragmented and warped. Disarticulated remains from 2109 and 2227 probably belong.
?Male: Cranium DF +1.4, Pelvis DF +0.8, long bones fairly gracile.
Young: Medial clavicle fused, tooth wear moderate, pubis suggests young, no degeneration, cranial sutures open.
 168.6cm from Femur
 A fragment of calcified thyroid cartilage probably doesn't belong.
 Not certain that all rib fragments belong and lower half could be a different individual if the other bones in 2109 belong here, but they appear older. Skull was wrongly labelled 2075.

Co 7 6 5 4 3 2 1 1 2 3 4 5 6 7 Co

Co 7 6 5 4 3 2 1 1 2 3 4 5 6 7 Co

Slight-Medium

c.3-5

advanced alveolar resorption especially around M1s, heavy calculus on anterior mandibular teeth

- 3- 4 2+ 2 2+ 2+ 3- 3- 2 2+ 2+ 4 2 -
 - 3- 3+ 3- 3- 3- 2+ 3- 3- 2+ 2+ 3- 4 3- -

cleft and bifurcated S1-2, cleft S5

T8-9, L2-3

Sk. 2114



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Teeth

Calculus
Caries
Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Det Neur Arch
Spinal Osteophytosis
Spinal Osteoarthritis
Osteoarthritis

DISH

Schmorl's Nodes
Fracture

Other Trauma

Misc Pathology

Good

Near-complete, some erosion. R. hand and femur proximal end lost.

Male: Cranium DF +1.8, Pelvis DF +2.0, large and very robust.

MA-Old: Medial clavicle fused, tooth wear moderate to heavy, pubis suggests MA-Old, degenerative changes.

181.3cm from Fem+Tib

80.5

	CA													CA			
X	7	6	5	4	/	/	/	/	/	3	4	5	6	7	8		
?	7	6	5	4	3	2	1			1	2	3	4	5	6	7	8

Slight

advanced

slight alveolar resorption. Very large abscesses both sides of upper L.M2 alveolus.

-	-	5	5+	3	-	-	-	-	-	4+	4+	5	6-	5?	4	
-	4	5	5	4+	4+	4	5		5	4+	4+	4	5	5+	5	3

cleft S5

no

Yes

Yes

OP most joint borders esp ankles and wrists. OA II lat clavicles and acromions. New bone, like a thin sheet, over trapezoid line of L. clavicle, upstanding. R. prox hallucial phal distal end medial side peri-articular cyst and OP.

proliferation new bone on lig/muscle attachments, esp linea aspera, distal fibs ant., soleal line, post calc. Large amount of new bone on L. femur trochanteric line. calcified costal and thyroid cartilage.

T4-12, L1-3

neck of L. 11th rib, well-healed with little callus. Distal third L. radius (ulna styloid not assessable), slightly malaligned, smooth callus.

stress fracture across prox facet L. 2nd toe prox phal - two curving lines to medial side and OP.

thick 'bars' of new bone formation lat sides of L. MT4 and R. MT3-4 - related to DISH or use?

Sk. 2117



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Notes
Teeth

Calculus
Caries
Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Spinal Osteophytosis
Spinal Osteoarthritis
Osteoarthritis
Periostitis

Circ. Disturb
Schmorl's Nodes
Other Trauma

Misc Pathology

Good

Near-complete skeleton (with 0950), but some breakage and erosion.

Male: Cranium DF +1.8, Pelvis DF +1.9, large and robust.

MA: Medial clavicle fused, tooth wear moderate to heavy, pubis suggests middle-aged, degenerative changes.

169.6cm from Humerus

80.3

Lower half excavated in 1990 as 0950.

	A												C	C			
8	X	X	/	4	3	2	1			1	2	3	4	5	X	X	X
8	X	X	5	4	3	2	1			1	2	3	4	X	X	7	8

Slight

interstitial in PMs, cervical in molars

3?	-	-	-	6	6	5	4+		4	3+	4+	4	2+	-	-	-
3	-	-	5+	4+	4+	4	5		4+	4	4+	4+	-	-	2	2

cleft atlas, cleft S1-2, S5.

Yes

Yes

slight OP R. shoulder, OA II L. lateral clavicle (not R.).

both tibs and fibs, enlargement of tibia shafts esp medial, new bone growth on fib shafts.

AED L3-4 sup borders, destruction and pitting.

T4-12, L1-4

lesion on L. side of frontal bone, 17mm L. of midline, 28mm above orbit on a slight diagonal, 17mm long and 4mm wide, slightly raised central area on shallow fossa - healed cut which did not penetrate the diploë.

deep hollows in cheek bones. Sternal manubrium unusually elongated.

Sk. 2118



Condition
Description

Sex determination
Age determination
Stature
Cranial Index
Notes

Pathology
Cribra Orbitalia R

Fair

Disarticulated, fragments of skull, ribs, lower arms, legs and feet, including some disarticulated from 0949.

?Male: Cranium DF +1.9, long bones small but fairly robust.

Adult: Epiphyses fused.

162.2cm from Radius

85.1

Fragments from 2073 may belong - atlas, proximal femur, L. navicular, T1, finger phal, frag lower T vert.

Porotic

Sk. 2120



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Extra Bone
Teeth

Calculus
Dental Path
Attrition Scores Max
Attrition Scores Mand

Pathology
Cribra Orbitalia L
Congenital
Spinal Osteophytosis
Spinal Osteoarthritis
Osteoarthritis

Osteoporosis
DISH
Degeneration
Infection
Circ. Disturb
Schmorl's Nodes
Other Trauma

Misc Pathology

Good

Near-complete.

?Male: Cranium DF -0.3, Pelvis DF +1.3, small but fairly robust.

MA: Medial clavicle fused, tooth wear moderate-heavy, some degeneration.

165.7cm from Fem+Tib

80.1

Sub-adult L. clavicle.

8	7	6	5	4	3	2	X	X	/	3	4	5	6	7	Co
Co	7	6	5	4	3	2	/	1	2	3	4	5	6	7	Co

Considerable

alveolar resorption especially around upper half of root of lower L. canine.

1	5	6-	4+	5	5+	5	-	-	-	5	4	4	4+	5	-
-	5	5	4+	5	6-	5+	-	5	5	5	5	4	5+	5	-

Porotic

open foramen transversum L. atlas. Calcified xiphisternum.

Yes

Yes

OP both scapula glenoids, both acetabuli. OA II lat both clavicles and acromion facets. OP/some OA II of rib tubercles/heads.

biparietal thinning.

many ligament attachments ossified. Large OPs sup L. side L3 and L5.

calcified thyroid cartilage.

volar phalangeal grooves?

lesion prox end L.MT3 inf edge of facet, 6 x 4mm.

T10-12, L1-3

large OP both tarsal naviculars sup-lat edge distal facet, prob torn

ligament. Also R has large 'cyst' cavity on sup side, prox facet, with small

pointed lip of new bone. Ossified ligaments both tibial tubercles, both

patellae, both posterior calcaneus.

posterior tubercle both tali probably os trigonum (not present).

Misc Pathology

Enlargement of attachment for costo-clav lig on L. clavicle.

Misc Pathology

'bar' of new bone formation lat shaft R. MT4.

Sk. 2131



Condition
Description

Sex determination
Age determination
Cranial Index
Extra Bone
Notes

Teeth

Calculus
Attrition Scores Max
Attrition Scores Mand

Pathology
Periostitis

Maxillary Sinusitis
Other Trauma

Fair

Articulated skeleton consists of lower L. arm, L. innominate, L. leg, lower R. leg and foot. Disarticulated bones from 2121 include skull, L. shoulder and ribs, L. hand, R. femur.

?Male: Cranium DF +0.2, bones large and robust.

Young: Medial clavicle and iliac crest unfused, cranial sutures patent.

80.6

R. 2nd cuneiform in good condition, probably doesn't belong.

Not certain that skull belongs, but unlikely to have come from anywhere else.

8	7	6	5	4	3	2	/	/	/	3	4	5	6	7	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Slight

1	2+	3	2+	2	3+	2+	-	-	-	3-	2+	3-	3+	3	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

pitting, graining, lumpy appearance lateral L. fibula and interosseous line of tibia.

Pitting R., pitting and new bone L.

slightly raised area at bottom of L. tibia soleal line with graining and new bone - ossified haematoma?

Sk. 2140



Condition
Description
Sex determination
Age determination

Stature
Extra Bone
Notes

Teeth

Calculus
Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Maxillary Sinusitis
Circ. Disturb
Schmorl's Nodes

Good

Near-complete, but machine damage to skull.

Male: Cranium DF +1.7, Pelvis DF +1.3, bones large and robust.

Young: Medial clavicle partly fused, tooth wear slight, pubis suggests young.

172.1cm from Fem+Tib

1 frag calcified thyroid cartilage.

A few bones in 2141 (L. humerus, cuboid, etc) belong here.

8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
8	7	6	5	4	/	2	1	1	2	3	4	5	6	7	8

Slight-Medium

2-	2	3+	2+	3-	3-	2+	2+	2+	2+	2+	3	2+	3	2+	2
2-	2	3+	2+	2+	-	2+	3-	3-	2+	2+	2+	2+	3+	2+	2-

cleft S4-5

Pitting both sides

small pit centre large inf facet L. talus.

T5-12, L1

Sk. 2143



Condition
Description
Sex determination
Age determination

Teeth

Calculus
Attrition Scores Max
Attrition Scores Mand

Pathology
Cribra Orbitalia R
Cribra Orbitalia L
Spina Bifida

Good

Near-complete, skull fragmented.

Unsexed

c.13-16: Epiphyseal fusion (distal humerus part-fused), tooth eruption.

U	7	6	5	4	3	2	1	1	2	3	4	5	6	7	U
U	7	6	5	4	3	2	1	1	2	3	4	5	6	7	U

Slight

-	1	2-	1	1	1	1	2+	2+	2-	2-	2-	1	2-	1	-
-	1	2-	1	1	1	2-	2+	2+	2-	1	1	1	2-	1	-

Porotic

Porotic

cleft S4-5

Sk. 2146



Condition
Description

Sex determination
Age determination
Stature
Notes

Pathology
Spina Bifida
Congenital

Circ. Disturb

Schmorl's Nodes
Misc Pathology

Good

Fragments of posterior part of skull, vertebrae, ribs, lower L. arm, L. innominate, legs and ankles. A few fragments from 2227 and 2144 belong. Disturbed by 20th c. construction.

Male: Cranium DF +1.6, Pelvis +1.8, bones large and robust.

Young: Medial clavicle unfused.

169.2cm from Femur

A few fragments in the fill of Gr 2142, which this one cuts (odd that the sternum should be found in the grave below?).

bifurcated S1

C7 ribs bilaterally, L. is fused to C7. L. T12 has a horizontal lumbar-type rib.

pit L. sup facet C2. Several T verts have small pits, poss just developmental defects. AED T11-12 lower bodies, large pits with slight wedging. Pit distal lat humerus epicondyle (for radius) 7 x 5mm.

T4-12, L1-5

manubrium is unusually long.

Sk. 2149



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Extra Bone
Teeth

Calculus
Hypoplasia
Caries
Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Congenital
Spinal Osteophytosis
Osteoarthritis
DISH
Degeneration
Maxillary Sinusitis
Circ. Disturb

Schmorl's Nodes
Other Trauma

Misc Pathology

Good

Near-complete.

Male: Cranium DF +2.0, Pelvis +2.0, bones large and robust.

MA: Medial clavicle fused, tooth wear moderate, pubis suggests young to middle-aged.

177.4cm from Fem+Tib

79.3

1 L vertebra.

8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Co	7	6	5	4	3	2	1	1	2	3	4	5	6	7	Co
								C							

Slight

c.4-5

buccal cervical

periodontal disease, advanced alveolar resorption at molars, enlarged roots of both M3s.

1	3-	4	3-	4	5	5	4+	4+	3+	5	4	4	4+	3	1
-	3-	4	3-	3	4	3+	4+	4+	4	4	4	4	5	4+	-

cleft S5

coccyx fused, xiphisternum calcified and fused. T9-10 L. zygs bifid.

Yes

OP both MTP1 jts. OA II T12 R. rib facet.

small DISH-like OPs R. sides T9-11.

calcified thyroid cartilage.

Pitting R.

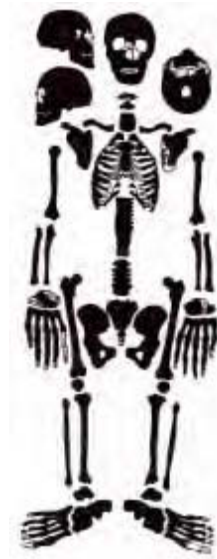
small pit central L. calc posterior of the double facet. Semi-circular area missing from R. calc ant facet.

T7-8

ossified ligaments sup edge R. SIJ on ilium and sacrum, and on L. side on ilium only. OP/oss ligs both 5th toe interphal jts.

remodelling prox third both femur shafts medial edge - rounded thickening. On the R. side, the distal end of this is very raised with a central 'peak' c.7mm high, 47mm, 17mm wide - slight pitting over this area of new bone growth - between vastus medialis and vastus intermedialis - ?eminentia intervastum. The lower third of the R. humerus curved laterally, deviating from the normal midline (in comparison with L.) by 11 degrees.

Sk. 2152



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Teeth

Calculus
Caries
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Congenital
Spinal Osteophytosis
Degeneration
Maxillary Sinusitis
Schmorl's Nodes

V.Good
Near-complete but face broken.
?Male: Cranium DF -0.2, Pelvis +1.6, bones small and gracile.
MA: Medial clavicle fused, tooth wear light to moderate, pubis suggests MA+, cranial sutures almost obliterated.
166.3cm from Fem+Tib
78.7
CA
8 X 6 5 4 3 2 1 1 2 3 4 5 6 7 8
8 X X 5 4 3 2 1 1 2 3 4 5 X X X

Medium
advanced
occlusal calculus upper L. M2-3
2- - - 2+ 3 4 4 2+ 2+ 3- 3+ 2+ 2+ 2 2 1?
3? - - 3 3 3+ 2+ 2+ 2+ 2+ 3+ 2+ 2+ - - -
cleft S4-5
lumbarisation of 1st sacral segment? Sternal body incompletely fused.
Yes
calcified thyroid cartilage.
New bone both sides
T7-12, L1

Sk. 2156



Condition
Description

Sex determination
Age determination
Cranial Index
Teeth

Calculus
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Spinal Osteophytosis
Osteoarthritis

Poor
Articulated skeleton consists of lower L. arm, L. leg, lower R. leg, fragments of hands and feet. Hand bones from 2150 also belong, and skull and axis from this context probably do too.
Male: Cranium DF +1.9, Pelvis +2.0, bones large and robust.
MA-Old: Tooth wear moderate, cranial suture closure advanced.
89.1
8 7 X 5 4 3 / / / / 3 4 5 X 7 8
- - - - - - - - - - - - - - -
Medium
alveolar resorption heavy around M3s
2- 2+ - 3+ 4 3 - - - - 3 4+ 5 - 4 2+
- - - - - - - - - - - - - - -
Yes
OP acetabulum. Distal L. radius and ulna enlarged, OA III with pitting around jt, eburnation, OP. R. wrist bones - only multangulans survive, but these are ankylosed and there is pitting, jt destruction, eb, OP of all facets. Prox MC1 also has OP and small patch of eb. Prox MC3 pitted, some OP. Prox MC5 both sides partial destruction/pitting/eb of prox ends. Finger phals all normal. Feet - ankylosis of R&L cuneiforms (poor condition), porosity of all tarsals and MTs. MT2s and 2nd cuneiforms ankylosed and prox ends of MT3-4 on L. side were probably also fused (R. side this area lost). MTP jts both 1st toes ank., and also interphal jt of R. (not L). Hallux valgus R>L. Pitting of MT4-5 both sides, with poss enlargement/inflammation. Most likely cause for bilat symmetrical involvement is RA, but no periarticular lesions visible except possibly on a prox phal of L. foot, but bones are in poor condition, difficult to be certain. Leprosy is possible, but no signs in face, and no narrowing of phals or MTs.
2157 Ankylosis of middle L. finger, v. pitted, new bone prolif. Poss destruction of head of a L. prox toe phal.
new bone on linea aspera.
calcified thyroid cartilage.
may be slight inflamm response on prox third L. radius shaft, but poor condition.
graining and new bone growth shafts both tibs, mainly in distal thirds all over and posterior of upper third. Also affects lower quarter of L. femur and some graining distal quarters of both fibulae.

DISH
Degeneration
Infection
Periostitis

Sk. 2159



Condition
Description
Sex determination
Age determination
Stature
Cranial Index
Teeth

Calculus
Hypoplasia
Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Congenital
Infection

Maxillary Sinusitis
Misc Pathology

Good
Near-complete.
Male: Pelvis DF +1.6, bones large and robust.
c.16-18: Epiphyseal fusion, tooth wear slight, pubis suggests young.
163.3cm from Humerus
78.1

U	7	6	5	4	3	2	/	1	2	3	4	5	6	7	U
U	7	6	5	4	3	2	1	1	2	3	4	5	6	7	U

Slight-Medium
c.3-4

-	2-	2	2+	2	2+	2	-	2+	2	2+	2-	2	2	2	-
-	2-	2+	2-	2-	2	2	2+	2+	2	3-	3	2	2+	2	-

cleft C1, bifurcated S1, cleft S4-5
12th ribs are lumbar-type horizontal.
thick woven bone in both maxillary sinuses. Pitting of palate, esp inf, but also a little along central line on nasal floor and also ant alveolar bone around R. 1st incisor (rest lost) - possible leprosy?
New bone both sides
skull relatively thin.

Sk. 2162



Condition
Description
Sex determination
Age determination
Stature
Cranial Index
Teeth

Calculus
Dental Path
Attrition Scores Max
Attrition Scores Mand

Pathology
Spinal Osteophytosis
Osteoarthritis

Degeneration
Infection

Schmorl's Nodes
Neoplasm

Misc Pathology
Physique

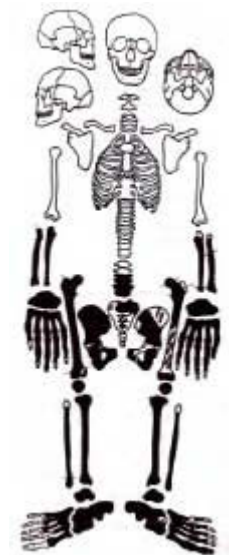
Fair-Good
Near-complete, missing lower R. arm and L. hand. Skull good, rest fair but ends broken/fragmented.
Male: Cranium DF +2.0, Pelvis DF +2.0, bones large and robust.
Old: Medial clavicle fused, tooth wear moderate, pubis suggests MA+, some degeneration.
172.4cm from Humerus
77.9

8	7	6	5	4	/	2	1	1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	X	8

A
Considerable
alveolar resorption around most teeth, especially deep around the canines.
3- 3+ 4 5+ 4+ - 2+ 3- 2+ 2 3 3- 4+ 3+ 2 2+
3 4+ 5 4 3+ 3 3- 3- 3- 2 3 3+ 4+ 4 - 2+

Yes
OPs and bony bridging/outgrowths on T6-L1, not normal DISH-like types, bilateral. Those on C6-7 are 'frilly' with thickened new bone anteriorly and pitting. OA II both ant tubercles hums with bony proliferation and pitting, also medial end R. clavicle.
calcified thyroid and costal cartilage.
2 lytic lesions in neural arch of T9, L. side, 15 x 8mm rounded borders, central into L. side 18+mm wide and 11mm high. Both break through to spinal canal. Also partial destruction T10 upper R zyg facet.
T6-12, L1-4
possible osteoma at L. asterion, although slight enlargement at this point on R. side too.
mastoid processes very large.
negroid features to skull, particularly pronounced prognathism and guttered nasal border, large broad palate.

Sk. 2165



Condition
Description
Sex determination
Age determination
Stature
Extra Bone
Pathology
Congenital
Periostitis

Misc Pathology

Good

Fairly complete from elbows down, top half outside edge of excavation.

Male: Pelvis DF +1.3, bones large and robust.

MA-Old: No degeneration (but no spine), pubis suggests MA+.

170.8cm from Fem+Tib

A few fragments in 2166.

squatting facets.

slight periosteal graining and new bone both tibs and fibs interosseously.
R fibula shows most changes - lumpy appearance. Venous lines on both tibiae.

slight lateral curvature both tibiae - genu valgum?

Sk. 2168



Condition
Description

Sex determination
Age determination
Stature
Cranial Index
Extra Bone
Teeth

Calculus
Attrition Scores Max
Attrition Scores Mand
Pathology
Porotic Hyp.
Infection
Schmorl's Nodes

Good

Fairly complete from pelvis upwards, at E end of site, lower half outside edge of excavation. Skull fragmented and several bones broken. Skull partially reconstructed for measurement.

?Male: Mandible robust, humerus head large.

c.16: Epiphyseal fusion, tooth eruption.

166.2cm from Humerus

78.9

1 frag adult scapula = 2169.

U	7	6	Co	4	3	2	1	/	2	/	4	5	6	7	U
U	7	6	5	4	3	2	1	1	2	/	4	5	6	7	U

Medium

-	2-	2	-	2	2	2	2+	-	2	-	2-	2-	2	2-	-
-	2-	2	2-	2-	2	2+	2+	2+	2+	-	2-	2-	2+	2-	-

thickened and striated new bone with pitting on sup part both parietals.
pitting on palate?

