

Osteological Analysis

F163 Central A1 L2B

Bainesse

North Yorkshire

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Summary

York Osteoarchaeology Ltd was commissioned by Northern Archaeological Associates Ltd to carry out the osteological analysis of 129 skeletons and 26 cremation burials. The inhumed and cremated remains were recovered from excavations undertaken within Field 163 Central, as part of the A1 Leeming to Barton motorway improvement scheme. Field 163 was located 500m to the southwest of Catterick Village and 250m northwest of Bainesse, and lay within Catterick Civil Parish, North Yorkshire (SE 2370 9715). The inhumed and cremated remains were excavated to the east of a sub-rectangular enclosure of Roman date, containing the remains of one large building with two wings, or two separate structures. This lies within the Scheduled Ancient Monument at Bainesse Farm, an area of known Roman settlement along Dere Street, a major north/south aligned Roman road in the north of England, which broadly follows the existing A1 in this area.

The 129 individuals were recovered from 256 possible graves from the cemetery in Field 163. The graves were not clearly organised, but most of them were orientated either parallel or perpendicular to the sub-rectangular enclosure ditch to the west of the cemetery. Grave goods were relatively infrequent but they accompanied especially non-adult burials. The radiocarbon dating of 30 individuals revealed that the earliest burials from the mid first century AD were located in the northern area of the cemetery, while the most recent ones (fifth-sixth century) were buried in the southern part. It was also revealed that two of the earliest burials belonged to individuals of African ancestry.

Most individuals were buried supine and extended, although small numbers of individuals were buried in flexed positions. Two individuals were buried prone and one adolescent was lying in a supine position, with legs flexed and spread. A number of individuals were buried in coffins, most notably many of the non-adults, while two adults were buried in cists.

Overall, seventeen distinct cremation burials were excavated at Bainesse, and a further nine contexts rendered substantial quantities or large fragments of cremated bone. The cremation burials were largely confined to the southern end of the cemetery and a cluster appears to concentrate around a possible barrow ring ditch. Ten of the 26 cremated bone assemblages containing were considered to derive from probable adults and five appeared to contain non-adults.

Although preservation was poor, the osteological analysis revealed that the group of 129 skeletons consisted of 91 adults (14 females, 23 males, 54 unsexed), and 33 non-adults (4 adolescents, 4 older juveniles, 16 younger juveniles, one infant, one foetus/neonate, and seven non-adults whose age could not be precisely determined). Most adults were young middle adults (26-35) and there were comparatively few mature adults, however, poor preservation may have contributed to an age bias. Both males and females were slightly shorter than average for the period.

Childhood stress was particularly prevalent in the males in the form of dental enamel hypoplasia lesions and *cribra orbitalia*, but was prevalent throughout the population. It is possible that the high mortality in the young adult age groups was due to a compromised immune system. One young juvenile had

possible survey, while two non-adults showed evidence for possible rickets and one adult may have had residual childhood rickets.

Trauma was observed in several individuals. A well-healed fracture of the tibia and fibula was observed in the ankle of one male with associated soft tissue trauma and fusion of the ankle; another adult had a potential fracture of a distal foot phalanx (toe), and a young middle adult female had a broken a central hand palm bone (3rd metacarpal). A further female had a fractured lower rib, which may have been caused by a fall. Three males had incurred fractures to a lower back vertebra, often associated with sports injuries.

Sinusitis and inflammatory rib lesions were relatively common at Bainesse. This could suggest people were exposed to smoky or polluted atmospheres, perhaps activity related or the living conditions of their houses (Roberts and Cox 2003). Two adults were likely to have suffered from hypertrophic pulmonary osteoarthropathy.

Degenerative joint disease and osteoarthritis were more common in females than males and the joints most often affected were the shoulder, elbow, and the hip. Differences were recorded between the sexes, with females more likely to have changes in the elbow, while males had joint changes more frequently in the ankle, which may be related to different activity patterns.

The dental health was better than the Roman mean, however, as dental disease increases with age, it is likely that this is an artefact of the high young adult mortality in this population. Periodontal disease was frequent and two individuals had developed a granuloma or exostosis in their sinus, which might have been linked to dental bacteria.