T7-10

Sk. 2169



Condition
Description

Sex determination
Age determination

Teeth

Calculus
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Osteoarthritis
Maxillary Sinusitis
Fracture

Fair

Disarticulated skull, broken, L. scapula and clavicle. Fragments of skull from 2222 probably also belong.

Male: Cranium DF +1.8.

Old: Medial clavicle fused, tooth wear heavy, cranial suture closure advanced.

-	-	-	-	/	3	2	/	1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	X	7	8

A CA

Medium

considerable alveolar resorption especially around molars, underbite?

-	-	-	-	-	3+	3+	-	3+	3-	3+	3	3-	5	4	4
5	4+	5+	4	3	3	3-	5	?	2+	2	2+	3-	-	4+	4+

OP L. scapula glenoid.

Pitting both sides

small depressed fracture to L. frontal close to coronal suture, oval 10 x 7mm, slightly pitted floor, c.1mm deep.

Misc Pathology

Paget's Disease: L. side of frontal has dense new bone with enlargement of diploë but thinning of cortical bone. Deformation of superior temporal line and zygomatic process. It spreads into the orbital plate and the remaining fragment of sphenoid bone where it articulates with the L. frontal. Also present at both frontal processes of maxilla where broken, and spreading into the maxillary sinuses. Inner table of frontal has new bone growth like HFI, but could be related to Paget's?

Sk. 2171



Condition

Description

Sex determination

Age determination

Stature

Teeth

Calculus

Non-metrics

Attrition Scores Max

Attrition Scores Mand

Pathology

Spina Bifida

Maxillary Sinusitis

Fracture

Misc Pathology

Good

Near-complete, skull smashed.

Male: Humerus and femur heads large.

c.15-16: Epiphyseal fusion, tooth eruption.

166.2cm from Humerus

Co	7	6	Co	4	3	2	1	/	2	3	4	Co	6	7	-
U	7	6	e	4	3	2	1	/	2	3	4	e	6	7	U

Medium

deciduous molars retained in mandible, 2nd premolars probably all congenitally absent.

-	1	2	-	2-	2+	2	2+	-	2-	2+	1	-	2-	2-	-
-	1	2+	3	2	2	2+	2+	-	2+	2+	1	3	2+	2-	-

S3-4 cleft

Pitting both sides

L. femur prox third deformity probably due to greenstick fracture. Slight deviation of linea aspera. Thin new bone growth periosteally, but well-healed with little callus. Bone is bent anteriorly though, proximal end deviates posteriorly.

circular lesion endocranially 19mm diameter, concave/domed with slightly raised surface ectocranially. The area is thinned with no diploë, inner and outer tables merged to a thin skin. Close to bregma on R. parietal. Smooth, no sign of infection - poss brain cyst/tumour?

Sk. 2172



Condition

Description

Sex determination

Age determination

Extra Bone

Notes

Good

Disarticulated fragments of R. arm, ribs, L. hand, pelvis, legs and L. foot.

Unsexed

c.13: Epiphyseal fusion.

1. Distal 3/4 L. fem with epiphysis, most of L. tib and epiphysis of fib, L. talus of sub-adult c.16-18yrs.

2. Complete R. tib and frag fib of adult ?male. Also 1 finger phal of adult. Grave 2170 must cut at least one grave, presumably the one containing the main individual in this context. Other skeletons could have been redeposited in that, or could also be cut by 2170.

Sk. 2174



Condition
Description

Sex determination
Age determination

Stature
Cranial Index

Teeth

Calculus

Caries

Non-metrics

Attrition Scores Max

Attrition Scores Mand

Pathology

Spinal Osteophytosis

Spinal Osteoarthritis

Osteoarthritis

Periostitis

Misc Pathology

Poor-Fair

Near-complete, feet missing, torso in poor condition, most long bone ends fragmented.

Female: Cranium DF -2.0, Pelvis DF -1.5, bones small and gracile.

MA: Medial clavicle fused, tooth wear moderate, pubis suggests young to middle-aged.

164.9cm from Ulna

82.0

C C CACAC C C C

8 7 X 5 4 3 2 1 1 2 3 4 5 X X X

8 X X 5 4 3 2 1 1 2 3 4 X X 7 X

Slight

interstitial, some advanced

upper PM2s and lower R.M3 rotated

3 4 - 3 - - 4 5+ 4 3+ 4 2+ 1 - - -

3 - - 3 3 4 3+ 4 4 3+ 3 3- - - 3- -

Yes

Yes

OP both acetabuli.

slight graining both tibiae medially and laterally.

endocranial lesion similar to 2171, similar position and size.

Sk. 2175



Condition
Description

Sex determination
Age determination
Notes

Fair

Disarticulated fragments of skull, ribs, upper L. arm, lower R. arm and hands.

Unsexed

c.13-14: Diaphyseal length, epiphyseal fusion.

Skull fragment may be adult.

Sk. 2177/3068



Condition
Description

Sex determination
Age determination
Cranial Index

Teeth

Calculus

Hypoplasia

Attrition Scores Max

Attrition Scores Mand

Pathology

Developmental

Schmorl's Nodes

Periostitis

Fair

2177: Lower legs only. 3068: upper body from T12 upwards, R arm and upper L arm, no hands.

?Female: Cranium DF -1.5 (but may not be fully developed); bones gracile.

c.15-16: Diaphyseal length, epiphyseal fusion, tooth wear slight.

87.2 - brachycranial

U 7 6 5 4 3 2 1 1 2 3 4 5 6 7 U
U 7 6 5 4 3 2 1 1 2 3 4 5 6 7 U

Moderate

c.3-5

- 2- 2+ 1 1 2+ 2+ 3- 3- 2+ 2+ 1 1 2- 1 -

- 2- 2+ 1 2- 2- 2 2+ 2+ 2 2+ 2- 2- 2+ 2- -

R squamous suture partially obliterated

T10-12, very shallow

poss slight graining on tibiae, but could just be normal growth.

raised oval lump - 27mm long, 10mm wide - prox third L. femur medial border, poss rider's bone. Slight scoliosis in the neck - L. side of C1 and C2 larger than R., but C3 appears to compensate. L. side of mandible also noticeably larger than R, depth reduces from PM2 to M2 on R.

Good

Near-complete but lacking R. humerus and ulna.

Male: Cranium DF +1.1, Pelvis DF +1.3, bones large and robust.

MA: Medial clavicle fused, tooth wear slight to moderate, pubis suggests MA+.

170.2cm from Fem+Tib

76.8

	C								CA							
Co	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8
U	7	6	5	4	3	2	1		1	2	3	4	5	6	7	U

Considerable

advanced, occlusal in upper R.M1

mandible too short, undershot

occlusal calculus R.M2s, calculus heavy all over, but R>L

$$- \quad ? \quad 3 \quad 2+ \quad 2+ \quad 1 \quad 2+ \quad 3 \quad 3 \quad 1 \quad 3- \quad 3- \quad 3- \quad 3 \quad 2+ \quad -$$
$$- \quad ? \quad 3 \quad 3 \quad 3- \quad 3 \quad 3- \quad 3+ \quad 3+ \quad 3 \quad 4 \quad 2+ \quad 3- \quad 3+ \quad 3 \quad -$$

Porotic

Porotic

cleft S5

very large mastoid foramina - 2 on R, 1 on L. Ossification of styloid process of skull absent. Calcified xiphisternum.

Yes

calcified costal cartilage.

T11

osteoma just to R. of centre on frontal, 5.5mm diam.

Neoplasm

Fair

Upper half of body. Lower half is disarticulated as 2181. Most of the pelvis, hands and feet missing.

Unsexed

c.13: Epiphyseal fusion.

2191- Adult L. calcaneus, small MT shaft, atlas, R. nasal bone, fragment of pubis.

U 7 6 5 4 3 2 1 1 2 3 4 5 6 7 U
U 7 6 5 4 3 2 1 1 2 3 4 5 6 7 U

Slight

unp

fragment of upper R. deciduous

around both upper premolars

$$- \quad 2- \quad 2+ \quad 2 \quad 2 \quad 2+ \quad 2 \quad 2+ \quad 3- \quad 2+ \quad 2+ \quad 2 \quad 2 \quad 2+ \quad 2- \quad -$$
$$- \quad 2- \quad 3- \quad 2 \quad 2 \quad 2+ \quad 2 \quad 2+ \quad 3- \quad 2+ \quad 2+ \quad 2+ \quad 2 \quad 2+ \quad 2- \quad -$$

not S1

another with very vascular cortical bone, see 2096 and 2180.

Misc Pathology

Sk. 2193



Condition
Description

Sex determination
Age determination
Stature
Extra Bone

Teeth

Hypoplasia
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Infection

Schmorl's Nodes
Misc Pathology

Fair

Near-complete, skull fragmentary. A few fragments in 2191 belong, and the L. femur was in 2181.

Male: Cranium DF +0.3, Pelvis DF +1.5, large robust bones.

c.16-18: Epiphyseal fusion.

173.3cm from Femur

Triquetral, prob from 2190. 2194 - prox frag adult R. hum, distal frag sub-ad ?R fib, ad L5, small ad thumb prox phal, frag ad innom, 2 frags occipital, frag R. zygoma, frag ?juv rib.

-	-	-	-	-	-	-	-	1	2	3	4	5	6	7	U
?	7	6	5	/	/	/	/	/	2	3	4	5	6	7	U

c.2-6

-	-	-	-	-	-	-	-	-	2+	2-	2+	2	2-	3-	2+	-
-	2	3-	2+	-	-	-	-	-	-	2	2+	2-	2-	3	3-	-

cleft S4-5

oval new bone patch on inside of a mid L. rib 12 x 4mm, and smaller lesions in similar positions (start of body at curve of neck) on two other ribs. A few small-wart-like deposits on mid R. ribs also.

T8-11, L3

R. arm noticeably more robust than L. Skull very thin.

Sk. 2196



Condition
Description

Sex determination
Age determination
Stature
Teeth

Attrition Scores Max
Attrition Scores Mand
Pathology
Cribra Orbitalia L

Good

Fragmentary skull, R. shoulder and arm. A few fragments of spine, hand, pelvis and R. leg in 2166 and 2187.

Male: Very large and robust bones.

c.18: Epiphyseal fusion.

182.9cm from Humerus

O	7	6	5	/	3	2	/	-	-	-	-	-	-	-	-
O	7	6	5	4	3	/	/	/	/	4	5	6	7	O	O

-	2	3-	1	-	2	2+	-	-	-	-	-	-	-	-	-
-	2-	2+	1	1	2	-	-	-	-	-	1	2-	2+	2-	-

Porotic

Sk. 2202



Condition
Description
Sex determination

Age determination
Stature
Cranial Index
Teeth

Calculus
Hypoplasia
Non-metrics
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Congenital
Osteoarthritis
Circ. Disturb
Schmorl's Nodes

V.Good

Almost perfect.

?Male: Cranium DF +1.4, Pelvis DF +1.7, but bones small and fairly gracile.

Y-MA: Medial clavicle fused, tooth wear moderate, pubis suggests MA.

167.7cm from Fem+Tib

78.7

8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Medium

c.3-4

slight crowding lower R.I2-C

2-	2+	3	2	2+	2+	2	2+	2+	2	2+	2+	3	2+	2-
2+	2+	3	2+	2+	1	2+	3-	3-	2+	2	2	3	2+	2

bifurcated S1

both atlas foramina transversum open.

slight OP medial L. clavicle.

pit centre L. 1st hall phal prox facet.

T8-12, L1-2

Fracture

Misc Pathology

?greenstick fracture L. femur midshaft, slight bulge to lateral side of shaft, but no obvious change of alignment - could be infection - XRAY
slight wedging T4 to R.

Sk. 2205



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Extra Bone

Teeth

Calculus

Hypoplasia

Non-metrics

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Spina Bifida

Congenital

Spinal Osteophytosis

Osteoarthritis

DISH

Degeneration

Schmorl's Nodes

Physique

Good

Almost perfect.

?Female: Cranium DF +1.6, Pelvis -1.7, small gracile bones.

MA: Medial clavicle fused, tooth wear moderate, pubis suggests MA.

158.1cm from Fem+Tib

79.7

Humerus from 2183.

Co 7 6 5 4 3 2 1 1 2 3 4 5 6 7 Co

Co 7 6 5 4 3 2 1 1 2 3 4 5 6 7 Co

Medium

c.3-4

diastema between all upper incisors, and between upper canines and PM1s, and lower PM1-2s.

fragments of upper deciduous M2 roots retained

- 3- 4+ 3+ 3- 5 3 5+ 4 2+ 3- 3 4 4+ 4 -

- 3+ 5 2 2+ 3+ 3+ 4 3- 2+ 3 2+ 3 4+ 4 -

bifurcated S1, cleft S5

Calcified xiphisternum.

Yes

OP ischia, esp. L. OA II both SIJs. OP L. distal femur, patella.

new bone linea aspera, iliac crests. Large OPs R. side T9-10.

calcified thyroid cartilage.

T6-11

broad nose, nasal bones slightly 'tented', slightly prognathic, but ant upper jaw fairly straight - some negroid/mongoloid features?

Sk. 2208



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Extra Bone

Teeth

Calculus

Attrition Scores Max

Attrition Scores Mand

Pathology

Cribra Orbitalia L

Spinal Osteophytosis

Spinal Osteoarthritis

Osteoarthritis

DISH

Degeneration

Infection

Periostitis

Schmorl's Nodes T

Other Trauma

Physique

Fair

Near-complete, skull in good condition, rest fair-poor, most long bone ends lost.

?Female: Cranium DF -0.2, Pelvis DF -0.1, small gracile bones.

MA: Tooth wear moderate, pubis suggests MA, some degeneration.

164.1cm from Ulna

83.7

2209- large adult L. MT2 and frag adult fibula.

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

Slight-Medium

2+ 3- 3+ 3- 3 3+ 5 5+ 5+ 5 3+ 3 3 4+ 4 4+

3 4 4+ 3 3+ 4+ 4+ 5+ 5+ 4+ 4+ 3+ 3+ 5 4+ 5

Porotic

Yes

Yes

OP L. scapula glenoid, some rib heads. L. facets C3-5 OA III almost ankylosed.

Large OPs R. T7-11.

calcified thyroid cartilage.

small patches new bone internally on R. rib fragments.

lateral side R. fibula appears lumpy - new bone growth and slight graining, same on L., and on ant. L. tibia.

T7-11

new bone growth L. prox index finger phal on lat edge - torn ligament?

well-developed muscle attachments, esp lateral clavicles, deltoid tuberosities.

Sk. 2211



Condition
Description

Sex determination
Age determination

Stature
Cranial Index
Extra Bone

Teeth

Calculus
Hypoplasia
Attrition Scores Max
Attrition Scores Mand
Pathology
Spinal Osteophytosis
Circ. Disturb
Schmorl's Nodes
Other Trauma

V.Good

Articulated remains consist of R. leg, lower L. leg and feet. Most of the rest is disarticulated as 2209, plus fragments of 2194. Most of spine and hands lost.

Male: Cranium DF +1.9, Pelvis DF +1.9, large robust bones.

Y-MA: Medial clavicle fused, tooth wear light, pubis suggests young to middle-aged.

169.9cm from Fem+Tib

76.2

Some fragments in 2209 don't belong - could be from Gr. 2207 cutting the foot end of an unidentified grave? 2212 - L. fibula shaft.

/	/	6	5	4	3	/	/	/	/	/	5	6	7	8	
8	7	6	5	4	3	2	1	/	/	3	4	5	6	7	8

Slight

c.3-5

-	-	3-	2+	2	2+	-	-	-	-	-	-	3-	3	3-	2
2+	3-	3	2	2	2+	2+	3-	-	-	3	2+	2	3	3-	2+

Yes

small lesion inf edge prox both MT3s, pitted, 5mm diam.

T9

small exostosis L. pubis at lat end superiod part - sup end of pectineus muscle.

Sk. 2215



Condition
Description

Sex determination
Age determination

Stature
Cranial Index
Teeth

Calculus
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Spinal Osteophytosis
Osteoarthritis
Periostitis
Schmorl's Nodes
Misc Pathology

Good

Only part of R. leg in situ. Rest disarticulated as 2203, and near-complete, missing part of spine, hands and feet. A few fragments from 2175 also belong.

?Female: Cranium DF +1.2, Pelvis DF -1.5, bones long but fairly gracile.

Y-MA: Medial clavicle fused, tooth wear light-moderate, pubis suggests young to middle-aged.

172.8cm from Femur

81.9

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Slight

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2+	3-	3+	3-	3-	5+	5	5+	5+	5	5+	3-	3-	3+	3-	3-

clef S4-5

Yes

OA II L. facet manubrium for clavicle.

slight graining and pitting ant. L. fibula.

T10, L1

?modification of L. femur shaft, lateral side curves outwards in upper half and is wider than R. No sign of infection.

Sk. 2218



Condition
Description

Sex determination
Age determination
Stature
Extra Bone

Teeth

Calculus
Hypoplasia
Non-metrics
Attrition Scores Max
Attrition Scores Mand

Pathology
Porotic Hyp.
Spina Bifida
Schmorl's Nodes

Fair

Upper half articulated and near-complete. Lower half disarticulated as 2181, 2191 and 2194. Most of hand and foot bones lost. Some erosion of surfaces, skull partially reconstructed for measurement.

Male: Cranium DF +1.3, Pelvis DF +1.9, large robust bones.

Y-MA: Medial clavicle fused, tooth wear light, pubis suggests MA?

175.4cm from Fem+Tib

2219 - distal half of a smaller tibia and small adult C1 fragment.

8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	/
8	7	6	5	4	3	2	1	/	2	3	4	5	6	7	8

Slight

c.3-4

diastema between upper mesial incisors

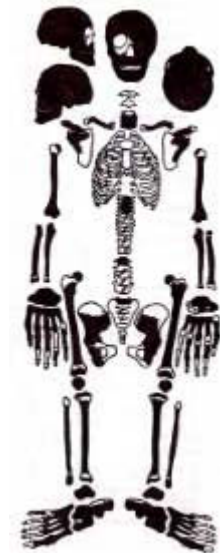
1	3-	3	2+	1	2+	2+	3-	3-	2+	2+	2	2	3	2+	-
1	2+	3	2+	2+	2+	2+	3-	-	2+	2+	2+	2+	3	2+	1

striations and pitting rear both parietals.

cleft S4-5

T6-12

Sk. 2221



Condition
Description
Sex determination
Age determination
Cranial Index
Extra Bone
Teeth

Calculus
Caries
Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Spinal Osteophytosis
Osteoarthritis
Periostitis
Schmorl's Nodes

Poor-Fair

Near-complete, but torso very poor and ends of most bones lost/broken.

Male: Cranium DF +1.7, Pelvis DF +1.8, medium bones.

MA: Medial clavicle fused, tooth wear moderate.

77.8

2222 - frags of parietal = 2169?

/	/	X	5	4	3	2	/	1	2	3	4	5	X	X	X
X	7	X	/	4	3	2	1	1	2	3	4	5	6	7	8
CA								C							

Slight

?interstitial in lower L.M1

-	-	-	3+	4	4	2+	-	3-	2+	3	3+	3+	-	-	-
-	-	-	-	3+	3+	2+	3-	3-	3-	3-	2+	3+	4	2+	3-

S1 bifurcated.

Yes

OA II lat L. clavicle.

patch of graining and pitting ant lower third L. femur shaft.

T8-9?

Sk. 2224



Condition
Description
Sex determination
Age determination

Cranial Index
Teeth

Calculus
Caries
Non-metrics
Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida

Good

Near-complete apart from feet. Hole in cranium is post-mortem.

Male: Cranium DF +0.5, Pelvis DF +2.0, large robust bones.

c.16-18: Distal humerus and proximal ulna fused, tooth wear slight, pubis suggests young.

81.8

CA															
8	7	6	5	4	3	Co	1	1	Co	3	4	5	Co	7	8
?	7	X	X	4	3	2	/	1	2	3	4	5	6	7	?
A A															

Slight

advanced

diastema between upper I1-2s and between upper L.PM2 and M1.

very large abscess with inflammatory changes to outer side of mandible with enlargement, could have been on deciduous molar, perhaps with destruction of unerupted premolar whilst still a germ

1	2	-	2	2	4	-	3-	3-	-	3+	3-	3-	-	2-	1
-	2	-	-	2	3-	2+	-	3-	2+	3+	3-	2+	3	2-	-

cleft S1, bifurcated S2, cleft S3-5

Periostitis

graining of both tibia shafts medial and lateral, but changes to L. are much grosser than R. Also affects fibs to lesser degree. Pitting, graining and new bone growth.

Schmorl's Nodes

T12?

Sk. 3004



Condition

Good, some bones smashed, especially at ends. Frontal broken and unattached, partially reconstructed for measurement.

Description

Near-complete but missing the lower R. leg and both feet.

Sex determination

?Female: Cranium DF -1.1, Pelvis DF -0.8, medium-gracile bones.

Age determination

c.16-17: Prox humerus unfused; dist radius and ulna and prox femur part fused; dist humerus, prox rad & ulna, dist femur, prox/dist tibia and dist fib all fused.

Tooth wear slight.

Cranial Index

77.0

Stature

159.8cm from Tibia.

Teeth

C																
O	7	6	5	4	3	2	1	1	2	3	4	5	6	7	O	
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	CA

Calculus

Slight

Caries

Occlusal upper R. PM2; large, unknown origin lower L. M2

Hypoplasia

c.3-6

Dental Path

Attrition Scores Max

- 2- 3 2- 2- 2- 2- 2 2+ 2- 2+ 2- 2- 2- 2- -

Attrition Scores Mand

1 2- 3 2- 2- 2+ 2- 2+ 2+ 2 2+ 2- 2- 3 - 2-

Pathology

Spina Bifida

S5 only

Congenital

Lumbarisation of first sacral segment. Sternal body in at least four parts.

Schmorl's Nodes

T7-12

Infection

small patch of reactive fibrous bone midshaft rear of L. tibia, 20mm long, 6mm wide.

Trauma

possible fracture L. innom, hairline crack, partially healed, through edge of sciatic notch in facet for sacrum, curving to medial on rear surface, c.16mm long. Sacrum not affected.

Miscellaneous

enlargement of fossae for costo-clav lig both medial clavicles, similar both hums at attachment for Teres major – roughened area with loss of bone – probably long-term condition due to well-used muscles. Bones thick and heavy.

Sk. 3007



Condition

Good but fragmented.

Description

Most bones of upper skeleton and fragments of pelvis. Skull incomplete.

Sex determination

Uncertain if L. tibia fragment belongs.

Age determination

Unsexed

c.6 years: Tooth eruption and calcification (6-7), long bone diaphyseal lengths (5-6).

Teeth

C																
-	-	-	-	-	-	-	-	/	b	c	d	e	6	U	-	
-	-	-	-	-	-	2	/	1	2	c	d	e	6	U	-	

Calculus

Slight

Caries

Interstitial

Hypoplasia

c.2-4

Dental Path

Attrition Scores Max

- - - - - - - - - 2+ 3 4 4 2- - -

Attrition Scores Mand

- - - - - 1 - 1 1 3 3 4 2- - -

Pathology

Cribra Orbitalia L

cribriotic

Periostitis

poss slight pitting/graining medial L. tibia shaft, may be normal growth.

Trauma

small depressed fracture L. of centre on frontal bone, approx at centre of forehead, c.8mm diam, healed with small area of new bone (similar to an osteoma) at the lower edge. No pitting.

Sk. 3010



Condition
Description
Sex determination
Age determination

Stature
Teeth

Calculus
Caries
Hypoplasia
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Spinal Osteophytosis
Osteoarthritis

Degenerative disease
Periostitis

Schmorl's Nodes

Good, but ends of long bones fragmented; skull recently smashed.
Most bones of the skeleton represented except ankles/feet and front of skull.
Female: Cranium DF -1.4; Pelvis DF -1.9; bones gracile.
MA?: Medial clavicle fused, some degeneration, tooth wear slight-moderate, pubis suggests MA.
151.6cm from Radius

-	-	-	5	4	3	/	1	1	2	3	4	/	6	-	-
C	X	6	5	4	3	2	1	1	2	3	4	5	X	7	C
		A	A									A		C	

Slight
Interstitial
c.4-5
V. large abscess below lower L. M1. Most of lower R. M1 lost A-M.
- - - 1 2+ 4 - 3 3 2+ 3 7 - 3 - -
- - 7 7 2+ 4 3- 3 3 3 3+ 1 6 - - -
Pathology
S5 only
T4, T6-7, L3-5, v. slight
Patch of erosion sup edge R. acetab with thick new bone growth below – OA?
T1 facets for rib head III both sides, also on ribs.
Slight OP R. fem head, R. inf patella, lipping 2 R and 3 L. mid rib lat facets.
Some graining and thickening medial tib shafts. Enlargement and lumpy appearance to R fib upper third of shaft – healed periostitis? Similar on L but less extensive.
T11-L4

Sk. 3013



Condition
Description
Sex determination
Age determination
Cranial Index
Teeth

Calculus
Caries
Hypoplasia
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Cribrum Orbitale R
Cribrum Orbitale L
Congenital/developmental

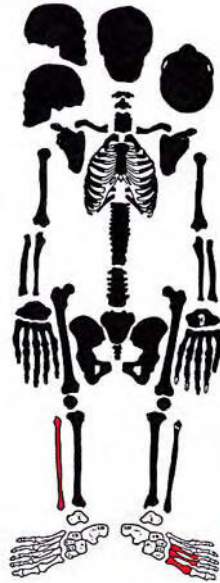
Schmorl's Nodes

Good, skull has recent breaks; several bones have concreted deposits adhering, especially back of skull, mandible.
Most bones present.
Unsexed
c.15: diaphyseal lengths (c.13-14), teeth (12+), epiphyseal fusion (c.15)
83.5 - brachycranial

		C													
U	7	6	5	4	3	2	1	1	2	3	4	5	6	7	U
U	7	6	O	4	3	2	1	1	2	3	4	5	6	7	U
		C											C	C	

Slight
Occlusal and interstitial
2-5
Lower R PM2 impacted on M1 and not fully erupted. High degree of alveolar resorption buccal side both lower M1s – periodontal disease.
- 1 2- 1 1 1 2- 2- 2- 1 1 1 1 2- 1 -
- 1 2+ 1 1 2- 2- 2 2 2- 1 1 1 2- 2- -
Pathology
S1 bifid arch, cleft S3-5 (not S2)
Porotic
Porotic?
Fusion of femur head may have occurred too early? Sternum has multiple oss centres, 7+ for body. Forehead appears slightly bulbous, skull appears sub-rectangular in *norma lateralis*.
none

Sk. 3016



Condition

Description

Sex determination

Age determination

Cranial Index

Stature

Teeth

Calculus

Caries

Hypoplasia

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Spina Bifida

Schmorl's Nodes

Spinal Osteophytosis

Osteoarthritis

Degenerative disease

Misc Pathology

V good, but encrusted deposits on skull and pelvis.

Near-complete, R. fibula and 3 L. MTs disarticulated as 3018.

Male: Cranium DF +1.0; Pelvis DF +1.9; bones large and robust.

MA-Old: medial clavicle fused, tooth wear moderate, some degeneration.

77.7 - mesocranial

168.1cm from Fem+Tib

A										CA									
/	/	X	5	4	3	2	1	1	2	3	4	5	6	X	?				
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	X				
																			C

Slight, heavier on ant mand teeth

Interstitial cervical

c.5-6

Slight crowding ant mand. Upper R. M2-3 poss lost A-M. Moderate alveolar resorption.

-	-	-	5	5	4+	4	5	5	4	4+	5	7	4+	-	-
4+	3+	3	3+	3+	3+	4+	5	5	4+	3+	3+	4+	4+	4	-

Cleft S4-5 only.

T12

T3-L5, large on L2-4. Large DISH-like L. side T10.

Grade II sterno-manub jt. Slight wear on mandibular condyles?

Calc costal and thyroid cartilage. Slight OP prox ulnae coronoid proc.

R. 4th rib, small neoplasm sup edge c. third from rear, 9mm long, 4mm wide, 3mm high, poss haematoma? Anterior torsion superior both fems.

Sk. 3021



Condition

Description

Sex determination

Age determination

Cranial Index

Stature

Teeth

Calculus

Caries

Hypoplasia

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Spina Bifida

Schmorl's Nodes

Spinal Osteophytosis

Spinal Osteoarthritis

Osteoarthritis

Degenerative disease

Periostitis

Infection

Misc Pathology

Fair, but some bones fragile and fragmented, skull encrusted.

Most of L. side intact, but damage to R. face, shoulder, arm, hand, pelvis and lower leg. Frags of shoulder, hand, lower leg and foot disarticulated in 3009.

Fragment of textile preserved on occipital.

?Female: Cranium DF -0.3; Pelvis DF 0; long bones small but fairly robust; on balance female, but could be small male.

MA-Old: medial clavicle fused; some degeneration; tooth wear heavy.

83.6 - brachycranial

151.1 from femur

A										A									
?	X	X	5	X	3	/	1	X	X	X	X	X	-	7	-				
X	X	X	5	4	3	X	1	1	2	3	4	5	6	7	8				

Considerable on L. side, most teeth covered.

None in surviving teeth

4-5

Slight impaction of lower L. M2 on M1. Alveolar resorption considerable.

-	-	-	6-	-	6-	-	5+	-	-	-	-	-	-	2-	-
-	-	-	5	5	4+	-	4	3-	2+	2+	2-	-	-	2-	2-

Cleft S4-5 only.

T7-L3, most large.

yes

yes

Grade II ant tub L. hum and lat clav. II sup edge L. acetab. T1 L. rib head II.

Calc thyroid cartilage. OP inf L. acetab, medial R clav.

Gross periosteal new bone growth ant-lat R. fibula upper third, thickened with some pitting.

Large lytic lesion L. side body L3 with crush fracture of lower part, new bone growth ant body, prob TB. V. slight deposits og rounded new bone growth int some ribs. Enlarged foramen mentale L.

Hole to R of lambda (5 x 3mm) just sup to suture – poss post-mortem, but may be in vivo. Internal area larger, skull appears thinned ext, some pitting? May be TB-related.

Both fems curved laterally and flattened A-P. Most muscle markings pronounced.

Sk. 3035



Condition
Description
Sex determination
Age determination
Cranial Index
Stature
Teeth

Calculus
Caries
Hypoplasia
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Schmorl's Nodes
Spinal Osteophytosis
Spinal Osteoarthritis
Osteoarthritis

Degenerative disease

Infection

Trauma

Misc Pathology

Fair, most long bones damaged at one or both ends.
Near-complete.

Male: Cranium DF +1.3; Pelvis DF +1.7; medium, fairly robust bones.

Old: tooth wear moderate, some degeneration, cranial sutures obliterated.

77.6 - mesocranial

163.5cm from Humerus

	CA	C		A														
C	7	6	X	4	3	2	1	1	2	3	4	5	X	7	C			
C	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8			
	CA														C		C	

Slight-moderate, esp ant-labial

Interstitial cervical

-

Alveolar resorption considerable.

-	5	5+	-	7	5+	2+	3+	4	3-	5+	3+	3	-	4	-
-	5	5	3-	3	4+	4	4+	4+	4	4+	4	3	3	4+	1

Cleft S4-5 only.

T6-12

yes

yes

Grade III L. 1st rib head and T vert facet. II medial and lat both clavs. III R. MC3/phal, v large OPs on head of MC.

Calc thyroid and costal cartilage. OP both scap glenoids, both elbows with porosity on ulnae coronoid procs, SIJs, knees, ankles, acetabs, wrists, dist L. MC2 and phal (eb patch and OP of R.), new bone/OP L. radial tub, both fems lesser troch, sup ends linea asperae. OP and new bone growth lat facets of ribs and verts. Large DISH-like OPs R. T6-11, L3-5, and L. side L4-5, very large but no ankylosis. OP ischial tuberosities sup edges.

L. mid ribs have small wart-like patches of new bone on int and some R., may just be normal variation.

?Myositis oss R. tibi medial midshaft – rounded new bone growth (26 x 8 x 3mm), poss osteoma? Small hole in similar position on L. tibia, with slight loss of bone surrounding it – looks like a cloaca but apart from slight graining, no real evidence of infection (possibly enlarged in lower third of shaft?). O'chond diss lesions both prox hall phals (R 8 x 5mm; L. 5 x 3mm) Noticeably prognathic with long narrow palate.

Sk. 3038



Condition
Description
Sex determination
Age determination
Pathology
Spina Bifida
Congenital

Good, some bones broken.

C2 down to mid R. tibia intact, but L arm and leg disturbed and incomplete. C1 and one rib frag disarticulated in 3070.

Unsexed

c.11 years: diaphyseal lengths (c.11), epiphyseal fusion (<13).

Bifid arches S2-3, cleft S4-5. S1 lost.

>4 centres of ossification for sternal body

Sk. 3047



Condition
Description

Sex determination
Age determination

Cranial Index
Stature
Teeth

Calculus
Hypoplasia
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Congenital
Schmorl's Nodes
Spinal Osteophytosis
Osteoarthritis
Degenerative disease
Infection
Trauma
Misc Pathology

V good, a few areas smashed.

Near-complete. Preserved textile patch on upper R humerus, small frag with L hand and on manubrium and mandible.

Female: Cranium DF -1.8; Pelvis DF -2.0; bones small and gracile.

Y-MA: medial clavicle fused, tooth wear slight-moderate; cranial sutures open; slight degeneration.

82.8 - brachycranial

155.4cm from Fem+Tib

C	7	6	5	4	3	2	1	1	2	3	4	5	6	7	C
C	7	6	5	4	3	2	1	1	2	3	4	5	6	7	C

Slight

c.3-5

Slight alveolar resorption

-	2+	4	3-	2+	2+	2+	3-	3-	2+	2+	3-	3	4	3-	-
-	2+	4	2+	2+	2+	3-	3	3	3-	2+	2-	2+	4	2+	-

Cleft neural arch of C1 with ankylosis to basi-occipital.

T7-L2

Yes, slight

Small patch II R. acetab ant. III head 1st ribs.

OP most lateral rib/vert facets.

Destructive lesion sup L3, thickening at ant border, some healing, poss TB?

R mand condyle enlarged ant – large OP or reaction to chronic stress?

Slight lateral curvature of femora, fairly flat nasal bridge.

Sk. 3048a



Condition
Description

Sex determination
Age determination

Cranial Index
Stature
Teeth

Calculus
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Cribra Orbitalia R
Cribra Orbitalia L
Maxillary sinusitis
Osteoarthritis
Degenerative disease

Fair, some erosion.

Disarticulated remains. Skull, mandible, humeri, L. ulna, R. MC2, frag L. ischium and pubis, legs, frags L. foot. Skull may not belong, but the rest is likely to be one individual.

Male: Cranium DF +0.8; Pelvis DF +2.0; bones large and robust.

Old: tooth wear moderate-heavy, some degeneration.

81.0 – brachycranial.

176.5cm from Fem+Tib

8	/	/	/	/	/	/	/	/	1	2	3	4	5	A	7	/
8	7	6	5	4	3	/	/	/	/	/	/	/	5	6	7	8

Moderate.

Considerable alveolar resorption.

4	-	-	-	-	-	-	-	3-	2+	3-	3-	5	6	4+	-
4	4+	5	3+	3	3	-	-	-	-	-	-	4	5+	5	4+

None

None

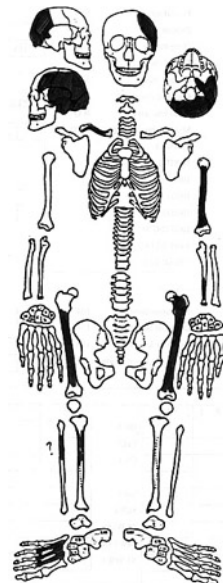
Pitted R., none on L.

Prolif new bone and porosity distal L. ulna esp styloid proc.

OP distal R. tibia, esp around medial malleolus. OP all facets L. calcaneus.

Some new bone growth soleal lines and linea aspera.

Sk. 3048b



Condition
Description

Sex determination
Age determination
Pathology
Neoplasms
Infection

Poor.

Disarticulated remains. L. side of skull, R. clavicle, L. hum, L. distal ulna, femora, frags R. tibia and fibula, R. MT2-4. Frag of large femoral head probably extra. The skull fragments are stained different colours but they fit together. Skull could belong to 3116.

Female: Cranium DF -0.9; bones small and gracile.

Adult.

Large osteoma R. side of occipital, c.21mm diam.

Lytic lesion with destruction, pitting and some new bone formation in L. ear.

Sk. 3049



Condition
Description

Sex determination
Age determination

Cranial Index
Stature
Extra bone
Teeth

Fair, fragmented ends, surface flaky.

Most of the skeleton from C6 down. The skull was listed as not recovered on site, but there is a skull with this number, may have been excavated from baulk later? Some verts/ribs were collected as 3048.

Male: Cranium DF +1.7; Pelvis DF +1.7; large, robust bones.

Young: medial clavicle partially fused; tooth wear slight; no degeneration; but cranial suture closure advanced.

72.5 - dolichocranial

177.3 from Humerus

A few frags of pelvis from another individual collected with the skull.

/	7	6	/	/	3	2	/	1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	/	-	-	-	-	-	-	-	-

Calculus
Caries
Hypoplasia
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Developmental
Schmorl's Nodes
Trauma

Moderate ant

None

c.2-4

-	1	3-	-	-	2+	2+	-	3-	2-	2+	2-	2-	3-	1	1
1	1	3	2-	2	2+	2+	-	-	-	-	-	-	-	-	-

Wide cleft S4-5, rest not assessable.

Sagittal suture obliterated

T9-12

Small o'chond pit L. 1st hall phal prox (5 x 2mm).

Sk. 3053



Condition
Description

Sex determination
Age determination
Stature

Pathology
Ischial bursitis
Schmorl's Nodes
Spinal Osteophytosis
Spinal Osteoarthritis
Osteoarthritis
Degenerative disease

Infection
Periostitis

Trauma

Misc Pathology

Fair-poor, ends of most long bones lost.

Most bones represented from the neck down. Frags in 3052 belong to this skeleton.

?Female: Pelvis DF -0.8; bones medium, fairly robust.

Old: state of pubis, degeneration.

c.168.7cm from estimated radius length

Some pitting and new bone L.

T6-L5

yes

yes

OA III zyg facets L4-5.

Calcified costal cartilage, some large frags. Large DISH-like OPs, almost-fused, R. side T10-11. Most jts and muscle attachments show some new bone growth, eg acetab, knee, wrists, linea aspera, ant patella, costo-clav lig fossae.

Prolif new bone around L tarsals, fusion of navic and medial cuneiform, others almost fused, poss lytic lesion of cuboid at jt with cuneiform. Also affects prox MT2 but not MT1. Lytic lesions dist end prox hall phal with new bone around. Proliferative arthritic condition of unknown type, but most likely reactive/psoriatic.

Frag of rib with warty new bone growth int.

New bone growth L. tibia soleal line and surrounding area, lumpy, pitted inflamm response, also small area midshaft fibula.

Ankylosis sup part L. SIJ with thick new bone growth (incomplete), OPs on R side poss similar but not fully fused. May be arthritic.

Thick 'bars' of new bone longitudinally lat edge R. MT3-4 and L. MT4 shafts.

Sk. 3058



Condition
Description

Sex determination
Age determination

Cranial Index

Stature

Teeth

Calculus

Hypoplasia

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Spina Bifida

Schmorl's Nodes

Spinal Osteophytosis

Degenerative disease

Periostitis

Misc Pathology

V good, face broken, most bones encrusted.

Near-complete. Some bones collected as 3057 belong here.

Male: Cranium DF +1.6; Pelvis DF +2.0; large, robust bones

Old: tooth wear moderate, calcified thyroid cartilage? – if this is intrusive the individual is probably younger.

76.8 - mesocranial

161.7cm from Fem+Tib

C	7	6	5	4	3	2	1	1	C	3	4	5	6	7	C
C	7	6	5	4	3	2	1	1	2	3	4	5	6	7	C

Slight

c.2-6

No space for upper L incisor.

-	2-	4	2+	3-	3	2-	4	4	-	3	3-	3-	4	2-	-
-	2+	4+	3	2+	3-	2+	3	3	2+	3	3	3+	4+	2+	-

Cleft S5 only

T6-L3

T11-12

Calc thyroid cartilage – could be intrusive?

Slight new bone growth, centre int side one mid L rib.

Slight sabre appearance to both tibs, but inteross lines straight. No evidence of infection.

Sk. 3071



Condition

Description

Sex determination

Age determination

Cranial Index

Stature

Teeth

Calculus

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Spina Bifida

Congenital

Schmorl's Nodes

Spinal Osteophytosis

Osteoarthritis

Degenerative disease

Periostitis

Trauma

Misc Pathology

V good

Near-complete, apart from feet.

Male: Cranium DF +1.4; Pelvis DF +1.8; large robust bones

Y-MA: medial clavicle fused, tooth wear moderate.

74.4 - mesocranial

174.4cm from Fem+Tib

CA															
C	X	6	5	4	3	2	1	1	2	3	4	5	6	7	C
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Slight

Extra tooth socket central maxilla, tooth lost p-m, poss retained decid incisor?

-	-	7	3-	3-	3	3-	3+	2+	2+	3	3+	4+	4	2+	-
1	2-	3	2+	2+	3	2+	3	3	2+	2+	2+	2+	3+	3	2-

Cleft S5 only

Detached neural arch L5 with slight spondylolisthesis

T8-9

yes

Grade II L.11th rib head. Small peri-artic cyst distal end R. MC1.

OP mid rib facets and lateral T verts.

Enlargement ant R tibia midshaft, smooth outer bone, rough grained new bone growth dist third fibula, area c.36mm long.

Long narrow exostosis prox L fibula, sup end attachment for Tibialis posterior, c.18mm long, max 5mm wide, tapering to a point inferiorly.

Pitting and striation parietals. Enlarged attachments for costo-clav lig both sides.