Acknowledgements

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1.0 INTRODUCTION

York Osteoarchaeology Ltd was commissioned by Northern Archaeological Associates Ltd to carry out the osteological analysis of 129 skeletons and 26 cremation burials. The inhumed and cremated remains were recovered from excavations undertaken in Field 163 Central, of the A1 Leeming to Barton motorway improvement scheme. Field 163 was located 500m to the southwest of Catterick Village and 250m northwest of Bainesse, and lay within Catterick Civil Parish, North Yorkshire (SE 23709715). The inhumed and cremated remains were excavated to the east of a sub-rectangular enclosure of Roman date, containing the remains of one large building with two wings, or two separate structures. This lies within the Scheduled Ancient Monument at Bainesse Farm, a known area of Roman settlement along Dere Street, a major north/south aligned Roman road in the north of England, which broadly follows the existing A1 in this area.

A total of 256 possible graves were excavated at Bainesse, 130 of which contained what were considered articulated burials identified archaeologically, as preservation of the remains was often so poor that no human remains were preserved. However, osteological analysis revealed that only 129 skeletons survived, as the remains of one individual, BN 136, were matched with those of BN 135b and were thus considered the same individual, 135b.

Most individuals at this site were buried in supine and extended position in single grave cuts (with frequent intercutting), although a small number of individuals were also buried flexed and on their right or left side. Two adults, one male and one female, were buried prone. BN 77, an adolescent, was buried supine with the legs flexed and spread. A second inhumation, BN 208, an old middle adult male, appeared to lie on his left side, but his right arm was extended above his head as if 'thrown into the grave'; the same individual was also accompanied by a whetstone.

Radiocarbon dating of 30 skeletons revealed that the cemetery was used for burials from the mid first to the sixth century, which may explain some of the intercutting. The earliest burials from the mid first century AD were concentrated in the northern area of the cemetery, while the most recent burials (fifth-sixth century) were located in the southern part.

A total of seventeen cremation burials were excavated at Bainesse and a further nine contexts rendered substantial amounts, or large fragments of cremated bone. The cremation burials were largely confined to the southern aspect of the cemetery and a cluster appears to concentrate around the ring ditch. Only BN 257 and 258 were located further north, approximately in the middle of the cemetery, across from a 5m gap in the enclosure ditch. Six of the cremation burials were contained in urns, although in the case of some of the burials this was only indicated by the presence of pot sherds (i.e. BN 262, BN 273; unclear in BN 263). Most of the cremation burials contained inclusions and artefacts (Table 1), and are discussed in greater detail in the funerary section of this report.

Table 1 Summary of cremated assemblages

Burial Number	Context	Truncated	Urned?	Bone Colour	Preservation	Artefacts and Inclusions	Age	Sex	Weight >2mm (g)	Weight as % of modern*	Max Frag. (mm)
113b (crem bone recovered from sample related to BN 113a)	12422	-	No	White	Moderate	-	Adult	-	5.0	0.31	14.7
115b (crem bone recovered from sample related to BN 115a)	12405 AA	-	No	White, some blue	Good	-	Adult	-	60.6	3.73	13.5
149b (crem bone recovered from samples related to BN 149a)	12513 AA	-	No	White	Moderate	-	-	-	13.8	0.85	13.8
	12530 AA	-		White	Moderate	-	-	-	6.6	0.41	20.6
151 (crem bone recovered from sample, possibly part of BN 258)	12406 AA	-	No	White, blue/grey	Moderate	-	-	-	45.7	2.81	19.7
184b (crem bone recovered from sample related to BN 184a)	12491 AA	-	No	White	Poor	-	-	-	4.7	0.29	11
	12492 AA	-		White	Poor	-	Non-Adult	-	8.0	0.49	15.3
194b (crem bone recovered from sample related to BN 194)	12428 AA	-	No	White, black, blue/grey	Moderate	-	Adult	-	109.1	6.71	25.6
	12429 AA	-		White, black, blue/grey	Moderate	-	Adult	-	8.3	0.51	15.3
	12374 AA	-		White, black, blue/grey	Moderate	-	Adult	-	14.0	0.86	30
210 (crem bone recovered from sample)	12476 AA	-	No	Grey/blue, white	Poor	Crem animal bone	-	-	4.3	0.26	8
214b (crem bone recovered from sample related to BN 214 A)	13122 AA	-	No	White, blue/grey	Poor	-	-	-	3.7	0.23	5.2
225 (crem bone recovered from sample related to BN 261)	12341 AA	-	No	White	Poor	-	Adult	-	14.0	0.86	13.8
257	12400	No	No	White, grey	Moderate	Nail, pot, Fe industrial waste, Fe, substantial crem animal bone	Adult	-	425.0	26.14	20.5
258	12414 AA	No	No	White, blue/grey	Moderate	Fe, pot	-	-	40.8	2.51	13.5