Sk. 3074



Condition

Description

Sex determination

Age determination

Cranial Index

Stature

Teeth

Calculus

Caries

Hypoplasia

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Schmorl's Nodes

Spinal Osteophytosis

Osteoarthritis

Misc Pathology

Good, ends of several long bones broken.

Near-complete. Lower legs and feet disarticulated as 3073 and 3123.

Male: Cranium DF +1.5; Pelvis DF +2.0; large robust bones.

MA+: medial clavicle fused; tooth wear moderate-heavy; some degeneration.

75.8 - mesocranial

170.2cm from Fem+Tib

															C
C	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
C	7	6	5	4	3	2	1	1	2	3	4	5	6	7	C

Slight

Occlusal

c.2-6

Alv res considerable

-	3	5	4+	5	4+	4+	5	5	4	4+	4+	4+	5+	4	2-
-	4	5	4	4	4	3	3+	3+	3+	4+	4+	4+	5+	4	-

T9, L2

yes

Slight pitting and new bone sup edge R acetab

Negroid features of skull: wide nasal aperture with blunt margin, slight prognathism.

Sk. 3076



Condition
Description
Sex determination
Age determination
Stature
Pathology
Degenerative disease
Trauma

Good but truncated and femur smashed.
R leg and two foot bones only.
?Male: bones small but fairly robust.
Mature: some degeneration.
157.0cm from fibula

New bone linea aspera
Poss healed fracture through sup part prox facet L. MT1 – hairline curving crack following line of jt border above.

Sk. 3094



Condition
Description

Sex determination
Age determination

Cranial Index
Extra bone
Teeth

Calculus
Caries
Hypoplasia
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Cribra Orbitalia R
Cribra Orbitalia L
Congenital

Very good.
Near-complete but lacking the lower L leg and part of the foot. Cut by 3068 – tibia could be 2002 end of that grave (or in 3073?).
Unsexed
c.10 years: tooth eruption and calcification (9-10); diaphyseal lengths (c.10-11); epiphyseal fusion (<13).
85.4 - brachycranial
One finger phal of older juv with feet.

														C	
-	U	6	5	4	/	2	1	1	2	c	/	e	6	U	-
-	U	6	e	U	O	2	1	1	2	c	d	e	6	U	-
														C	

Moderate
Interstitial cervical
c.2

-	-	1	1	1	-	2-	2-	2-	2-	-	-	-	2-	-	-
-	-	1	-	-	-	2-	2-	2-	2-	-	-	-	2+	-	-

Cleft S3-5 (S1-2 not assessable)
Porotic, slight
Porotic, slight
Detached neural arch L5.

Sk. 3097



Condition
Description

Sex determination
Age determination

Cranial Index
Stature
Teeth

Calculus
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Congenital

Fair, but torso fragmented and skull incomplete.
Articulated remains consisted of left ribs, lower spine, left pelvis, left leg, right fibula and both feet. Disarticulated remains: 3073 – skull, shoulder girdle, some R. ribs, 1 T vert, R. humerus and ulna, phalanges; 3000 – L. arm and hand and R. tibia; 3123 – mandible, R. MT3, frags of R. femur.
Female: Cranium DF -1.5; Pelvis DF -1.8; bones medium, fairly gracile.
MA?: tooth wear slight-moderate; pubis suggests middle-age; degeneration may indicate older.
86.1 – brachycranial.
150.6cm from Fem+Tib (4' 11")

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	7	6	5	4	/	/	/	/	/	3	/	/	6	7	C

Slight, medium on R. occlusal surfaces.

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-	3-	3+	2+	2-	-	-	-	-	-	5	-	-	3	3	-

None in S1-3.
Rocking mandible.

Cribra Orbitalia R
Cribra Orbitalia L
Schmorl's Nodes
Neoplasms
Spinal Osteophytosis
Spinal Osteoarthritis
Osteoarthritis

Degenerative disease

Infection/inflammation

Trauma

Porotic
 Porotic
 T9, L1-2.
 Small, shallow osteoma R. parietal, c.7mm diam.
 T9, T12-L5.
 OA III zygapophyseal facets T9, L2-4.
 OA III joint between L5 and S1 ala L. OA III L. MCP jt of thumb. New bone and porosity R. tibia lat condyle. Large OPs ulna with some patches of porosity. OA III L. radius head and distal humerus.
 Prolif OP both prox ulnae, and poss some ossification of ligaments of distal R. humerus, but only a frag survives above medial olecranon fossa.
 Ribs seem osteoporotic, also R arm bones and R scapula. OP both lateral clavicles.
 Destructive porous lesions L2-5 (R side L2-3, L. side L4-5), some collapse of L2 and L4. Prob also L. SIJ. New bone growth int one L. rib, thick ivory bone. Poss TB (but may be OA).
 Pitting L. ischial tuberosity – minor degree of ischial bursitis.
 O'chond lesion L. prox hall phal, prox facet, 7 x 3mm; sup facet medial side R. talus (4 x 2mm).
 Shallow depression on L. parietal just adjacent to sagittal suture, slight pitting, poss small depressed fracture.

Sk. 3099



Condition
Description
Sex determination
Age determination
Pathology
Degenerative disease

Fair, stained dark brown.
 R. leg, lower L. leg and feet only.
Male: bones large and robust.
Mature: all epiphyses fused, some degeneration.
 New bone linea aspera, soleal line, posterior calcaneus.

Sk. 3106



Condition
Description
Sex determination
Age determination

Cranial Index
Stature
Teeth

Calculus
Caries
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida
Cribra Orbitalia R
Cribra Orbitalia L
Maxillary sinusitis
Schmorl's Nodes

Fair, but most bones fragmented at ends, surfaces eroded, some encrustation.
 Near-complete.
Male: Cranium DF +1.0; Pelvis DF +1.3; large, robust long bones.
Old: medial clavicle fused, tooth wear heavy, cranial suture partially obliterated, some degeneration.
 86.2 – brachycranial
 169.6cm from Hum

																	C
C?	X	X	5	4	3	2	1	1	2	3	4	5	6	7		C	
C?	X	X	5	4	3	2	1	1	/	3	4	5	X	7	8		
																	C

Medium
 Interstitial cervical.
 Considerable alveolar resorption.
 - - - 6- 6- 6- 6- 6- 6- 5+ 5+ 6- 4 5 -
 - - - 6- 5 5 5+ 6- 6- - 5 4 4+ - 5 4

S1 (not S2-4)
 None
 None
 Pitted both sides.
 T6, L2.

Spinal Osteophytosis
Spinal Osteoarthritis

Osteoarthritis
Degenerative disease

Trauma

Periostitis

C1-2, C4-7, T4-10, L5-S1.

C4-6 (large frilly OPs, OA II on R. side), T5-7 (II), T9-10 (II/III, large OPs R side), L5-S1 (II?) – bodies. Eburnation C3-4 zyg. facets.

OA II lateral clavicles. OA III L. MT1 head centre, OA II on R.

OP most rib tubercles. New bone linea aspera, soleal line, posterior calcaneus.

Fracture distal shaft L. ulna, rounded callus, old injury, radius not affected.

?O'chond lesion inf post facet L. talus (9 x 8mm), patch of slight pitting on corresponding part of calc – lesion has affected cancellous bone, possibly lytic but some repair?

Thickening, graining and slight lumpy appearance to both medial tibia shafts.

Sk. 3116



Condition
Description

Sex determination
Age determination

Pathology
Spinal Osteophytosis
Spinal Osteoarthritis
Degenerative disease

Poor, thin, fragmented.

Fragments of arms and legs and a few scraps of torso. 3048: R. clavicle and humerus. One skull in 3048 probably belongs, but uncertain which.

?Female: Long bones small, medium-gracile.

MA+: Epiphyses fused, some degeneration.

OP body frag of one vert.

OA III inf zyg facets one upper/mid T vert.

OP inf edge R. acetabulum.

Sk. 3120



Condition
Description

Sex determination
Age determination

Stature
Pathology
Schmorl's Nodes
Trauma
Miscellaneous

Very good.

Upper arms and torso only, including fragments of R. clavicle, scapula and humerus from 3115, presumably disturbed when concrete pad was inserted.

Male: Large, robust bones.

Young (18-20?): clavicle unfused, vertebrae partly fused.

167.2cm from Hum

T5-9, large.

O'chond-like lesion centre L. glenoid (6 x 5mm).

Large fossa with pitted floor for costo-clav lig L. clavicle.

Sk. 3124



Condition
Description
Sex determination
Age determination
Teeth

Calculus
Attrition Scores Max
Attrition Scores Mand
Pathology
Spina Bifida

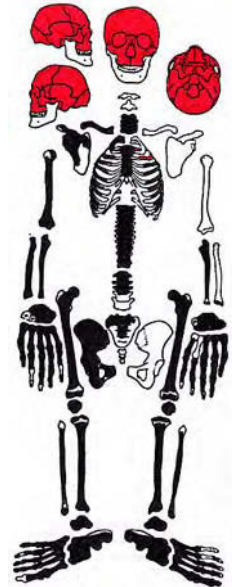
Good but skull fragmented.
Near-complete.
?Male: pelvis appears male and bones large for age?
c.15-16: epiphyseal fusion, tooth eruption.

C	7	6	5	4	3	2	1	1	2	3	4	5	6	7	U
U	7	6	5	4	3	2	1	1	2	3	4	5	6	7	U

Slight.
- 2- 3- 2- 2- 2+ 2+ 3- 3- 2+ 2+ 2+ 2- 3- 2- -
- 2- 3 2- 2- 2+ 2+ 3- 3- 2+ 2+ 2- 2- 3- 2- -

S4-5.

Sk. 3136



Condition
Description

Sex determination
Age determination
Cranial Index
Stature
Teeth

Calculus
Attrition Scores Max
Attrition Scores Mand
Dental Path
Pathology
Spina Bifida
Schmorl's Nodes
Spinal Osteophytosis

Spinal Osteoarthritis

Osteoarthritis

Degenerative disease
Trauma

Periostitis
Miscellaneous

Fair, most long bone ends fragmented.
Most of skeleton, missing L. shoulder, humerus, radius and pelvis. Skull in 3070, but mandible lost.
Male: Cranium DF +1.9; Pelvis DF +1.9; long bones large and robust.
MA-Old: tooth wear moderate-heavy, some degeneration.
80.8 – brachycranial.
170.9cm from Rad

X	X	X	5	4	3	2	1	1	2	X	4	5	6	X	X
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Slight.
- - - 5 5 5 4+ 5 5 5 - 5 5 6- - -
- - - - - - - - - - - - - - -

S1, not S2.
C7? T7, T9.
C3-7, T7-10, L2-3. Large frilly OP C2-6 and L3 inf. T8-9 OP lat facets for rib tubs, and on mid ribs.
C3-4 (III), C5-7 (II), L3 (III) – bodies. C3, C6-7 (III) – zyg facets. One lower rib OA III on tubercle.
OA III lat R clav and end of acromion, prob also greater tub of humerus (broken). Patch II centre R. SIJ.
OP R. acetabulum. Calc costal cartilage.
Well healed fractures 2 R mid ribs ant, c.32-46mm from end. Slight depressed fracture L. brow ridge (circular pitted lesion 6mm diam) and another poss healed scar 18mm above (linear c.7mm long). Exostosis sup R tibia below facet for fibula, c.16mm long.
Slight graining medial surfaces both tibiae.
Pitting and striation of parietals.

Sk. 3144



Condition
Description

Sex determination
Age determination
Cranial Index

Teeth

Calculus
Caries

Hypoplasia
Attrition Scores Max
Attrition Scores Mand

Pathology

Cribra orbitalia R.
Cribra orbitalia L.

Fair, some bones very fragmented.

Skull, shoulders, upper arms and upper half of torso. R. scap/clav and R ribs were labelled 3134, but definitely belong here.

Male: Cranium DF +1.8; long bones large and robust.

Young: medial clavicle part-fused, tooth wear slight.

77.0 - mesocranial

The Measurement															
C	CA												A		
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
CA															

CA

Slight-medium.

Probably all interstitial cervical, but most lesions large. Caries may have affected upper L. M1 too.

c. 5 years.

1	1	3-	2+	2+	2+	2+	2+	2+	2+	2+	2+	2-	7	2-	1
1	-	3	2+	2-	3	2+	3-	3-	2+	2+	2-	2-	3-	2-	1

None

None

Sk. 3171



Condition
Description

Sex determination
Age determination
Stature

Pathology

Spina Bifida
Schmorl's Nodes

Good, but some bones fragmented.

Lower torso, lower R. arm, hands, upper legs.

Male: Pelvis DF +1.5; large, robust bones.

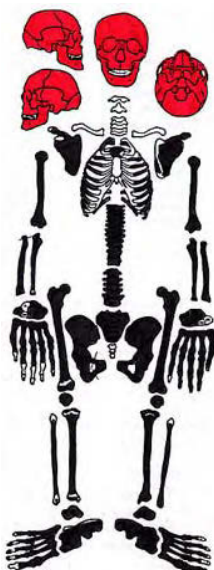
c.16-18: epiphyseal fusion.

169.9cm from Ulna.

S4-5.

T9, 11-12.

Sk. 3175



Condition
Description

Sex determination
Age determination

Cranial Index
Stature

Teeth

Calculus
Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology

Cribra orbitalia R
Cribra orbitalia L
Spina Bifida
Congenital/developmental
Schmorl's Nodes

Good, some long bone ends smashed, skull encrusted on L. side.

Near-complete, but skull disarticulated (=3073) and C verts and clavicles lost.

Male: Cranium DF +1.3; Pelvis DF -0.3; bones large and robust.

MA-Old: tooth wear moderate, some degeneration, cranial sutures closed and partially obliterated.

77.5 - mesocranial.

171.2cm from Fem+Tib.

/	7	6	5	4	3	/	/	/	2	3	4	5	6	7	8
8	7	6	5	4	3	/	X	/	/	3	4	5	6	7	8

Slight.

Medium alveolar resorption.

-	4	5	4	4	3	-	-	-	3+	4	4	4+	5	4	4
4	5+	5+	4	3+	3+	-	-	-	-	4	4	4+	6-	5+	4+

None

None

S5-6

Sacralisation L6. Zygoma-temporal sutures obliterated.

T7-8, T12-L4

Spinal Osteophytosis

Osteoarthritis

Degenerative disease

Periostitis

Miscellaneous

T3-10, T12-L1. Large DISH-like OPs R. side T8-9. Ankylosis T10-12 bodies and arches, loss of joint space, no large OPs, looks more like AS, but doesn't affect the L. verts.

OA II both TMJs.

Calc costal cartilage, esp R. ?6th rib, all cartilage fused. OP rib tubercles, esp mid ribs. Large OPs R. knee joint.

Midshaft L. radius enlarged, slight pitting on surface and lumpiness – area extends c.95mm. Similar 'lumps' of new bone on leg bones: L. femur c.2/3 down on post-lat edge (c.35 x 16mm), R. femur 1/3 down ant (c.28 x 18mm), c.2/3 down ant-lat (c.36 x 24mm) and just below on post-lat (c.30 x 16mm); R. tibia dist half, 2 lumps on medial surface (35 x 20mm and c.47 x 24mm) with grained area between. Pitting of R. fib shaft. ?Sabre-like shins. R. patella poss also affected, artc surface pitted, but affected by post-mortem erosion.

Poss negroid features – slight prognathism and wide nose?

Extreme hallux valgus R. with destructive cyst-like lesions at head of MT1 and modification of MTP jts, less on L.

Sk. 3187



Condition

Description

Sex determination

Age determination

Teeth

Good, some areas broken, skull deformed p-m.

Near-complete.

Male?: long bones large for age?

c.16: epiphyseal fusion, tooth eruption.

U	7	6	5	4	3	2	1	1	2	3	4	5	6	7	U
U	7	6	5	4	3	2	1	1	2	3	4	5	6	7	U

Calculus

Hypoplasia

Attrition Scores Max

Attrition Scores Mand

Pathology

Cribra orbitalia R

Cribra orbitalia L

Spina Bifida

Detached neural arch

Congenital/developmental

Schmorl's Nodes

Trauma

Miscellaneous

Slight.

c. 5 years.

- 2- 3- 2- 2- 2+ 2 2+ 2+ 2 2+ 2- 2- 3- 2- -

- 2- 3 2- 2- 2 2 2+ 2+ 2 2+ 2- 2- 3 2- -

None

Cribrotic

Split S1 arch.

Partially detached L. side L2.

Several centres of ossification of sternal body.

T5-9

O'chond-type lesion inf post facet R & L talus centre, both c.9 x 5mm.

Skull very thin.

Sk. 3195



Condition

Description

Sex determination

Age determination

Stature

Teeth

V. good, but face smashed and pelvis fragmented, some bones encrusted.

Near-complete, R. side of face missing.

Male: Cranium DF +1.6; Pelvis DF +1.3; bones large and robust.

MA-Old: tooth wear moderate, pubis remodelled, some degeneration.

174.1cm from Fem+Tib

-	-	-	-	-	-	-	-	1	2	3	4	5	6	X	-
8	7	X	5	4	3	2	1	1	2	3	4	5	X	7	8
	C													C	

Calculus

Caries

Attrition Scores Max

Attrition Scores Mand

Pathology

Cribra orbitalia L

Maxillary sinusitis

Spina Bifida

Schmorl's Nodes

Spinal Osteophytosis

Spinal Osteoarthritis

Osteoarthritis

Degenerative disease

Infection

Slight.

Interstitial cervical.

- - - - - 4+ 4+ 5 4+ 5 6- - -

3- 4 - 4+ 4+ 5 4+ 5 5 4+ 5 4+ 4+ - 4 3-

Cribrotic.

Pitting L.

Not S1-4.

T8-L4.

C5-7, T3, T7-L5. Large frilly OPs C5-7. DISH-like R. side T8-12 and L2-3, L. side T11-L3.

C6-7 (II), T11-12 (II), L4 (II).

OA II lat R. clavicle with cyst-formation at sup edge, also on scap acromion facet.

New bone/exostosis ant tub L. tibia, both radial tubs.

Enlargement of palatal fossa with pitting.

Trauma

Myositis ossificans R. femur midshaft c.145mm long. Smooth new bone raised c.8mm above shaft, no inflamm.
New bone volar surface R. prox phal 2nd finger, lumpy healed appearance, poss due to torn ligaments?

Sk. 3202



Condition
Description
Sex determination
Age determination
Cranial Index
Teeth

Very good, some encrustation.
Near-complete, lacking only the R. hand.
Unsexed.
c.15: most epiphyses unfused, tooth eruption.
76.1 - mesocranial

U	7	6	5	4	U	2	1	1	2	3	4	5	6	7	U
U	7	6	5	4	3	2	1	1	2	3	4	5	6	7	U

Calculus
Hypoplasia
Dental Path

Slight.
c.4-6 years.
Upper and lower R. mesial incisors chipped at corresponding position. Upper teeth encrusted, wear not assessable.

Attrition Scores Max
Attrition Scores Mand

-	1	2-	1	1	-	-	2+	2-	-	-	-	-	-	1	-
-	2-	3	2-	2-	2-	2-	2+	2-	2-	2-	1	1	3	2-	-

Pathology
Cribra orbitalia R
Cribra orbitalia L
Spina Bifida
Congenital/developmental
Periostitis

Cribrotic
Porotic
Split S1, cleft S3-5, S2 normal.
Emarginate patella L.
Ant 4 mid ribs L. pitted and thickened, some new bone growth, similar on R., may be normal growth but looks like periostitis.
Enlarged costo-clav lig attachment R. clavicle.

Miscellaneous

Sk. 3207



Condition
Description
Sex determination
Age determination
Cranial Index
Stature
Teeth

Very good, bones stained dark brown.
Near-complete, lacking a few bones of the hands and all wrist bones.
Female: Cranium DF -0.7; Pelvis DF -2.0; bones small and gracile.
Old: tooth wear heavy, some degeneration.

77.6 - mesocranial

150.9cm from Fem+Tib

	A		A	A	A					A	A	A	A		
C?	X	X	5	/	/	/	/	/	2	3	4	5	6	7	C?
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	/
A	A												A	A	A

Calculus
Caries
Hypoplasia
Dental Path
Attrition Scores Max
Attrition Scores Mand

Slight-medium.
Prob cause of loss of crown of upper L PM1 and M1.
Not assessable.
Alveolar resorption moderate-considerable.

Pathology
Cribra orbitalia R
Cribra orbitalia L
Spina Bifida
Schmorl's Nodes
Spinal Osteophytosis
Spinal Osteoarthritis

-	-	-	6	-	-	-	-	-	6-	6-	7	6-	6	6-	-
6-	6-	5+	5+	5	5	4+	5+	5+	4+	5	5+	5+	6-	6	-

None.
None.
S5 only.
None.
C1-2, C5-6, T1-2, T5-L4.
C5-6 (II), T8-9 (II), T11-L4 (II). T11 R. zyg (II). OA II R. lat T9 facet for rib tub.
Poss cyst head R. humerus between ant tub and head facet 5mm diam.
Small exostosis medial end L. mand condyle c.4mm long curving to ant.
Fracture distal radius (and poss ulnar styloid proc) with slight shortening but little deformity and callus, prob old.
O'chond pit centre R hum epicondylar facet, 8 x 4mm.
Poss fracture R. ribs 2, 5-8, flattened areas and slight misalignment, also L. 3rd. All midshaft and well-healed, old wounds.
Pitting and lipping of ischial tuberosities. Thin skin of fibre bone distal end R. tibia medial shaft extending c.53mm.

Osteoarthritis
Trauma

Periostitis

Sk. 3220



Condition
Description

Sex determination
Age determination
Cranial Index

Teeth

Calculus
Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology

Cribra orbitalia R

Cribra orbitalia L

Spina Bifida

Schmorl's Nodes

Spinal Osteophytosis

Trauma

Degenerative disease

Miscellaneous

Fair, but most long bone ends broken/lost.

Articulated remains consisted of the lower L. arm and hand, L. leg and both feet. Other remains were disarticulated: 3015 – skull, a few vertebrae, ribs, scapulae, R. clavicle, R. upper arm, pelvis; 3018 – upper L. arm, lower R. arm, R. femur.

Female: Cranium DF -1.5; Pelvis DF -1.3; bones small and gracile.

Y-MA: tooth wear slight/moderate, some degeneration.

75.8 – mesocranial

	8	7	6	5	4	3	2	1	1	2	3	4	5	6	A	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	?

Moderate.

Abscess on upper L. M2 goes into maxillary sinus – probably sinusitis, but not assessable.

1	4	3-	2+	2+	2-	2-	3+	3+	2+	3-	2+	3	4	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Porotic.

Porotic.

Not S1-2.

T6? large.

L1, 3. Proliferative new bone around L1-3 zyg facets with some eburnation and probable scoliosis. Large OPs R side body L1 and L3.

L2 body missing, but angle of L1 suggests collapse of body on R. side (L1 is also crushed on R.), no evidence of infection and not particularly osteoporotic, so poss traumatic? Slight raised area, exostosis?, 2/3 down R. linea aspera.

Slight OP both acetabula.

Prognathic.

GROUP 3

Sk. 0305



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Notes

Teeth

Calculus

Hypoplasia

Caries

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Cribra Orbitalia R

Cribra Orbitalia L

Spina Bifida

Det Neur Arch

Congenital

Spinal Osteophytosis

Osteoarthritis

Maxillary Sinusitis

Circ. Disturb

Schmorl's Nodes

Fracture

Other Trauma

Misc Pathology

Good

Near-complete skeleton, left side has suffered from post-mortem erosion.

Male: Cranium DF +1.3, Pelvis +1.7, very large and robust bones.

MA: Medial clavicle fused, tooth wear light to moderate, some degeneration, cranial sutures partially obliterated, pubis suggests middle-aged.

181.9cm from Fem+Tib

76.5

A few foot bones from 0282 belong here.

? 7 6 5 4 X 2 1 1 2 3 4 5 6 7 ?

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

C C

Slight

c.3

small occlusal

large groove anterior CEJ R. lower canine, not caries, may be post-mortem?

- 2+ 3 3- 3- - 3+ 4+ 4 3 3 3 3 3+ 2+ -

2+ 3 3+ 3+ 2+ 3 2+ 3- 3 2+ 3 3+ 3+ 4 3+ 2+

Porotic

Porotic

cleft S4-5

L5, no evidence of slippage

squatting facets. Perforate sternum.

Yes

Pitting and new bone (thin skin of fibre bone) superior edges both acetabuli, with larger lytic lesion in L. (also p-m erosion). OAIL 1 mid-rib facet L.

New bone L.

pit in proximal R. MT2, healed. Small lesion post. Lat. Condyle R. femur, unusually deep, oval 4 x 6mm.

T11-12, L1-2

proximal L. ulna with non-union, v. porous new bone growth, enlargement of prox end with new bone, some destructive lesions to distal humerus (eroded p-m), also small porous lesion prox radius. Difficulty straightening the joint? Could have occurred before epiphysis was fused? Healed head wound R. side frontal on superior temporal line, which is misaligned as a result. Inner table appears to have been pierced. New rounded bone formation int+ext, but internal remains open with rounded new bone in diploë. Small exostosis R. calcaneus sup-ant at insertion of extensor digitorus brevis (extends the 1st-4th toes). Stress fracture across medial side of prox facet R. proximal phal of ?4th toe. Small exostosis prox dorsal edge R. thumb MT1 and corresponding on greater multangular (L. not affected). Slight enlargement/exostoses to both costoclavicular ligamentous insertions on the clavicles.

slight scoliosis of sacrum, L. ala higher than R. and S1 slopes to R., but bodies seem normal. Oval cyst in L. lower facet L4 dorsal side, 10 x 5mm. Bilateral curving of proximal thirds both tibiae - genu valgum.

Sk. 0317



Condition
Description

Sex determination
Age determination

Stature
Cranial Index
Notes

Teeth

Calculus
Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Congenital
Maxillary Sinusitis
Schmorl's Nodes
Other Trauma

Neoplasm
Misc Pathology

V.Good

Near-complete, missing only a few wrist, finger and toe bones. Some concretion.

Female: Cranium DF -0.7, Pelvis -1.4, long bones medium-gracile.

Young: Medial clavicle and acetabular rim unfused, tooth wear light, cranial sutures patent, pubis suggests young.

166.1cm from Fem+Tib

76.7

One finger phalange of this individual was with 0318.

8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
8	7	6	5	/	3	2	1	1	2	3	4	5	6	7	8

Slight

1	2+	3-	2+	2+	3	2+	3-	3-	2+	3	2+	2+	3-	2	1
1	2	3	2+	-	3-	2+	3-	3-	2+	2	2	2+	3	2+	1

cleft S3-5

Squatting facets. Occipital bun.

Pitting R.

T5-12, L1-5

exostosis to L. side of occipital crest about halfway along, 9mm long.

Lipping around R. clavicle insertion of costoclavicular ligament, similar in both humerus deltoids. Exostosis distal R. fibula - roughened, lower end interosseous line. Exostosis prox L. fibula post side head, c.20mm long.

?osteochondroma R. humerus

slight wedging ant. T11.

Sk. 0318



Condition
Description

Sex determination
Age determination

Stature
Cranial Index
Extra Bone
Notes

Teeth

Calculus
Hypoplasia
Caries
Non-metrics

Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology
Cribra Orbitalia R
Cribra Orbitalia L
Spinal Osteophytosis
Spinal Osteoarthritis
Osteoarthritis
Circ. Disturb

Schmorl's Nodes
Other Trauma

V.Good

Near-complete, some concretion, fork holes in skull. Skull partially reconstructed.

Male: Cranium DF +1.4, Pelvis DF +2.0, large robust bones.

MA-Old: Medial clavicle fused, pubis suggests MA+, some degeneration, tooth wear moderate to heavy.

177.0cm from Fem+Tib

81.5

1 finger phal probably belongs to 0317.

A few foot bones from 0283 belong.

CA								A						C	CA			CA
8	7	X	5	4	3	2	1	1	2	3	4	5	X	X	8			
8	7	X	5	4	/	2	1	1	2	3	4	5	X	7	8			C

Slight

c.3-5

mainly interstitial cervical

severe overcrowding, upper L. canine pushed to front and PM1 rotated, lower R. I2 pushed to back

Periodontal pitting maxilla, considerable alveolar resorption, wear uneven on ant teeth, upper R. I2 broken? Pitting upper I1s pronounced over whole crown.

5+	?	-	3+	3-	2+	5+	3+	4	4+	?	4	2+	-	-	5
3	3+	-	3-	2	-	2+	3	4+	4+	3	2+	2+	-	2	3-

Cribrotic

Cribrotic

Yes

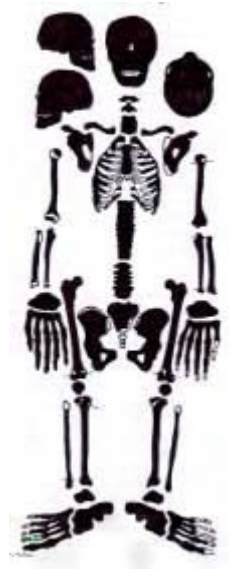
Yes

OP and slight pitting both lateral clavicles. OP interphal jts R. 1st toe. wedging and AED inf. body T7 - or very large Schmorl's node. Small pitted areas centre both MT1 heads.

T7-12, L1-4

R. humerus lateral edge at attachment for brachioradialis on upper two-thirds of supracondylar ridge - enlargement with smooth rounded new bone - old tear? This muscle flexes the elbow joint. Exostosis lateral superior edge R. MT1 head end, 11mm long. Stress fracture/osteochondritis prox R. 1st toe prox phal.

Sk. 0341



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Notes

Teeth

Calculus

Hypoplasia

Caries

Non-metrics

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Cribra Orbitalia R

Cribra Orbitalia L

Porotic Hyp.

Spina Bifida

Osteoarthritis

Infection

Circ. Disturb

Schmorl's Nodes

Fracture

Other Trauma

Physique

Fair

Near-complete, long bone ends not very well preserved, skull good.

Male: Cranium DF +1.7, Pelvis DF +1.6, large and squat, robust bones.

Y-MA: Medial clavicle part fused, pubis suggests young, no degeneration. 166.4cm from Fem

77.1

Toe bones from 0334 probably belong.

CAA										CACA							
8	7	/	5	4	3	2	1	1	2	3	4	5	6	7	8		
8	7	6	5	4	3	2	1	1	2	3	4	?	6	7	8		
CA										C							

Slight

3-6

occlusal

diastema between all upper incisors and right canine

abscesses very deep (likely to have maxillary sinusitis, but not assessable), periodontal disease (pitting, alveolar resorption)

1	6	-	3-	3-	4	5	5	4+	4	3	3-	3-	6	6	1
1	3	5	7	4	4+	4	4+	4+	4	4	-	5+	2+	1	

Porotic

Porotic

heavy pitting on frontal and parietals with some poss new bone/changes centre frontal. May be por. Hyp., but could be an infection/inflamm condition of the scalp.

S5 cleft

secondary to L. knee fracture.

?poliomyelitis L. leg - no shortening, but femur and tibia shafts very narrow with loss of linea aspera, patella noticeably smaller than R. L. femur neck shorter than R, slight coxa valga. Pitting on palate (but not nasal surface).

small pit centre R. scapula glenoid.

T7-12, L1-4

well-healed fracture distal quarter L. humerus, slight malalignment A-P, little callus, no infection, probably quite old at the time of death. ?Compression fracture of L. knee - bone ends in poor condition, but appears to be flattening of both femoral condyles (med>lat), proliferation of new bone around lateral. Medial tibia condyle is pushed down towards posterior. Surfaces of both condyles (fem+tib) are rugged with healed pitting (some large and deep). The epiphyseal lines are still visible in the cancellous bone and there may be a cyst within the femur medial condyle where the epiphyses and metaphysis meet. The intercondylar notch continues much higher than normal anteriorly and the patella articular surface is also affected, with a loss of articular surface on the medial side, pitting and slight lipping at superior edge.

both prox ulnae appear enlarged, also medial epicondyles of humeri - suggests pressure on the elbow joints. Stress lesion (osteochondritis?) in R. prox. articular surface ulna - oval 12 x 7mm. Crutch use?

Pressure/stress lesion on both MTP jts of big toes - flattened and widened with slight OP formation and exostosis on superior surface of R. very broad feet, especially 1st hallucial phals - could be Celtic!

Sk. 0342



Condition
Description

Sex determination
Age determination
Stature
Cranial Index
Teeth

Attrition Scores Max
Attrition Scores Mand

Pathology

Spina Bifida
Det Neur Arch
Congenital
Spinal Osteophytosis
Osteoarthritis

DISH

Infection

Ischial bursitis R

Ischial bursitis L

Schmorl's Nodes

Other Trauma

Fair-Good

Fairly complete, but skull, neck and shoulders partially disarticulated (0283, 0314-0316), and some hand bones from 0343 belong.

Female: Cranium DF -0.7, Pelvis DF -1.6, medium, gracile bones

MA-Old: Medial clavicle fused, some degeneration

160.2cm from Fem+Tib

84.5

- - - - X X / / / / / X X X X

- - - - - - - - - - - - - - -

- - - - - - - - - - - - - - -

- - - - - - - - - - - - - - -

cleft S5 only

L5, OP ant L5-S1, porosity, slight flattening arch

Squatting facets.

Yes

OP acetabuli and femoral heads, L. scapular glenoid, distal L. ulna. OAI R. lateral clavicle.

slight new bone linear aspera, soleal lines. OP R. side T7-8.

see trauma.

Pitting and new bone

Pitting and new bone

T7-11

?crush fracture L1 with fusion of bodies and arches T12-L1 (poor condition), partial ankylosis of large OPs inf edge L1 with sup L2 body.

Kyphosis. Massive thickening ant L1 body, T12 also slightly wedged. L. ala of L2 appears to have been fractured also. Could be TB or osteoporosis?

Sk. 0343



Condition
Description

Sex determination
Age determination
Stature
Cranial Index
Extra Bone
Teeth

Calculus

Caries

Non-metrics

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Congenital

Spinal Osteophytosis

Osteoarthritis

Degeneration

Infection

Periostitis

Circ. Disturb

Schmorl's Nodes

Physique

Good

Near-complete, lacking some wrist and hand bones.

Male: Cranium DF +0.5, Pelvis DF +1.9, medium, robust bones.

MA: Medial clavicle fused, tooth wear moderate, some degeneration.

165.2cm from Fem+Tib

83.3

A few hand/foot bones from 0342 and 0344 (and 0611?).

C CAC

Co 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

Co 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

Medium

interstitial?

diastema between upper first incisors

advanced alveolar resorption at upper left molars

- 3- 4+ 3+ 2+ 4 3+ 4+ 4+ 3+ 4 3- 4 4+ 3- 2

- 3+ 4 2+ 2+ 4 3+ 5 5 4 4 2+ 3- 4 3+ 2+

calcified xiphisternum.

Yes

R. hip slight porosity and new bone sup edge acetabulum, OP femur?

OAI T12 rib facets.

calcified thyroid and costal cartilage.

incisive foramen of palate seems enlarged, some pitting around it? Inferior nasal border very sharp, may be some resorption?

slight graining both tibiae medial shafts.

prox L. MT1, 9 x 4mm, pitted, unhealed. Small pit on R., c.5 x 1mm.

T7-10, L1-5

skull has slightly mongoloid appearance?

Sk. 0344



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Teeth

Calculus
Caries
Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology
Cribra Orbitalia L
Spina Bifida
Schmorl's Nodes
Misc Pathology

V.Good
Almost perfect!
Female?: Cranium DF +1.5, Pelvis DF -0.8, long but fairly gracile bones.
Y-MA: Medial clavicle partly fused, pubis suggests young, tooth wear light to moderate.

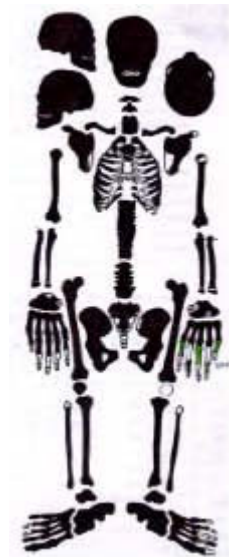
170.7cm from Fem+Tib
76.0

8	7	6	5	4	3	2	1	1	/	3	4	5	6	7	8	
8	7	6	5	4	3	2	1	1	2	3	4	5	/	7	8	
								CACA								
									C A							

Slight
origin unknown, except lower L.PM2 int cerv
alveolar pitting at lower right PMs and molars, and lower L. PM2-M1.
Lower L.M1 may be lost A-M?
2- 3- 3 2+ 2+ 3 2+ 3- 4+ - 4 3- 3- 3 3- 2-
2- 3 - - 2+ 3+ 3 3 4 4+ 4 3- 3- - 3- 2+

Porotic
cleft S4-5
T7-12, L1-2
hallux valgus bilat with pitting and some destruction distal end L. MT1 medial side. Mandible is very thin and mental foramina unusually large, with prominent chin. Could be acromegaly? - enlarged brow ridges, thick skull, 1 terminal phal appears tufted (but only 1 out of 3), fingers long and narrow. Cheek bones very sunken.

Sk. 0381



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Extra Bone
Notes
Teeth

Calculus
Hypoplasia
Attrition Scores Max
Attrition Scores Mand
Pathology
Cribra Orbitalia R
Cribra Orbitalia L

V.Good
Near-complete.
Male: Cranium DF -0.3, Pelvis DF +1.9, large robust bones.
Young: Distal radius and ulna unfused, proximal humerus and iliac rim partially fused, tooth wear slight, pubis suggests young.

171.8cm from Fem+Tib
77.1
R. patella.
A few finger and toe bones from 0328 belong.

O	7	6	5	4	3	2	1	1	2	3	4	5	6	7	U
Co	7	6	5	4	3	2	1	1	2	3	4	5	6	7	Co

Slight
c.4-5
- 2+ 3- 2 2 2+ 2+ 3 3 2+ 2+ 2 2 3- 2+ -
- 2+ 3 2 2 3+ 2+ 2+ 2+ 2+ 3+ 2 2 3- 2+ -

Porotic
Porotic

Sk. 0569

Condition	Description
Sex determination	
Age determination	

Stature
Cranial Index
Teeth

Calculus
Caries
Attrition Scores Max
Attrition Scores Mand
Pathology
Porotic Hyp.
Spina Bifida
Congenital

Good
Near complete, but skull is damaged.
Female: Cranium DF -0.2, Pelvis DF -1.7, medium gracile bones.
Y-MA: Medial clavicle partly fused, pubis suggests Y-MA, tooth wear slight.
169.8cm from Fem+Tib
74.3

[illegible]

Slight
occlusal on all, plus interstitial on lower M1s

1	2-	3-	2-	2-	3+	3-	4	4	3-	3	2-	2-	?	2-	1
-	2-	3	2	2	3+	4	4	4	4	3+	2-	2-	3-	2-	-

cranial vault slightly pitted.
cleft S4-5
12th ribs very small. Occipital bun. Calcified xiphisternum.

Sk. 0611



Condition
Description
Sex determination
Age determination
Stature
Cranial Index
Teeth

Non-metrics
Attrition Scores Max
Attrition Scores Mand
Pathology
Cribra Orbitalia R
Cribra Orbitalia L
Spina Bifida
Infection

Periostitis

V.Good
Near complete, missing a few hand and foot bones only.
Female?: Cranium DF +1.0, Pelvis DF -0.3, medium bones.
Y-MA: Medial clavicle fused, tooth wear slight, pubis suggests Y-MA.
163.1cm from Fem+Tib
80.6

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
U 7 6 5 4 3 2 1 1 2 3 4 5 6 7 C_o

peg-like upper L. M3

1	2-	3-	2-	2-	2+	2+	2+	2+	2-	2+	2-	3-	2+	1
-		2-	3	2+	2-	2	2+	2+	2+	2	2+	3	2+	-

Porotic
Porotic
cleft S5 and coccyx
pitting and thinning nasal floor/palate, loss of bone around nasal border
and loss of nasal spine, pitting ant alveolar bone - probable leprosy, but no
changes to bones of hands of feet.
periostitis both tibs and fibs, gross on all except R. tibia.

Sk. 0788

Condition	Description
Sex determination	
Age determination	
Teeth	

Calculus
Non-metrics
Attrition Scores Max
Attrition Scores Mand
Pathology
Porotic Hyp.
Spina Bifida
Congenital

Spinal Osteoarthritis
Schmorl's Nodes

Good
Damaged skull and most of the torso (one box of this individual currently missing).
Male: Cranium DF +1.8, Pelvis DF +0.4.
Y-MA: Pubis suggests MA, tooth wear slight.

/	7	6	-	-	-	-	-	1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Slight
upper M3s v. small

-	2	3-	-	-	-	-	-	3	2	2+	2+	2+	3	2+	1
1	2+	3	2+	2+	2+	2+	2+	3-	2+	2+	2+	2+	3	2+	1

frontals and parietals pitted and thickened.
cleft S4-5
lumbarisation of T12 with small lumbar-type rib on R. and no rib facet on L. Squamous sutures partially obliterated.
Yes
T6-12, L1-4, S1

Sk. 0827

Sk. 0828



107

Schmorl's Nodes

Other Trauma

Misc Pathology

Sk. 0829



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Extra Bone

Notes

Teeth

Calculus

Hypoplasia

Attrition Scores Max

Attrition Scores Mand

Pathology

Spina Bifida

Spinal Osteophytosis

Spinal Osteoarthritis

Osteoarthritis

Maxillary Sinusitis L

Circ. Disturb

Schmorl's Nodes

Other Trauma

Neoplasm

T12, L1

small exostosis sup edge distal facet R. MT1. Stress fracture across R prox hall phal prox facet medial edge.

slight indentation to the L. of the frontal bone across the frontal eminence, V-shaped in section, 20mm long and slightly curving. May be a healed head wound, but could just be a venous impression?

V.Good

Near complete, but R. side disarticulated as 0806.

Male: Cranium DF +1.8, Pelvis DF +1.8, medium bones.

MA-Old: Medial clavicle fused, tooth wear moderate-heavy, pubis suggests Old.