259	12685 AA	Ploughing	No	light grey, blue, black	Moderate	Fe, chert	-	-	37.5	2.31	28.7
260	12348AA	Bioturbation	Yes	White	Moderate	Fe, pot (possibly part of urn)	Adult	-	446.6	27.47	47.3
	12350			White	Moderate	Pot (possibly part of urn)	-	-	10.0	0.62	32.8
261	12361 AA	No	Yes	White, grey	Poor	Pot (possibly part of urn), Fe	-	-	3.1	0.19	7.2
262	12322 AA	No	Yes	White	Moderate	Pot, chert	-	-	8.7	0.54	22.4
263	12343 AA	By machine	Unclear	White	Poor	CuA/Ag object, nails, pot (possibly part of urn), Fe	Non-Adult	-	2.2	0.14	11.2
	12357 AA			White	Poor		-	-	0.9	0.06	7.8
	12358 AA			White	Poor		-	-	11.2	0.69	9.6
264	12300 AA	No	No	White, blue/grey	Moderate	Nails, Fe, flint, crem animal bone	Non-Adult	-	85.9	5.28	26.4
	12304 AA			White, blue/grey	Moderate	Fe, CBM, crem animal bone	-	-	11.3	0.69	18
265	12318 AA	No	No	White/grey	Moderate	Pot, Fe, glass, chert	Adult	-	122.0	7.50	25.8
266	12312 AA	Yes	No	White	Poor	Pot	-	-	155.3	9.55	29.5
	12313 AA			White	Poor	Fe	-	-	14.7	0.90	21.2
267	12311 AA	Yes	No	White	Moderate	Pot (different vessels), Fe, chert	Adult	-	339.0	20.85	12.7
269	12293 AA	By machine	Yes	White	Poor	CuA coin, nails, Fe, industrial waste	Non-Adult	-	6.3	0.39	10.3
	12294 AA			White	Poor	-	Non-Adult	-	5.8	0.36	13.6
	12297 AA			White, blue/grey	Poor	-	Non-Adult	-	39.6	2.44	38.4
270	12320 AA	No	No	White	Poor	Nails, Fe	Adult	-	38.1	2.34	25.5

271	13070 AA	No	Yes	White	Poor	-	-	-	0.3	0.02	9.2	
	13071 AA			White	Poor	Fe, flint	-	-	1.4	0.09	14.6	
	13071 AB			White	Poor		-	-	55.1	3.39	16.2	
	13071 RF			White	Poor		-	-	171.3	10.54	46.6	
272	13062 AA	By machine	No	White, grey	Poor		CuA brooch, Fe studs, CuA object, amber, chert, CBM, glass, Fe	-	-	93.5	5.75	24.8
	13063 AA			White, grey	Poor	CuA object		-	-	65.5	4.03	28
	13066 AA			White, grey	Poor	-		-	-	1.3	0.08	12
273	12352 AA	Yes	Yes	White, grey	Moderate	Pot (urn base fragments)	Adult	-	17.5	1.08	25.9	
	12354 AA			White, grey	Moderate		-	Adult	-	2.4	0.15	11.2
274	13125	No	No	White, grey	Poor	-	Non-Adult	-	335.7	20.65	25	

Key: Age: A - adult, N- neonate, C- child, - - unknown; Sex: M - male, F - female, - - unknown; Date: RB - Romano-British, LPRIA - Late pre-Roman Iron Age

* Weight of bone >2mm expressed as a percentage of average weight of bone >2mm recovered from modern cremation burials (1625.9g, McKinley 1993)

A number of contexts from Field 163 contained disarticulated human bone. A total of 65 contexts contained 1,202 fragments of disarticulated human bone. Much of the disarticulated bone came from grave fills containing skeletal remains and is likely to reflect disturbance, including intercutting of later inhumations.