175.4cm from Fem+Tib

74.0

L. clavicle (=0827), L. MT1 and phal., 1 R. rib, 1 L1 vert (=0848?), 2 frags verts (0825)

Some fragments of maxilla and cervical vertebrae from 0587 belong. Feet collected as 0637 and 0638.

CA
Co 7 6 5 4 / / / - - - - / 6 7 Co
Co 7 X X 4 3 / / 1 2 3 4 5 X 7 Co
A C

Slight

c.3

- 3- 3+ - 3 - - - - - 5 3 -
- 4 - - 3 4 - - 4+ 4 4 4 4 - 4+ -

cleft S6

Yes

Yes

OP R hum head, both scap glenoids, L. prox ulna. OA II late clavicles. OPs large on R side T9-12. OA II L. MC2-phal jt, enlargement of MC head and prox phal with flattening, loss of jt space, pitting and lipping. Joint was probably almost immovable, poss due to trauma.

Pitting

?osteochondritic lesion centre R talus inf post facet - or stress fracture, c.5 x 4mm.

T6-12, L1-3

slight exostosis sup dist end L. MT1, lateral border.

osteoma L. side of frontal bone, 10mm diameter.

Sk. 0834



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Extra Bone

Notes

Teeth

Calculus

Caries

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Porotic Hyp.

Spina Bifida

Det Neur Arch

Circ. Disturb

Schmorl's Nodes T

Fracture

Good

Near-complete but feet generally missing.

Unsexed: Cranium DF +1.6, Pelvis DF -2.0, medium bones.

Y-MA: Medial clavicle partly fused, tooth wear slight, pubis suggests young.

170.8cm from Fem+Tib

69.0

Detached neural arch = 0835.

A few finger bones from 0834 belong.

CACA A CACA
8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
C

Medium

advanced, interstitial cervical in lower R.M1

very large abscess into palate on upper L.M1

2- 3- - - 3- 4 2+ 4 4 2+ 4 2+ 3? 3? 3- 2+
2- 3 3+ 2 2+ 3 2+ 3- 3- 2+ 3 2+ 2- 3+ 3- 2-

pitting over most of cranial vault.

cleft S4-5

L5, arch unusually small.

ant facet R calc small semi-circular lesion - osteochondritis?

T7-12, L1-2

small circular lesion to L. side of frontal, superior. Slightly pitted centrally, depressed, poss fracture, c.8mm diam.

Other Trauma
Misc Pathology

small ovoid lesion R. deltoid attachment humerus - torn ligament?
premature fusion of sagittal suture posterior part? Sacrum is unusually curved. Possible facial scoliosis - L. side of palate slightly angled downwards and larger than R.

Sk. 0835



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Extra Bone
Teeth

Calculus
Non-metrics
Dental Path
Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Det Neur Arch
Infection

Periostitis

Maxillary Sinusitis
Schmorl's Nodes
Other Trauma

Misc Pathology

Good

Near-complete apart from the feet.

Male: Cranium DF +1.9, Pelvis DF +1.4, large robust bones.

Y-MA: Medial clavicle partly fused, tooth wear slight, pubis suggests young.

168.9cm from Fem+Tib

73.6

R.MC3 and finger phal = 0834.

Co	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8

Medium

extra upper R. second incisor

some pitting and resorption around upper molars

-	2	3	2+	2+	3	3-	2+		3-	2+	3+	2-	2-	3-	2+	2
2	2	3-	2+	2+	2+	2+	3-		3-	2+	4	2+	2+	3	2+	2

cleft S4-5, bifurcated L5

L5 - L. side of arch fused to S1, R. side loose.

lytic lesion sup-ant L2 body with ant wedging 18x13mm - trauma or infection? Small wart-like new bone deposits int surface mid ribs. Partial destruction sup side L. scaphoid - lytic/arthritis changes to jt for lunate (destroyed) and for radius (mostly destroyed) with lipping at dorsal edge. The area is heavily pitted and there is a small patch of eburnation. No changes to radius. Lunate shows very slight pitting and new bone growth, and is flattened on the jt for triquetral. Head of capitate also very finely pitted (not on R). Possible TB of the wrist?

slight new bone growth/pitting ant border R. tibia prox half. Graining medial side L. tibia.

Pitting R.

T2-12, L1-3

exostosis prox R. tibia lateral side at sup end tibialis ant/post. 6mm long - could be osteochondroma? Similar on lat side L. tibia at middle of attachment for medial ligament of knee - raised area with small exostosis centrally.

wedging of S1 to L., and L4-5 to R., compensatory.

Sk. 0837



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Extra Bone
Teeth

Calculus
Dental Path

Attrition Scores Max
Attrition Scores Mand

Pathology
Porotic Hyp.
Spina Bifida
Congenital
Periostitis
Circ. Disturb

Schmorl's Nodes T

V. Good

Near-complete.

Male: Cranium DF +1.9, Pelvis DF +1.8, large robust bones.

Y-MA: Medial clavicle partly fused, tooth wear slight, pubis suggests Y-MA.

179.3cm from Fem+Tib

72.1

2 molars.

X	X	X	5	4	3	2	1		1	2	3	4	5	X	X	X
Co	7	6	5	4	3	/	1		1	2	3	4	5	6	7	Co

Slight

advanced alveolar resorption around lower incisors and molars and all upper teeth.

-	-	-	3-	2+	3	2+	3		3	2+	4	2+	3-	-	-	-
-	3-	3+	2+	2+	-	-	4		4	2+	2+	2+	2+	3	2	-

pitting over most of cranial vault.

cleft S4-5

Occipital bun.

slight pitting and graining ant both tibs and fibs.

small semi-circular area lost ant facet R. calc - 11mm long, osteochondritis.

T9-11, L1-3

Other Trauma

healed linear wound to R. side of frontal, superior, close to temporal line, 26mm long (or venous impression?). Pitting and new bone growth around and over central L. parietal, large flattened area could be a sliced head wound, c.27 x 35mm.

Physique

very similar skull to 0835?

Sk. 0848



Condition Description

Good
Upper half partially disarticulated (0825) and most of the torso and R. arm lost.

Sex determination Age determination

Male: Cranium DF +1.5, Pelvis DF +1.1, medium bones.
Y-MA: Medial clavicle partly fused, tooth wear slight, pubis suggests MA?, cranial suture closure advanced.

Stature Cranial Index Notes

170.3cm from Fem+Tib
83.6
Not certain skull belongs, as there is another in 0825, but this one seems most likely.

Teeth

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Co	7	6	5	4	3	2	1	1	2	3	4	5	6	7	Co		

Slight

Calculus Attrition Scores Max Attrition Scores Mand

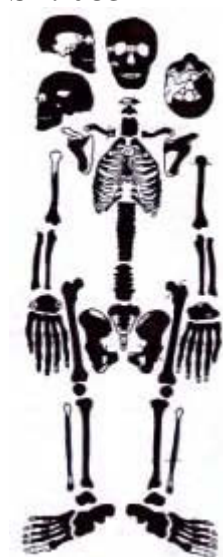
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	2-	3	2-	2-	2+	2+	4		4	2+	2+	2	2	3	2-	-	-

Pathology

Porotic Hyp.
Spina Bifida
Congenital
Neoplasm
Misc Pathology

slight pitting over cranial vault.
cleft S3-5
coronal craniosynostosis.
small benign osteoma just to R. of midline centre frontal.
several deep arachnoid granulation pits - usually more common in older skulls? Has caused a slight lump externally at top of skull.

Sk. 0851



Condition Description Sex determination Age determination

Fair
Near-complete, skull partly reconstructed for measurement.
Male: Cranium DF +1.6, Pelvis DF +1.8, medium robust bones.
Y-MA: Medial clavicle fused, tooth wear slight-moderate, pubis suggests MA?

Stature Cranial Index Extra Bone

168.3cm from Fem+Tib
87.0
1 premolar.

Teeth

8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
8	7	6	5	4	/	2	1	1	2	3	4	5	6	7	8

Slight

Calculus Attrition Scores Max Attrition Scores Mand

2	2+	3+	3-	3-	3	2+	3+		3+	2+	3	3-	3-	3+	2	2-
2-	3-	3+	3-	2+	-	3	4		4	3	3	2+	3-	3+	2+	2+

Pathology

Cribra Orbitalia R
Cribra Orbitalia L
Porotic Hyp.
Spina Bifida
Spinal Osteophytosis
Osteoarthritis

Cribrotic
Cribrotic
pitting sup parietals and frontal.
cleft S4-5, rest unassessable
Yes
ant-sup parts both acetabuli have small pitted lesions like osteochondritis? R. side is lunate, pitted floor, 12 x 4mm. L. side is irregular 6 x 3mm. Sup parts both acetabuli appear worn R>L, but R is eroded. Both fems have circular lesions anteriorly on the heads, with pitted floors. May be arthritic or stress-induced trauma?
slight graining L. tibia shaft medial and slight on lateral. Ant midshaft R femur small area raised new bone growth.
stress fracture and small osteochondritic lesion prox R. MT1 sup lat edge of jt facet. Osteochondritic pit R. sup axis facet, 5mm diam, possible healed lesion on other side?
T4-12, L1-S1
myositis ossificans R humerus lateral side just below midshaft - exostosis arises from deltoid attachment and is 42mm long, standing out from the bone c.10mm, with a pointed inferior end.

Periostitis

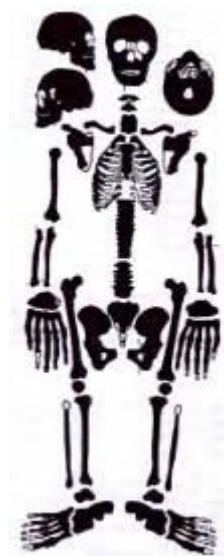
Circ. Disturb

Schmorl's Nodes Other Trauma

Misc Pathology

Slight AED sup T10 body, T6 poss also affected, with damage to inf ant body, and T3 has a similar lesion in the same position. Lesion medial end L. clavicle c.14 x 13mm, no pitting, just bone loss, some kind of aseptic necrosis?

Sk. 0852



Condition

Good

Description

Near-complete, skull partly reconstructed for measurement.

Sex determination

Male: Cranium DF +2.0, Pelvis DF +2.0, large robust bones.

Age determination

Y-MA: Medial clavicle partly fused, tooth wear slight, pubis suggests young.

Stature

172.0cm from Fem+Tib

Cranial Index

76.8

Teeth

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

Co 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

Calculus

Slight

Attrition Scores Max

2- 2+ 3- 2+ 3- 3+ 3- 3 3 2+ 3 2+ 2+ 3 2+ 2-

Attrition Scores Mand

- 2 3- 2+ 2+ 3 3+ 4 4 3+ 3+ 2+ 2+ 3+ 2- 2-

Pathology

Cribra Orbitalia R

Porotic

Cribra Orbitalia L

Porotic

Porotic Hyp.

pitting superior cranial vault.

Spina Bifida

cleft S5

Congenital

calcified xiphisternum.

Spinal Osteophytosis

Yes

Osteoarthritis

OP sup facet L. calcaneus medial side with slight pitting.

Infection

pitting and enlargement both clavicles at insertion for costoclavicular ligament.

Periostitis

slight new bone growth and pitting ant L. tibia and lateral fibula.

Maxillary Sinusiti

Pitting R and L.

Circ. Disturb

semi-circular lesion ant R. calcaneus 10mm across.

Schmorl's Nodes

T6-9, 11-12, L1

Fracture

sup frontal small depressed fracture, 7 x 4mm, slightly to R of midline.

Other Trauma

exostosis R. ilium posterior to auricular surface, central, oval 9 x 12mm.

R. middle finger jt between prox and middle phals, stress fracture through lateral side of both facets, with 2 cyst holes in prox phal and slight enlargement on lat edge with OP formation. A sesamoid bone from this hand(?) also had a fracture through the narrow end.

Slight wedging ant T6-7.

Misc Pathology

Sk. 0860



Condition

Good

Description

Post-cranial skeleton near-complete, skull disarticulated as 0825 and incomplete.

Sex determination

Male?: Cranium DF +1.9, Pelvis DF +1.1, small but fairly robust bones.

Age determination

MA-Old: Medial clavicle fused, tooth wear heavy, pubis suggests MA-Old.

Stature

161.7cm from Fem+Tib

Notes

Not certain this skull belongs as there was another in 0825. A few foot bones also in 0825.

Teeth

- - - - - - - - - - - - - - - -

Co / X 5 X / / X X X / X 5 6 7 Co

Calculus

Medium

Dental Path

gap between lower L.M1(?) and PM2, may suggest M1 lost very early and M2-3 have shifted forward?

Attrition Scores Max

- - - - - - - - - - - - - - - -

Attrition Scores Mand

- - - 5+ - - - - - - - - - 5+ 5+ 5 -

Pathology

Porotic Hyp.

pitting superior skull.

Spina Bifida

cleft S5

Det Neur Arch

L5 (arch missing)

Congenital

Anomalous articulation between R.MT1 and MT2 - additional rounded area of bone on MT2 superior medial border, c.6mm distal to prox facet, with facets for MT1 and cuneiform - prob developmental/congenital.

Spinal Osteophytosis

Yes

Spinal Osteoarthritis

Yes

Osteoarthritis

Degeneration Periostitis

Schmorl's Nodes Fracture

Other Trauma Misc Pathology

OA III L. 10th rib facet for vert trans proc. OA II distal both hums centrally. OA III both knees - patella and fem condyles large OPs and eburnation lat L. and medial R., eburnation medial condyles L. tib and fem. OP scapula glenoids. OA III R. thumb interphal jt. Some eburnation, large pits and lips R. 2nd and 3rd MTP prox phals. R. wrist OP of most bones, scaphoid facet for trapezium central pit with some eb., trapezium not affected. Eb prox triquetral. OP, remodelling and eb distal R ulna, L. similar but not eb. Pitting sup edges both acetabuli. calcified thyroid cartilage, and costal cartilage on sternum. periosteal new bone lower half L. tibia shaft med and lat, thick graining and pitting. Fibula also affected slightly to distal end. T11-12 T10 and T11 L. ribs at anterior end. L. T2 rib at neck with new bone growth and remodelling of T2 vert L. trans proc. stress fracture prox facet L. 1st distal phal lat side. L. leg 2cm+ longer than R. Pelvis is odd - ilia both very flared, but rest is narrow and male in appearance. Both femurs are abnormally bowed to ant and lat at prox ends of shafts.

Sk. 0865



Condition Description Sex determination Age determination

Stature Cranial Index Teeth

Calculus Caries Dental Path

Attrition Scores Max Attrition Scores Mand

Pathology *Spina Bifida Osteoarthritis Circ. Disturb Schmorl's Nodes Fracture*

Other Trauma Physique

V. Good

Near-complete, some ends of long bones broken.

Female: Cranium DF -1.9, Pelvis DF -2.0, very small gracile bones.

Young: Medial clavicle unfused, iliac rim partly fused, pubis and tooth wear suggest young.

154.4cm from Fem+Tib

78.7

A											CA							
/	7	X	5	4	3	2	1		1	2	3	4	5	6	7	8		
O	7	6	5	4	3	2	1		1	2	3	4	5	6	7	O		

Slight

advanced

upper R. M1 very large abscess, through to maxillary sinus - probable sinusitis, but not assessable

-	2-	-	2-	2+	2+	2+	3-		3-	2+	2+	2-	2-	3-	2-	1
1	2	3-	2-	2-	2+	2+	3-		3-	2+	2+	2+	2	3	2+	1

cleft S5 only

slight OP both hallucial MTP joints.

AED L3

C7-T12, L1-5

small circular depressed fracture to superior R. parietal close to sagittal suture, 9mm diam. Also healed 'cracks' to the rear of this bone - horizontally c.75mm long, and vertically meeting horizontal approx 1/3 from front, c.47mm.

R. mental tubercle of mandible is enlarged and flattened, poss trauma? vaguely mongoloid appearance to skull?

Sk. 0868



Condition Description

Sex determination

Age determination

Stature Cranial Index Extra Bone

Notes Teeth

Calculus Dental Path

Attrition Scores Max Attrition Scores Mand

Pathology *Spina Bifida*

Good

Fairly complete, face broken and incomplete, L. leg disarticulated (0570, 0571).

Male: Cranium DF +1.9, Pelvis DF +1.2, medium-large bones, not very robust.

MA: Medial clavicle fused, tooth wear slight-moderate, pubis suggests MA

169.0cm from Fem+Tib

75.6

C vertebrae probably not lifted? Not visible on photo.

Co	7	6	/	/	/	/	/	/	3	4	5	6	7	Co		
Co	7	6	5	4	3	2	1		1	2	3	4	5	6	7	Co

Medium

moderate alveolar resorption

-	3	4	-	-	-	-	-		-	-	3+	3+	2+	3+	3	-
-	3	3+	2+	2	2+	3-	4		4	2+	2+	2	2+	3+	3	-

cleft S4-5

*Congenital
Spinal Osteophytosis
Maxillary Sinusitis
Circ. Disturb*

*Schmorl's Nodes
Misc Pathology*

small lumbar rib L. side.

Yes

Pitting R and L.

pitting rear R. talus at point of os trigonum - osteochondritis? R. femur head has double pit for ligament - 1 could be a healed osteochondritic lesion, 17 x 12mm. Healed osteochondritic lesion in distal L. femur medial condyle, oval 15 x 12mm.

T8-12, L1-3

T4 slightly wedged to R. Slight scoliosis of sternum. Sacrum very curved A-P. R. femur unusually bowed A-P and M-L.

Sk. 0870



*Condition
Description
Sex determination
Age determination*

*Stature
Teeth*

*Calculus
Caries
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Porotic Hyp.
Spina Bifida
Spinal Osteophytosis
Osteoarthritis*

*Osteoporosis
Infection*

Periostitis

Circ. Disturb

*Schmorl's Nodes
Other Trauma
Misc Pathology
Physique*

Fair-Good

Post-cranial skeleton near-complete, skull smashed and R. side missing.

Female?: Cranium DF -0.4, Pelvis DF -0.9, bones long but gracile.

MA-Old: Medial clavicle fused, tooth wear medium, pubic symphysis suggests MA, some degeneration.

174.0cm from Fem+Tib

-	-	-	-	-	-	2	1		1	2	3	4	5	6	7	8
8	7	X	5	4	3	2	1		/	2	3	4	5	X	7	8
CA									CA							

Medium

advanced

advanced alveolar resorption, pitting on mandibular body below L.M1

-	-	-	-	-	-	6-	5+		5+	5	5+	5+	5+	4+	4	4
3	4+	-	-	5+	5+	5+	5+		-	4+	5	5	-	-	4	3

pitting over sagittal suture.

cleft S4-5

Yes

OA II lat clavicles L>R, and L acromion (R lost). OP 1st MTP jts, sup large calcaneal facet L. Pitting ant bodies T8-11.

?osteoporosis - ilia paper-thin in centre.

slight pitting superior palate, esp around central spine, nasal spine resorbed, some pitting around the nose. Deep VPGs in all surviving prox finger phals. Enlarged nutrient foramina in MTs. Pitting distal ends prox toe phals. ?Leprosy. Cyst-like lesions and striated bone formation in S4 sacral segment - infection?

Moderate periosteal changes to both tibia shafts, R>L, with thickening, graining and venous impressions, and fibulae also affected to a lesser degree.

small pit R. tibia in crease of jt surface for medial malleolus, 6 x 3mm. L. has similar so may be developmental defect. AED L2-4.

T7-10, L2

small exostosis lat side dist end L.MT1.

scaphocephaly - fusion of sagittal has caused a keel.

palate is very long and not very deep, and nose is quite flat - could be non-Caucasian?

Sk. 0873



Condition

Description

Sex determination

Age determination

Stature

Notes

Teeth

Caries

Attrition Scores Max

Attrition Scores Mand

Pathology

Spinal Osteophytosis

Spinal Osteoarthritis

Osteoarthritis

Osteoporosis

DISH

Infection

Ischial bursitis

Circ. Disturb

Fracture

Fair

Skull and torso incomplete and broken.

Female?: Cranium DF -0.7, Pelvis DF -0.5, small, fairly gracile bones.

Old: Tooth wear heavy, advanced degenerative change.

160.8cm from Fem+Tib

R. fibula from 0881 belongs. Skull fragments, fragment of L. ilium, clavicles and vertebrae from 0794 belong.

- - - X X / X X - - - - - - -
- - 6 5 / / X X / / X X / / X ?

C

interstitial?

- - - - - - - - - - - - - - -
- - 6- 6- - - - - - - - - - - - -

Yes

Yes

OP lat R. hum epicondyle, distal L. rad and ulna (eb on ulna), L. scap glenoid with pitting, R. thumb MCP jt. OA II-III several mid-lower rib facets. OA II lat L. clavicle. OA II centre L. fem condyles, smaller patch on R. OP and new bone growth R. cuneiform III and cuboid jts, and sup surfaces. Lipping and pitting sup borders acetabuli.

bones very light and osteoporotic?

large OPs L. side L4-5.

distal third L. ulna slightly enlarged with pitting - related to radius fracture? Poss osteomyelitis?

Pitting and new bone R., new bone L.

post-med L. femur condyle 13 x 6mm. Pit centre prox facet R. 1st prox hall phal.

mid L rib at ant end, well-healed. Lower third L. radius shaft, shortened, slight deformation.

Sk. 0875



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Teeth

Calculus

Attrition Scores Max

Attrition Scores Mand

Pathology

Spinal Osteophytosis

Osteoarthritis

Periostitis

Schmorl's Nodes

Misc Pathology

Physique

V.Good

Near-complete, but skull broken and partially reconstructed for measurement.

Male: Cranium DF +1.8, Pelvis DF +2.0, large robust bones.

MA: Medial clavicle fused, tooth wear slight to medium, pubis suggests MA?

170.0cm from Fem+Tib

79.5

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 /
Co 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

Slight

2- 2- 3- 2- 2- 2+ 2 3- 3- 2+ 3 2- 2- 3 2+ -

- 2+ 3 2- 2- 2+ 2 3- 3- 2+ 3 2- 2- 3 2+ 2+

Yes

verts OP slight, also new bone growth ant bodies of affected T verts.

graining both medial tibs.

T5-11, L1, 4

HFI - v. large nodules of new bone! - must be something else? Or this is a female skeleton?

very broad palate. Well-built, muscular.

Sk. 0894



Condition
Description

Sex determination
Age determination
Stature

Extra Bone

Pathology
Spina Bifida
Schmorl's Nodes

Fair

Most of the appendicular skeleton, plus the sacrum. 1 box currently missing.

Male: Large, robust bones.

Y-MA: Medial clavicle partly fused.

166.0cm from Fem+Tib

C1-2, several foot bones.

bifid S1, cleft S4-5.

S1

Sk. 0895



Condition
Description

Sex determination
Age determination
Extra Bone
Notes

Pathology
Cribra Orbitalia R
Cribra Orbitalia L
Periostitis
Schmorl's Nodes

Fair-Good

Disarticulated and incomplete, but most parts of the body represented.

Child

c.14-15: Epiphyseal fusion.

Adult 3rd cuneiform and R. MT4.

Fragments of skull, lower L. arm and patella from 0794 belong.

Porotic

Porotic

L. tibia midshaft medial side graining and slight enlargement.

T6-7

Sk. 0907



Condition
Description
Sex determination

Age determination

Cranial Index

Teeth

Calculus

Hypoplasia

Non-metrics

Attrition Scores Max

Attrition Scores Mand

Pathology

Cribra Orbitalia R

Cribra Orbitalia L

Spina Bifida

Fair

Near-complete, ends of long bones in poor condition.

Male?: Cranium DF +0.4, pelvis +2.0, long bones medium. Skull not fully developed?

c.16: Elbow epiphyses and acetabulum fused, all others partly or unfused.

M3s unerupted, tooth wear slight, pubis suggests young.

76.9

0 7 6 5 4 3 2 1 1 2 3 4 5 6 7 0

0 7 6 5 4 3 2 1 1 2 3 4 5 6 7 0

Medium

c.3-6

upper L.PM2 slightly rotated and misshapen

- 2+ 3- 2 2+ 2+ 3- 3- 2+ 2+ 2+ 2+ 3- 2+ -

- 2+ 3- 2 2 2+ 2+ 3 3 2+ 2+ 2+ 2+ 3- 2 -

Porotic

Porotic

S1-2 not assessable, cleft S4-5.

Infection

3 phals (L. 2nd prox toe, L. mid ?4th finger, L. 3rd finger prox) with this individual have destructive lesions at the distal ends which would be compatible with leprosy. There are no rhino-maxillary lesions, however, and the bones could be intrusive, although based on colour and size, they appear to belong.

Periostitis

slight graining both tibs medial surfaces, particularly at sup end L>R, symmetrical lesions - enlarged lump with pitting on surface, fibs also affected - graining and pitting laterally.

Schmorl's Nodes T Other Trauma

T8-9

enlarged insertion for pronator teres tendon on both radii - muscle rotates the arm. Pitting, slight enlargement ant L clavicle lateral end at the change in angle of the bone. Inf post edge has a destructive lesion with pitting and some new bone growth. Area of deltoid muscle attachment - poss infection following tear?

Sk. 0908



Condition Description

Fair

Near-complete, ends of long bones in poor condition, ribs very fragmented. Face partially reconstructed for measurement.

Sex determination Age determination

Female?: Cranium DF -0.5, pelvis -0.1, long bones medium.

Cranial Index

80.6

Teeth

A															
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Calculus

Slight

Non-metrics

underbite, very short palate, wide straight ant maxilla

Attrition Scores Max

1 2- 3- 2+ 2+ 2+ 2+ 3 3 2+ - 2+ 2+ 3- 2- 1

Attrition Scores Mand

1 2+ 4 2+ 2+ 2 3- 3 3 3- 2+ 2+ 2+ 3+ 2- 1

Pathology

bifid S2, cleft S4

Spina Bifida

enlargement of both clavicles insertion for deltoid, pitting on L.

Infection

ant L. calc, front part of facet lost, pitted. Small pit sup large facet L. calc medial edge.

Circ. Disturb

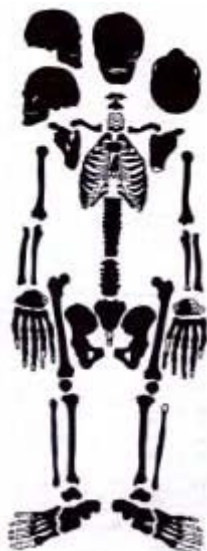
Schmorl's Nodes

T6

Misc Pathology

slightly asymmetrical nose.

Sk. 0924



Condition Description

V. Good

Near-complete, some damage to L. side of face.

Sex determination Age determination

Male: Cranium DF +1.4, pelvis +0.9, long bones large and robust.

MA: Medial clavicle fused, tooth wear slight-moderate, pubis suggests Y-MA, some degeneration.

Stature

172.1cm from Fem+Tib

Cranial Index

75.1

Teeth

C														A	
8	7	6	5	4	c	2	1	1	2	3	4	5	/	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Calculus

Slight

Caries

interstitial in retained deciduous canine

Non-metrics

upper R. canine unerupted (visible behind deciduous canine)

Attrition Scores Max

2- 2+ 3 3 3- 5 2+ 4+ 4+ 2+ 3 3- 3- - 2+ 2

Attrition Scores Mand

2- 3- 5 2+ 2 2 2+ 4 4 2+ 2+ 2 2 3- 3- 2+

Pathology

cleft S4-5

Spina Bifida

Yes

Spinal Osteophytosis

Yes

Spinal Osteoarthritis

slight OP both patellae.

Osteoarthritis

both zygomas have thin layers of new fibre bone growth on the lower halves.

Infection

slightly lumpy, pitted area ant L. tibia midshaft.

Periostitis

T4-12, L1-5

Schmorl's Nodes

Enlarged insertions for teres major both clavicles. Distal L. ulna wasted - poss shortened, but broken, difficult to tell what happened, poss fracture before fully grown? Seems to have large exostosis just above joint.

Other Trauma

skull slightly asymmetrical - R temporal suture obliterated, but asymmetry is all over, e.g. L. occipital condyle bigger than R., bulge in R. occipital.

Misc Pathology

Physique

broad U-shaped palate, slight guttering nasal border, prognathic, poss negroid?

Sk. 0925



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Extra Bone

Teeth

Calculus
Caries
Dental Path
Attrition Scores Max
Attrition Scores Mand

Pathology

Porotic Hyp.
Spina Bifida
Congenital
Spinal Osteophytosis
Osteoarthritis
Periostitis
Schmorl's Nodes
Other Trauma

Physique

V.Good

Near-complete apart from L. foot.

Male: Cranium DF +2.0, pelvis +1.8, long bones large and robust.

MA: Medial clavicle fused, tooth wear moderate-heavy, pubis suggests MA+, some degeneration.

169.4cm from Fem+Tib

80.4

A few pieces of skull, rib, finger phal, prob = 0926.

A	CA								CA							
/	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
X	X	X	5	4	3	2	1	1	2	3	4	5	6	7	X	

CACA

Medium

advanced

periodontal disease

-	3-	3	3-	-	3+	2+	3+	4	2+	3+	2+	2+	-	2+	2
-	-	-	3-	-	3	2+	3+	4	3-	-	2+	3-	-	-	-

pitting on frontal and parietals.

S4-6 cleft, S1 bifid

calcified and fused xiphisternum. Extra bony spur in L. trans process atlas.

Yes

OP both patellae L>R. L4-5 OPs small.

graining both tibs medial surfaces.

T6-12, L2-3

large exostosis sup ant edge R. 1st cuneiform. Small exostoses ant calcaneums.

slight negroid features? Guttered nasal margin, prognathism, deep U-shaped palate.

Sk. 0926



Condition
Description

Sex determination
Age determination

Stature
Cranial Index
Extra Bone

Teeth

Dental Path
Attrition Scores Max
Attrition Scores Mand

Pathology

Cribra Orbitalia R
Spina Bifida
Congenital
Spinal Osteophytosis
Osteoarthritis

Osteoporosis
Degeneration
Infection
Maxillary Sinusitis
Schmorl's Nodes
Fracture

Fair

Very fragmented and disarticulated, includes fragments from 0794 and 0833.

Female: Cranium DF -0.9, pelvis -1.8, long bones small and gracile.

Old: Medial clavicle fused, tooth wear heavy, pubis suggests old, degenerative change.

157.8cm from Rad

76.6

1 frag L. scapula, adult fibula shaft frag, C3-5 of youngish adult.

0794/0833 - 2 toe bones, 1 finger phal, MC1, sub-ad L vertebra, frag R. scapula, T1 vert.

A A								A A							
/	/	X	X	X	/	/	/	/	/	/	X	5	6	/	8
-	-	-	-	-	-	/	/	/	2	3	4	X	X	/	8

A

periodontal disease in maxilla, pitting of palate

-	-	-	-	-	-	-	-	-	-	-	-	5	6-	-	4+
-	-	-	-	-	-	-	-	-	-	6-	5+	5	-	-	5+

Cribriotic

cleft S3 (S4-5 lost)

slight occipital bun.

Yes

OP R. scapula glenoid, L SIJ, both patellae, acetabuli. R. SIJ poss partly ankylosed. Eburnation and slight OP R. femur medial condyle.

bones appear osteoporotic, skull thin.

1 frag calcified thyroid cartilage.

new bone growth endocranially along central part of sagittal suture.

Pitting R, pitting and new bone L.

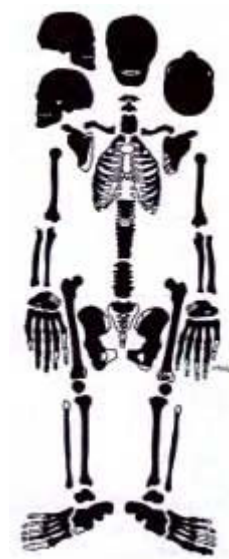
T9, 11

crush fracture T5-7 - bodies and arches fused, T5-6 completely wedged, T7 intact. TB or injury?

Other Trauma

partially healed 'cut' to lateral side L. parietal - open area 28 x 5mm, irregular edges, new bone growth internally, healed cracks extending to coronal suture anteriorly and in an arc posteriorly, down to the squamous suture.

Sk. 0942



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Notes

Teeth

Calculus

Caries

Attrition Scores Max

Attrition Scores Mand

Pathology

Porotic Hyp.

Congenital

Periostitis

Schmorl's Nodes

Other Trauma

Misc Pathology

Fair-Good

Near-complete, skull good, spine not well-preserved.

Male: Cranium DF +0.9, pelvis +1.7, bones large and robust.

Y-MA: Medial clavicle fused, tooth wear slight, pubis suggests Y-MA.

177.8cm from Fem+Tib

73.8

Skull was previously labelled 0932.

A								A CACA							
8	7	X	5	4	3	2	1	1	2	3	4	/	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Slight

probably interstitial, all large

2-	2	-	2+	2+	3	2+	3-	3-	2+	3-	2	-	-	2	2-
2-	3-	3	2+	2+	3	2+	3	3	2+	3	2+	2-	3	2+	2

pitting over most of the cranial vault.

?lumbarisation of 1st sacral segment, but still attached at body.

slight rounded new bone growth prox third L. fibula post shaft. Slight

pitting and thickening periosteally R. tibia distal third medial side.

T8-12, L1-3

ankylosis of C6-7 with slight wedging/scoliosis to R., possibly a result of trauma? Bodies and arches are fused, but no obvious crushing of bodies.

anterior nasal spine possibly eroded or just not very prominent (no pitting)

- poss negroid feature?

Sk. 0943



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Notes

Teeth

Calculus

Caries

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Cribra Orbitalia R

Cribra Orbitalia L

Porotic Hyp.

Spina Bifida

Spinal Osteophytosis

Osteoarthritis

Infection

Periostitis

Maxillary Sinusitis

Circ. Disturb

Schmorl's Nodes

Fracture

Other Trauma

Good

Near-complete, skull partially reconstructed for measurement.

Male: Cranium DF +1.1, pelvis +2.0, bones medium and robust.

MA-Old: Medial clavicle fused, tooth wear slight to medium, pubis suggests MA+.

168.3cm from Fem

79.5

Some hand bones from 0941 belong.

A										A CA					
8	7	6	5	4	3	2	1	1	2	3	4	5	X	7	8
8	7	X	X	4	3	/	1	1	2	3	4	5	6	7	8

Slight-Medium

interstitial

alveolar resorption considerable, pitting around upper L. molars

2-	2-	3	2+	2+	3-	2+	2+	2+	2+	3	2+	2+	-	3	1
2-	2	-	-	2+	3	-	2+	2+	2+	3	2+	2+	4+	3	1

Cribrotic

Cribrotic

pitting on frontals and ant halves parietals.

clef S5

Yes

OA II medial ends both clavicles.

pitting and lipping of abnormal articulation between L. calc and navicular.

slight graining both tibia medial shafts.

Pitting L.

pits in lateral jt L. capitate (jt for lesser multangular), some destruction, but rounded, poss osteochondritic?

T4-12, L1-3

ununited fracture of 1 mid R rib.

R. middle finger prox phal sheet-like exostosis palmar surface medial side, attachment of vincula brevia(?), possibly torn by finger being pushed back?

Sk. 0945



Condition
Description
Sex determination
Age determination
Stature
Cranial Index
Extra Bone
Notes
Teeth

Calculus
Caries
Attrition Scores Max
Attrition Scores Mand
Pathology
Porotic Hyp.
Spina Bifida
Congenital
Infection

Schmorl's Nodes
Misc Pathology

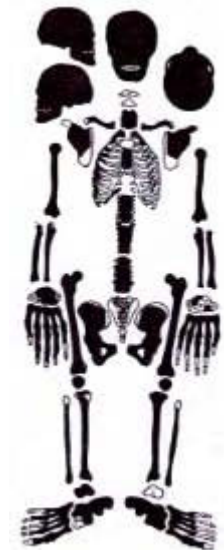
Good
Near-complete, but upper R. half disarticulated as 0941.
Unsexed: Cranium DF +0.8, pelvis -0.3, bones medium and fairly robust.
Young: Medial clavicle unfused, tooth wear slight, pubis suggests young.
169.4cm from Fem+Tib
81.8
Bones of another R. hand in 0941 = 0943.
Skull damaged post-mortem, hole in R. parietal.

8	7	6	5	4	3	/	/	/	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
C															

Slight
occlusal
1 2+ 3 2- 2- 2+ - - - 2+ 2+ 2- 2- 3 2+ 2-
1 3- 3 2- 2- 2+ 2+ 3 3 2+ 2+ 2- 2- 3 2+ 2-

pitting and thickening (healed?) sup frontal and parietals.
cleft S2 and S4-5
lumbarisation S1? Fused coccyx.
slight pitting either side of nasal aperture. Patchy new bone growth - thick warty deposits - on inner surface of 1 L. rib ant. Slight thickening and pitting of L. MT1 shaft sup-med. Slight periosteal new bone and pitting prox half both MT2s. Small oval lesion roughly central to L. parietal, 3 x 2mm, smooth base with depressed and slightly pitted area surrounding it. May be related to general pitting/inflammation on parietals, but could be an early syphilitic lesion.
T8, L1-2
possible lytic/cystic lesion of inf end of nasal bones, but may be within normal variation? L. clavicle conoid tubercle enlarged with oval ?articulation 12 x 9mm (scapula incomplete).

Sk. 0958



Condition
Description
Sex determination
Age determination
Stature
Cranial Index
Notes
Teeth

Calculus
Dental Path
Attrition Scores Max
Attrition Scores Mand
Pathology
Congenital

Spinal Osteophytosis
Osteoarthritis

DISH
Degeneration
Periostitis
Ischial bursitis
Circ. Disturb
Schmorl's Nodes
Fracture

Misc Pathology

Physique

Fair
Near-complete, but ends of most long bones eroded and crumbly.
Male: Cranium DF +1.1, pelvis +1.8, bones not long but robust.
Old: Medial clavicle fused, tooth wear heavy, pubis suggests MA, some degeneration.
161.4cm from Fem+Tib
75.5
Previously labelled 0598 (and fill 0597).

X	X	X	5	4	3	2	1	1	2	3	4	5	6	7	X
8	X	X	5	4	3	2	1	1	2	3	4	/	X	7	8

Medium
alveolar resorption considerable
- - - 5 5 4 3 3+ 3+ 3- 4 3 3 4+ 5+ -
4 - - 5 3+ 3+ 3+ 4 4 3+ 4 3+ - - 5 5

cranosynostosis bilat lambdoid and sagittal, although sagittal has not resulted in keeling, but there is a marked doming of the frontal bone and flattening of the occipital. The palate is straight across the anterior and relatively high. The mandible is slightly child-like in appearance, although flaring at the sides
Yes
OA II TMJs. OA III R. MTP jt 1st toe with eburation on MT head and prox phal, lipping and some porosity.
OP L1-5 verts large, DISH-like and close to ankylosis, also T9-10 R. ossified ligaments ant patella sup edge.
slight graining medially both tibia shafts.
New bone R and L.
pits in both prox hall phals prox facets.
T6, 8-12, L1-5
?fracture to R. clavicle - greenstick? - enlarged area at attachment for Pectoralis major, poss just remodelling due to muscle use? L. not affected.
T6-7 ant bodies slightly concave centrally with new bone growth and slight wedging - cause uncertain.
Nasal margins slightly guttered? Nasal bones tented.

Sk. 0965



Condition	Description
Sex determination	
Age determination	
Notes	

Teeth

Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Misc Pathology

Fair

Fragmented, most of torso and L. side present, skull incomplete.

Child

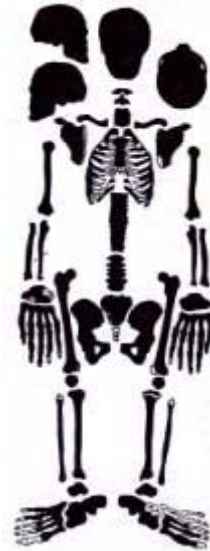
c.10-11: Epiphyseal fusion (<12), long bone lengths (10-11), teeth (8-9). A few skull and rib fragments from 0968 may belong. R. side removed by modern feature.

[illegible]

not on S1, S3-5

manubrium has 2 ossification centres (also several in sternum) - symptom of Down's syndrome.

Sk. 0971



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Notes

Teeth

Calculus
Caries
Non-metrics
Attrition Scores Max
Attrition Scores Mand
Pathology
Cribra Orbitalia R
Cribra Orbitalia L
Spinal Osteophytosis
Spinal Osteoarthritis
Osteoarthritis

DISH
Degeneration
Infection
Periostitis

Ischial bursitis
Schmorl's Nodes
Fracture

Physique

V.Good

Near perfect, except L. knee damaged.

Male: Cranium DF +0.8, pelvis +1.0, long bones large and robust.

Old: Medial clavicle fused, tooth wear moderate to heavy, some degeneration.

173.8cm from Fem+Tib

84.0

Part of L. foot could have been removed by 0907/0908? But no extra bone with them.

[illegible]

Slight

lower M2-3 interstitial, M1 occlusal?, upper M3 ?

upper L.I2 small

-	5	5+	4+	4+	4	4	3+	3+	3	3+	4+	5	5+	5	-
5	5	?	5	4	3	4	4+	4+	3	3	3-	5	-	5+	5+

Porotic

Porotic

Yes

Yes

OA in C vert (C5-7) is to L. side of bodies. OA II med L. clavicle. OA III med R. clavicle - enlarged, also manubrium, R. T11 rib facet. OA III both hip jts, proliferation of new bone surrounding both acetabuli and extending along pubis, extensive remodelling of both pubic symphyses with new bone growth around and on the jts. OP both patellae, scapula glenoids, humerus heads, wrists, thumbs (MCP).

new bone linea aspera and other attachments, large OPs L1-5.

calcified thyroid and costal cartilage.

patches of new bone growth on inner surfaces most mid ribs.

both tibs some graining, and areas of thickened new bone growth towards distal third.

New bone R and L.

T5-12, L1-S1

R. ribs 3-4 at front close to end, and 9 midshaft. Remodelling suggests the T9 occurred earlier than the T3-4?

negroid features to skull - prognathic, guttered nasal border - but narrow nose and long face.

Sk. 0975



Condition
Description
Sex determination
Age determination

Extra Bone

Pathology

Periostitis

Misc Pathology

Good

Lower L. arm, pelvis, L. leg and lower R. leg.