Comparisons have been made with other Romano-British cemeteries of a similar date. These include Land to the Rear of California, Baldock (Keefe *et al* 2015), Hertfordshire, Horncastle, East Lincolnshire (Caffell and Holst 2007), Western Road (Caffell and Holst 2014a), Oxford and Newarke Street in Leicester (Keefe and Holst 2013) and Driffeld Terrace, York (Caffell and Holst 2012a).

1.1 AIMS AND OBJECTIVES

The aim of the skeletal analysis was to determine the age, sex and stature of the skeletons, as well as to record and diagnose any skeletal manifestations of disease and trauma.

1.2 METHODOLOGY

The skeletons were analysed in detail, assessing the preservation and completeness, calculating the minimum number of individuals present as well as determining the age, sex and stature of the individuals. All pathological lesions were recorded and described.

The cremated bone was analysed according to the guidelines specified by McKinley (2004b). The bone was passed through a nest of sieves with mesh sizes of 10mm, 5mm and 2mm. The maximum fragment size was measured, bone colour was noted, and any identifiable fragments were recorded. An attempt was made to determine age and sex, and any pathological lesions present were described.

The disarticulated bone was recorded following accepted guidelines (McKinley 2004a). All bones were identified, and the part of the bone element that was present was recorded. As with the articulated skeletons, preservation and completeness, and any information on the age and sex of the individuals were recorded, along with pathological lesions observed. Attempts were made within contexts (and occasionally between contexts, where relevant) to join fragments of the same bone.

2.0 OSTEOLOGICAL ANALYSIS

Osteological analysis is concerned with the determination of the identity of a skeleton, by estimating its age, sex and stature. Robusticity and non-metric traits can provide further information on the appearance and familial affinities of the individual studied. This information is essential in order to determine the prevalence of disease types and age-related changes. It is crucial for identifying sex dimorphism in occupation, lifestyle and diet, as well as the role of different age groups in society. A summary of the osteological and palaeopathological data is given in Table 2, with a detailed catalogue of skeletons provided in Appendix A. A catalogue of the disarticulated bone can be found in Appendix B.

Table 2 Summary of osteological and palaeopathological data

Sk No	C (%)	SP	F	Age	Age Group	Sex	Stature (cm)	Dental Pathology	Pathology	Comments
6	75	4	Severe	36+	OMA/MA	Probable Male	-	DEH, calculus, caries, four abscesses	Osteoarthritis in right knee, DDD; DJC in scapulae, femora, right tibia; <i>cribra orbitalia</i> in right orbit	Nasal guttering – possible African
7	80	3	Slight	26-35	YMA	Male	164.0 +/- 3.94	DEH, calculus, some enamel chips	Osteoarthritis in left proximal femur; hypervascularity on ectocranial surface, orbital ridge and rims	Nasal guttering – possible African
8	5	4	Heavy	18+	Adult	U	-	DEH, calculus	-	
10	35	4	Severe	18+	Adult	U	-	Calculus, AMTL	-	
12	<5	5+	-	18+	Adult	U	-	Calculus	-	
15	95	3	Moderate	18-25	YA	Male	-	DEH, calculus	Lamellar bone on distal right radius, visceral surface of six ribs, both tibiae, both distal fibulae, <i>cribra orbitalia</i> in left orbit, cranial border shift of lumbar-thoracic border with lumbarisation of T12, Schmorl's nodes on T9- T11; hypervascularity on ectocranial surface. Possible hypertrophic pulmonary osteoarthropathy	
16	90	3	Moderate	46+	MA	Female	161.5 +/- 4.45	DEH, calculus, caries, periodontal disease, impacted tooth	Bilateral <i>coxa vara</i> , osteoarthritis in the left proximal humerus, both radii, right proximal and distal femur, right patella, right proximal and distal tibia, both tali and cuboids, three ribs; DJC in both radii; OA in spine; bilateral <i>cribra orbitalia</i> ; hypervascularity on ectocranial surface of skull	
17	90	4	Moderate	26-35	YMA	Male	161.37 +/- 3.27	DEH, calculus, caries	Dense bone on formation on left endocranial occipital surface; complete fusion of sternum to manubrium, lytic lesion on rim of left acetabulum, spondylolysis of L5, cranial shift of lumbar-thoracic border with lumbarisation of T12, Schmorl's nodes; lamellar bone on right tibia; slight torsion of right femur; hypervascularity on ectocranial surface of skull, S1 and S2 bifid; bilateral sinusitis and <i>cribra orbitalia</i> ; possible healed fracture in distal right foot phalanx; DJC in spine, clavicles, distal humeri, radii, femora, tibiae	
18	20	3	Heavy	18+	Adult	U	-	Calculus, DEH, caries, periodontal disease	Osteochondritis dissecans on right distal tibia, ossification of interosseous membrane of right distal fibula, DJC left talus; <i>cribra orbitalia</i> in left orbit	