Child

9-12: Epiphyseal fusion (<12), long bone lengths (9-12). Arm bones seem too short?

Small fragment adult skull - styloid.

slight graining periosteally both medial tibs - may be normal growth.

arm bones are relatively short compared to legs?

Sk. 0976



Condition
Description

Sex determination
Age determination

Stature

Pathology

Periostitis

Fair

Disarticulated and very incomplete, but a few fragments from 0968 and 0987 belong. Skull deformed post-mortem.

Male: Cranium DF +2.0, pelvis +1.4, long bones large and robust.

MA?: Medial clavicle fused, pubis suggests MA-Old, cranial suture closure fairly advanced.

173.1cm from Tibia

slight graining midshaft lat side L. tibia.

Sk. 0987



Condition
Description

Sex determination
Age determination

Stature

Cranial Index

Extra Bone

Teeth

Calculus

Caries

Non-metrics

Attrition Scores Max

Attrition Scores Mand

Pathology

Spina Bifida

Congenital

Fair-Good

Near-complete, skull slightly deformed post-mortem, partially reconstructed.

Male: Cranium DF +1.5, pelvis +0.3, long bones large and robust.

Y-MA: Medial clavicle fused, tooth wear medium, pubis suggests Y-MA.

173.5cm from Femur

95.0

Fragments of ribs, fibula, L. innominate = 0976.

Co 7 6 Co 4 3 2 1 1 2 3 Co Co 6 7 Co

Co 7 6 Co 4 3 2 1 1 2 / 4 Co 6 7 Co

CA

Medium

occlusal

lower L. deciduous M2 poss retained for a while, large enough gap (no space for others). Upper I2s slightly rotated. All PMs small.

- 2- 2 - 2- 2+ 2+ 2+ 2+ 2+ 3 - - 3 3- -

- ? 3- - 2- 2+ 2+ 4 4 3 - 2- - 3+ 3 -

bifid S1, cleft S3-5

calcified xiphisternum.

Sk. 1036



Condition

Description

Sex determination

Age determination

Stature

Cranial Index

Teeth

Caries

Attrition Scores Max

Attrition Scores Mand

Pathology

Cribra Orbitalia R

Cribra Orbitalia L

Spina Bifida

Congenital

Spinal Osteophytosis

Spinal Osteoarthritis

Osteoarthritis

Osteoporosis

Periostitis

Ischial bursitis L

Circ. Disturb

Schmorl's Nodes

Fracture

Other Trauma

Fair

Near-complete.

Unsexed: Cranium DF -0.8, pelvis +1.2, long bones medium.

Old: Tooth wear heavy, pubis suggests Y-MA, some degeneration.

168.5cm from Femur

77.3

CA																
Co	7	X	5	/	/	/	/	1	2	3	4	5	X	X	Co	
Co	7	6	5	4	3	2	1	1	2	3	4	5	6	7	Co	

advanced

-	4+	-	6-	-	-	-	-	5+	6-	5+	5+	-	-	-	-	-
-	4	4+	5+	5+	6-	6-	6	6	6-	6-	5+	6-	4+	3	-	-

Porotic

Porotic

not S1-2

v. large lambdoid bone R. - 55 x 37mm.

Yes

Yes

porosity sup both acetabuli.

possible osteoporosis

slight graining and thickening both medial tibs L>R and small patches

distal third both fems.

Pitting L.

osteocondrtic lesions: sup L. talus ant-lat 6 x 4mm, and R. 3 x 3mm; sup L. calc post-med large facet 6 x 3mm; sup R. calc centre of middle facet 3 x 3mm.

T7-12

L. ulna distal quarter - new bone growth corresponding area on L. radius prob due to torn muscle (not fractured). Well-healed, little deviation. R. ulna in 2 places - larger callus formation at prox third (or is this some kind of neoplasm?) and another c.31mm below, both well-healed.

large exostosis just lateral to linea aspera on midshaft R. femur, triangular 58mm long, 21mm high (end broken) - myositis ossificans.

Sk. 2056



Condition

Description

Sex determination

Age determination

Stature

Extra Bone

Pathology

Spina Bifida

Congenital

Spinal Osteophytosis

Osteoarthritis

Periostitis

Circ. Disturb

Schmorl's Nodes

Misc Pathology

Fair-Good

Near-complete, skull sliced by machine (most lost)? Ends of bones broken and fragmented.

Male: Cranium DF +2.0, Pelvis +1.7, long bones medium, fairly robust.

Y-MA: Medial clavicle fused, pubis Y-MA, little degeneration, cranial sutures patent

162.6cm from Femur

Part of R. foot of adjacent skeleton (2057?)

cleft S4-5

lumbarisation of S1. Bony extension to L. transverse process of atlas, curving upwards.

Yes

slight lipping both medial clavicles.

pitted and enlarged lesion at prox third ant spine L. tibia, c.30 long x

12mm wide, slight graining medial surface. Larger lump

(osteitis/osteomyelitis?) middle R. ant tibia, oval, c.62 x 17mm, graining medially.

small pit centre both scapula glenoids, also both inf talus.

T5-12

prox tibiae bowed outwards, slight coxa vara bilaterally.

Sk. 2057



Condition
Description

Sex determination
Age determination

Stature
Extra Bone
Notes

Teeth

Calculus
Hypoplasia
Caries
Attrition Scores Max
Attrition Scores Mand
Pathology
Spinal Osteophytosis
Periostitis
Circ. Disturb

Schmorl's Nodes

Fair-Good

Near-complete, skull sliced by machine (fragmented)? Ends of bones broken and fragmented.

Male: Cranium DF +1.8, pelvis +1.8, long bones medium robust.

c.22-25: Medial clavicle and iliac crest unfused, pubic symphysis Young, cranial sutures patent.

162.3cm from Femur

Some hand bones may be 2056 or 2058. Frag pelvis + fem head of 2058?

Some frags collected as 2059 (ribs, dist L. fem etc.) + skull frags from 2060 belong here.

																CA							
-	-	-	-	-	-	-	-	-	-	/	2	3	4	5	6	7	8						
8	7	6	5	4	3	2	1				1	2	3	4	5	6	7	8					
																CA							

Slight

c.3-5

prob interstitial cervical, but advanced

-	-	-	-	-	-	-	-	-	-	2+	3+	3	3-	3+	2+	2
2	3-	3?	3	3	3-	3-	3	3	3	3-	2+	3-	3-	3+	3	2-

Yes

both tibiae medial surface just below midshaft.

small notch in ant-med edge sup med facet R. calc, pitted and some new bone, 6mm wide. Small pit distal end L. MT1, ?healed, 4mm diam, and larger lesion in prox 1st hallual phal 6 x 6mm, also R. prox 1st hall phal 6 x 7mm.

T5-12, L1-5

Sk. 2058



Condition
Description

Sex determination
Age determination

Stature
Notes

Teeth

Attrition Scores Max
Attrition Scores Mand
Pathology
Congenital

Spinal Osteophytosis
Spinal Osteoarthritis
Osteoarthritis

Degeneration
Infection
Periostitis
Maxillary Sinusitis
Ischial bursitis
Circ. Disturb
Schmorl's Nodes
Fracture
Other Trauma

Fair

Fairly complete, apart from skull which consists of fragments of the right side only. Ends of long bones eroded and broken, ribs fragmented.

Male: Cranium DF +1.2, Pelvis +1.8, long bones robust.

Old?: Medial clavicle fused, tooth wear/loss heavy, degenerative changes, pubis suggests mature.

172.1cm from Humerus

Some of the bone collected as 2059 (rib frags) belongs to this individual.

																A A							
X	X	6	5	4	/	/	1		1	2	/	4	5	X	X	X							
X	X	X	X	/	3	2	/		/	/	/	-	-	-	-	-							
																A							

-	-	3+	7	-	-	-	7		7	7	-	3	3-	-	-	-
-	-	-	-	-	5	4+	-		-	-	-	-	-	-	-	-

R. side atlas - open foramen transversum, and transverse process has small tubercle. Calcified xiphisternum.

Yes

Yes

OA III sup edge L. calc large facet, deep pitting and slight eb. OA III MTP jt L. 1st toe, proliferation of new bone peri-artic, prob hallux valgus. Eburnation lat edge L. thumb MCP jt. Lipping scap glenoids, medial clavicles, acetabuli. OA II lat R. clavicles. Lipping inf R. talus and OA II lateral edge of large facet. Two patches OA II distal end R. prox hall phal. calcified costal cartilage between 1st ribs and sternum.

lump on side of mandible 12 x 9mm below M2.

slight graining L. tibia and fibula.

Pitting L.

Pitting and new bone L.

possible pit prox L. hall phal prox end.

T4-12, L.1-4

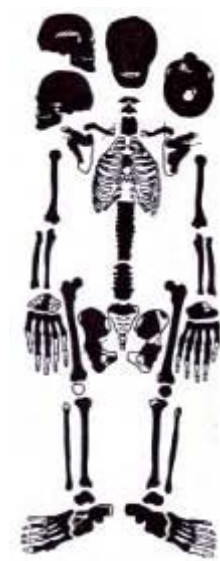
well-healed fracture of R. 4th or 5th rib close to posterior end.

possible wound to manubrium, followed by osteomyelitis? - lower half of bone is thickened and a ?cloaca has formed centrally, pitting around a split-line in distal facet - possibly a piercing wound? Could have occurred at same time as crush fracture of T2-3 - splitting of T2 body and partial fusion ant R. side, facets not fused, but very close together, wedging of T3 ant. C2-3 zygapophyseal facets fused, but not bodies, which maintain jt space.

Misc Pathology

R. femur noticeably thinner than L. - possible paralysis following fracture of spine? Ant wedging T11-L1.

Sk. 2070



Condition
Description

Fair
Near-complete, several bones broken, very thin (osteoporotic), slight post-mortem deformation of skull.

Sex determination

Female: Cranium DF -0.8, Pelvis -1.8, bones small and gracile.

Age determination

Old: Medial clavicle fused, considerable degenerative changes.

Stature

153.8cm from Fem+Tib

Cranial Index

77.4

Teeth

-	-	-	X	X	X	X	X		X	X	X	X	X	X	?
?	7	X	X	X	/	X	X		X	X	X	X	X	/	?
								A							A

Dental Path

heavy resorption around all upper incisors and canines had removed most of the alveolus, alveolar resorption with pitting - periodontal disease.

Attrition Scores Max

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Attrition Scores Mand

-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Pathology

Yes

Spinal Osteophytosis

Yes

Spinal Osteoarthritis

Osteoarthritis

OA II prox R. radius at jt with ulna. Pitting prox R. humerus lesser tubercle. Most jt margins sharp or slightly lipped. OP and OA II both acetabuli inf margins. L3-5 porosity of bodies and large OPs to R. OP scapula glenoids. OA II lat R. clavicle. OA both TMJs with distortion of mandibular condyles and pitting of both surfaces.

Osteoporosis

osteoporotic bones, skull seems thin, probably osteoporosis.

Infection

pitting of sup and inf palate with ant resorption - presumed leprosy, but no hand and foot changes and no periostitis.

Maxillary Sinusitis

Pitting R.

Ischial bursitis

Pitting R.

Circ. Disturb

R. MT1 prox, 2.5mm diam. Semi-circular lesion rear L. talus, 9mm diam. At os trigonum area.

Schmorl's Nodes

T5-9, 12, L1-2

Fracture

crush fracture L1 L. side and prob also T12 to lesser degree - probably due to osteoporosis. Fracture midshaft of at least 3 L. ribs with fibre bone callus.

Misc Pathology

slight lump near bregma due to enlarged arachnoid granulation.

Sk. 2096



Condition
Description

Good

Sex determination

Fairly complete post-cranial skeleton, missing cervical vertebrae, left ribs and left hand. Fragment of mandible from 2097 probably belongs.

Age determination

Unsexed

Extra Bone

c.13-16: Epiphyseal fusion.

Teeth

Older sub-adult L. rib fragment.

Attrition Scores Max

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
U	7	6	-	-	-	-	-	-	-	-	-	-	-	-	-

Attrition Scores Mand

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Pathology

-	2+	3	-	-	-	-	-	-	-	-	-	-	-	-	-
---	----	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Misc Pathology

clavicles seem short compared with other bones? Possible metabolic disturbance - see 2180, similar porosity in radius and ulna compact bone.

Sk. 2134



Condition
Description

Sex determination
Age determination

Stature
Cranial Index
Teeth

Calculus
Non-metrics

Dental Path
Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Congenital
Periostitis

Schmorl's Nodes
Other Trauma
Misc Pathology

Good

Near-complete, but L. side of face missing. Some ends of long bones damaged.

Male: Cranium DF +1.3, Pelvis DF +1.2, bones large and robust.

Young: Medial clavicle partly fused, tooth wear slight, pubis suggests young.

174.7cm from Femur

75.9

8 7 6 5 4 3 / 1 1 2 3 4 5 6 7 8
8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

Considerable

overcrowding of upper L. C-PM2, with slight displacement of canine to lingual side.

slight alveolar resorption

2+ 3- 3 3- 2+ 3 - 2+ 2+ 2 1 3- 3- 3 3- 2+
2+ 3- 3 3 2+ 3+ 2+ 3 3 2+ 2+ 2+ 3 3 3- 3-

bifurcated S1 and S4-5

R. scaphoid, deep fossa in centre of inf jt.

midshaft R. tibia medial surface, 2 small indentations, 1 with central hole, and slight graining and thickening around the area.

T6-9, L1

enlargement of head R. fibula (not complete), probably torn ligament.

R. clavicle noticeably more robust than L.

Sk. 2135



Condition
Description
Sex determination
Age determination

Stature
Cranial Index
Teeth

Calculus
Hypoplasia
Caries
Attrition Scores Max
Attrition Scores Mand

Pathology
Spina Bifida
Spinal Osteophytosis
Osteoarthritis

Infection

Periostitis

Maxillary Sinusitis
Schmorl's Nodes
Other Trauma

Good

Near-complete.

Male: Cranium DF +1.7, Pelvis DF +1.2, bones large and robust.

Young: Medial clavicle just starting to fuse, tooth wear slight, pubis suggests young to middle-aged.

174.2cm from Fem+Tib

74.3

- - - / 4 3 2 1 1 2 3 4 5 / - -
8 7 X 5 4 3 2 1 1 2 3 4 5 6 7 8
C C

Medium

c.4-5

occlusal

- - - - 2 2 2+ 3 3 2 2+ 2+ 2+ - - -
2- 2- - 2- 2- 3 3- 3- 3- 3- 3 2- 2- 5+ 2+ 2

cleft S4-5

Yes

OA III of proximal end 1 mid finger phal R. hand, prob 4th finger - eb and pitting lat side, OPs all around facet, correspondin prox phal missing.

inflammatory response bilaterally on lower halves radius and ulna,

enlargement of shaft with some pitting, although generally smooth, R>L - response to manacles?

graining, pitting and enlargement both tibia medial sides over most of shaft - periostitis/osteitis.

Pitting L.

T10-11

lips of new bone distal L. tibia ant edge of facet and ant edge talus - torn lig? Also interphal jt of mid and distal phals of ?2nd toe L. foot - sup of distal has large flange of bone.

Sk. 3065



Condition

Description

Sex determination

Age determination

Stature

Teeth

Dental Path

Pathology

Spina Bifida

Schmorl's Nodes

Spinal Osteophytosis

Degenerative disease

Trauma

V good but truncated, skull smashed and upper body partly removed by machine? Not certain skull belongs (mandible suggests old, rest of skel seems younger).

Skull frags, most of skeleton apart from cervical spine and L. arm.

Male: Cranium DF +2.0; Pelvis DF +1.8; large robust bones

Old: tooth loss; slight degeneration

169.0cm from Fem+Tib

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	/	X	X	X	X

Alv res considerable

Cleft S5 only

T7-12

no

Slight liping inf R fem head, poss exostosis rather than OP, triangular area.

Distal end L prox hall phal poss lig tears have caused fossa to form below artc facet at medial edge with bar of new bone proximally.

Sk. 3082



Condition

Description

Sex determination

Age determination

Cranial Index

Stature

Teeth

Calculus

Caries

Dental Path

Attrition Scores Max

Attrition Scores Mand

Pathology

Spina Bifida

Maxillary sinusitis

Schmorl's Nodes

Spinal Osteophytosis

Spinal Osteoarthritis

Osteoarthritis

Good, face broken and ribs fragile, some encrustation on skull.

Near-complete, missing a few of the smaller bones only. Face collected as 3081.

Female: Cranium DF -1.5; Pelvis DF -1.9; bones medium, gracile.

Old: medial clavicle fused; pubis suggests MA-Old; degeneration.

76.4 - mesocranial

156.2cm from Fem+Tib

		CA																													
C	X	6	5	4	/	2	/	-	-	3	4	5	X	7	C	C	X	6	5	4	3	2	/	1	2	3	4	5	6	/	C

Considerable

Interstitial?

Alv res considerable

-	-	5+	5	5+	-	6-	-	-	-	5+	5+	5+	-	5+	-	-	-	6-	4	4	5	4	-	4+	4+	4+	4	5+	5	-	-
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Cleft S5 only

Pitted both sides

T6-L4

yes

yes (ankylosis of C2-C3)

Grade III med & lat R clavicle, sup R manubrium (less on L.). Grade III at facets for 11th ribs on T11.

Prolif and healed erosive lesions of wrists and hands:

L. dist poll phal slight loss of bone at tip, OPs MCP1 and PIP1-5, largest on middle finger. Eb MC1-greater mult jt. Similar on R. but more prolif bone around jt.

R. OPs MCP1, PIP2-5, but distal ends prox phals 3-4 have some destruction with healing. Destruction of tip of single surviving distal phal.

Prolif bone around head L. MT1 esp medially.

Small cystic lesions heads both MT5s superiorly.

Thickened patch of new bone L femur dist med condyle posterior part.

DISH (even if not the clinical definition): v large OPs C5-7 esp on R side, T3-6 esp on L side, T7-12 esp on R side, all close to ankylosis. Post longitudinal lig or cruciate lig oss T10-11. Large OPs at knees, OP acetabula, new bone linea asperae, soleal lines, ant-dist fibs, post calcanea. Calc costal cartilage.

Degenerative disease

Trauma

C2-3 zyg facets ankylosed, also part of arch.

Well-healed fracture R tibia just below midshaft with little distortion or callus – prob old at time of death; fib not broken.

Fracture 1 R mid rib midshaft with small amount of callus and exostoses sup and inf edges.

Fracture L. humerus greater tuberosity with displacement inferiorly and malformation. Healed but with unreduced dislocation – large false glenoid ant surface scapula with pitting/porosity on floor. Large OP/new bone growth inf medial border of humerus head and new bone on prox part of head (poss lig oss?).

Disarticulated remains

- 0001** Adult ?male R. femur shaft
 Adult male R. femur head (FeHd = 50)
 Sub-adult male R. ilium and ischium, fused acetabulum but not rim.
 Adult L. ilium frag.
 Sub-adult L. talus and calcaneus, posterior calc unfused.
 Adult L. tibia shaft.
 Juvenile rib frag.
- 2019** R. mandible, young ?male – could be wrongly numbered, 2109?
- 2060** Adult C7 frag (not 2056-2058)
 Adult finger phalanges x 5 (poss 2056 or 2058?)
- 2101** Adult ?male distal third R. ulna, MC1 (not 2120 or 2131?)
 Adult male distal hallucial phal (not 2120 or 2131?)
 Small frags ribs, poss 2131.
- 2144** Sub-adult male distal L. femoral epiphysis, v. large (FeE1 = 89).
- 2153** Sub-adult R. first rib and frags, and styloid process from base of skull.
- 2181** Adult ?male R. femur (FeL1 = 459, Hd = 46)
 Adult L. ischium and small frag of ilium.
 Sub-adult L. talus and calcaneus (latter smaller).
- 2226** Frag adult rib (=2224?).
- 2227** Adult ?male R. femur shaft.
- 3000:** Adult ?male R. MT5, distal frag tibia, long bone shaft.
 Juvenile prox frags R&L femora, L. tibia (TiL1=202), ?L. fibula – c.8 years, poss = 3007?
 Sub-adult L. MC3.
- 3044:** Adult 3 R. ribs, midshaft L. tibia, R. MT2 and MT5 (male), L. MT4 prox (?male)
 Juv R. mandible (U 6 e d; c.6-8 yrs), manubrium, rib frag, 3 MCs and phalanx.
- 3055:** Juv skull (most of vault, R. temp, R. maxilla: U 6 e d / 2 /) c.9 yrs, may belong to 3038 but probably too young. Pitting along lambdoid suture on parietals and some pitting on fragment of occipital. Cribriotic cribra R. orbit.
- 3073:** Adult R. scap glenoid frag.
 Juv L. tibia and fibula shaft, c.11 yrs.
- 3170:** Adult L. parietal and frontal frags. Poss 2078? V. dense, thickened, poss Pagetic? Pitted lesions ext.
 Sub-ad/adult L. humerus shaft, R. radius and ulna shafts, poss 2079?
- 3174:** Adult R. 1st-2nd ribs (young), L. maxilla nasal frag, lower PM.
 Juv finger phal distal end.
- 3217:** Adult female R. hum shaft and distal end.