19	<5	4	Severe	9-11	OJ	-	-	Calculus, DEH	-	
22	90	2	Moderate	26-35	YMA	Male	165.9 +/- 3.27	Calculus, DEH, caries, periodontal disease, abscess (external), LI ² is not present, LC in its place	Spondylolysis of L5, cleft neural arch in C1, Schmorl's nodes on T9 & T11, hypervascularity on ectocranial surface, bilateral <i>cribra orbitalia</i>	
23a	<5	4	Moderate	18+	Adult	U	-	Calculus, caries	-	May be same individual as BN 23b
23b	<5	4	Severe	18+	Adult	U	-	-	-	May be same individual as BN 23a
24	<5	5+	-	18-25	YA	U	-	DEH	-	
26	5	4	Heavy	18+	Adult	Probable Male	-	Calculus, caries	-	
27	<5	3	Severe	18+	Adult	U	-	-	-	
28	5	4	Severe	18+	Adult	U	-	-	<i>Cribra orbitalia</i>	
31	<5	4	Severe	18+	Adult	U	-	-	-	
34	<5	5+	Severe	18+	Adult	U	-	-	-	
35	<5	3	Severe	18+	Adult	U	-	-	-	
36	<5	5+	-	18+	Adult	U	-	-	-	
41	<5	4	Heavy	18+	Adult	U	-	-	-	
44	10	3	Severe	18+	Adult	U	-	-	-	
46	<5	5+	-	-	Undetermined	U	-	DEH	-	
50	<5	5+	-	18+	Adult	U	-	DEH	-	
51	<5	4	Severe	18+	Adult	U	-	DEH	Hypervascularity on ectocranial occipital fragment	
55	<5	5+	-	-	Undetermined	U	-	-	-	

56	<5	5	Severe	18+	Adult	U	-	-	-	
57	60	5	Heavy	26-35	YMA	Probable Male	-	Calculus, caries, periodontal disease	Lamellar bone on medial mid shaft of both tibiae; DJC in tibiae	
59	<5	4	Heavy	18+	Adult	U	-	-	-	
60	<5	5+	-	5-10	Juvenile	-	-	DEH	-	
61	30	4	Severe	18+	Adult	U	-	Calculus	DJC in C4	
62	15	4	Heavy	18+	Adult	Probable Male	-	Caries	-	
64a	<5	5+	-	-	Non-Adult	-	-	-	-	
64b	<5	5+	-	18+	Adult	U	-	-	-	
67	5	4	Moderate	18+	Adult	U	-	Calculus, DEH	DJC left foot	
68	<5	5+	Severe	18+	Adult	U	-	Calculus	-	
69	<5	5+	Moderate	18-25	YA	U	-	DEH, calculus	-	
71	<5	3	Severe	18+	Adult	U	-	Calculus, DEH	-	
72	<5	5	Severe	18+	Adult	U	-	-	-	
73	15	3	Heavy	26-35	YMA	Probable Female	-	Calculus, DEH	-	
77	85	3	Moderate	14-16	AO	-	-	Calculus, DEH	Spina bifida (likely complete), cranial shift of thoracic-lumbar border, <i>cribra orbitalia</i> , sinusitis, lamellar striae on femoral shafts bilaterally	
78	70	3	Severe	26-35	YMA	Probable Female	-	Calculus, caries, DEH	Schmorl's nodes, DJC proximal femora; oblique fracture of third left metacarpal	
81	<5	5+	-	6-12	OJ	-	-	-	-	
82	<5	5	Severe	13-17	AO	-	-	Calculus, DEH	-	
86	90	3	Moderate	26-35	YMA	Probable Male	167.3 +/- 3.27	Calculus, caries, periodontal disease	<i>Cribra orbitalia</i> ; lamellar bone on both anterior femora and both proximal fibulae shafts; woven bone on medial surface	

									of left tibia; left foot exhibits trauma/inflammation on intermediate cuneiform, medial cuneiform and metatarsals; DJC in femora, tibiae, left foot	
87	85	3	Moderate	46+	MA	Probable Male	-	AMTL, calculus, caries, DEH, at least five abscesses	<i>Cribra orbitalia</i> ; exostosis/granuloma in left sinus; circular patch of vascularised bone in left nasal floor; Schmorl's nodes; DJC in spine, in right clavicle, proximal humeri, distal radii, proximal ulnae, femora, tibiae, feet, hands; fractured left tibia shaft and mid/distal fibula shaft; possible fusion of left calcaneus and talus	
88	<5	4	Severe	-	Non-Adult	-	-	DEH	-	
89	<5	5+	-	4+	Non-Adult	-	-	-	-	
92a	15	4	Heavy	18+	Adult	U	-	AMTL, calculus	New bone on superior ectocranial nuchal crest; hypervascularity on superior occipital bone	
92b	20	3	Heavy	18+	Adult	U	-	-	Lamellar bone on femoral shafts bilaterally	
93	<5	4	Heavy	18+	Adult	U	-	Calculus	-	
96a	<5	5+	Severe	18-25	YA	U	-	Calculus	-	
99	60	5	Moderate	26-35	YMA	Probable Male	-	Calculus, DEH	<i>Cribra orbitalia</i> , sinusitis, lamellar bone on tibiae and femora, lamellar bone on orbital rims, hypervascularity on ectocranial surface; DJC right navicular	
102	10	4	Moderate	c 3 years	YJ	-	-	Calculus, Carabelli's cusp on first permanent maxillary molars bilaterally	-	
103	<5	5+	-	-	Non-Adult	-	-	-	-	
104	5	4	Heavy	18-25	YA	U	-	Calculus	-	
106	<5	3	Moderate	18+	Adult	U	-	-	-	
107	<5	4	Heavy	18+	Adult	U	-	-	-	
108	<5	5+	-	3-7	YJ	-	-	Calculus	-	

115a	<5	5+	-	18+	Adult	U	-	Calculus	-	
119	35	5	Heavy	26-35	YMA	Female	-	AMTL, calculus, caries, DEH, abscess	Lamellar striae on right tibia fragments, shaft of left femur	
120	50	5	Moderate	26-35	YMA	Male	-	Caries	Hypervascularity on ectocranial skull fragments	
121	<5	5+	-	1-6	YJ	-	-	-	-	
123	95	2	Slight	36-45	OMA	Male	161.8 +/- 3.27	Calculus, AMTL, periodontal disease, abscess	Osteoarthritis on left mandibular condyle, proximal femora, distal right femur and patella; cyst on both lunate articulation with triquetral, mirrored in triquetral, developmental defect: non-osseous union of carpals or DJC; small spikey bony ridge on superior orbital rim; Schmorl's nodes; DJC in left mandible, femora, right patella, and spine; bilateral <i>cribra orbitalia</i> ; sacrum with 6 fused vertebrae, additonal sacral vertebra, woven bone on maxilla	
124	95	2	Slight	14-16	AO	-	-	Calculus, DEH, periodontal disease	Woven bone on the medial side of the left mandibular ramus; lamellar/woven bone on the articular eminence of the temporal bone bilaterally; increased porosity of two left rib ends; lamellar bone on both tibial shafts; lamellar bone on femora, anterior mid-shaft of right ulna	
125	15	4	Heavy	18+	Adult	U	-	AMTL, Calculus, caries	DJC in right prox ulna; DJC at lumbar apophyseal facets and occipital condyles	
130	15	5	Heavy	18+	Adult	U	-	Calculus, DEH	Lamellar bone on right mandibular rim	
133	35	3	Slight	2-4	YJ	-	-	-	Woven bone at deciduous right first and second molar sockets of maxilla, on inferior surface of right orbit; <i>cribra orbitalia</i> ;	Discrepancy between long bone age and dental age
135b	40	3	Heavy	26-35	YMA	I	-	Calculus, DEH	Lamellar bone on tibial shaft fragments bilaterally; DJC in thoracic spine	Same individual as BN 136
135c, no SK#	<5	5+	-	6+	OJ	-	-	DEH	-	
136	<5	4	Heavy	-	-	-	-	-	-	Same individual as BN 135b
137	<5	4	Heavy	18+	Adult	U	-	-	-	
139	<5	5+	-	18+	Adult	U	-	Calculus, DEH	-	

140	90	3	Heavy	26-35	YMA	Male	160.7 +/- 3.27	Calculus, DEH, caries	Exostosis in left sinus; small hole in floor of right sinus – likely developmental; woven bone on distal shaft of right fibula, on distal right tibia; osteoarthritis on on right femoral head; woven bone on calcanei, on visceral surface of central rib fragment; DJC in spine C1 – C3, proximal left femur, right glenoid; irregular surface palate suggests inflammation; Schmorl's nodes on 8 thoracic and 3 lumbar vertebrae; bilateral <i>cribra orbitalia</i>	Square palate, but no distinct nasal guttering – African considered
142	5	3	Heavy	18+	Adult	U	-	-	-	
143	<5	3	Heavy	18+	Adult	U	-	-	-	
144	60	4	Heavy	26-35	YMA	Probable Female	161.1 +/- 3.72	Calculus, periodontal disease	C2 has developmental misalignment of left inferior apophyseal facet; mild <i>coxa vara</i> bilaterally; possible sacroiliitis; lamellar bone on lateral left tibia; hypervascularity on occipital and parietal bones	
149a	<5	5+	-	-	Undetermined	U	-	-	-	
153	10	4	Heavy	4-6	YJ	-	-	Calculus, DEH	-	
154	25	3	Moderate	26-35	YMA	Probable Male	-	Calculus, caries, periodontal disease, likely occupation-related wear facet	Hypervascularity on ectocranial skull vault frags; bilateral <i>cribra orbitalia</i> ; DJC in C2	
155	<5	5+	-	18+	Adult	U	-	-	-	
156	40	4	Severe	26-35	YMA	Probable Male	-	Calculus, DEH, periodontal disease	Lamellar bone on left tibial mid shaft; DJC C2, right femur, right fibula, feet	
158	60	3	Heavy	18+	Adult	Probable Female	-	AMTL, calculus, caries	Hypervascularity on superior aspect of ectocranial surface of occipital bone; small spicule of protruding bone on endocranial surface of right inferior occipital bone; smooth but slightly pitted depression in left mandibular condyle surface; <i>cribra orbitalia</i> in right orbit; lamellar bone on both tibial shafts; DJC cervical spine, right TMJ, femora, tibiae	
160	<5	4	Severe	18+	Adult	U	-	DEH	-	
162	<5	5+	-	4+	Non-Adult	-	-	-	-	
165b	5	3	Severe	18-	YA	U	-	Calculus, caries, DEH	-	

				25						
No SK # / sample 12804 AA / BN 171	<5	5+		18+	Adult	U	-	Calculus	-	Dentition was matched with SK12803/ BN254
173	20	3	Heavy	26-35	YMA	Probable Male	-	Calculus, DEH	Lamellar bone on fragments of both femoral shafts; SJD C5 - C7	
175	85	3	Moderate	36+	OMA/MA	Probable Female	-	AMTL, Calculus, periodontal disease	OA and DJC in cervical spine; OA in proximal ulna; DJC left mandibular condyle, proximal humeri, proximal ulnae, proximal femora; exaggerated meningeal impressions in parietal bones; sinusitis	
No SK# / sample 12976 / BN 177	<5	5+	-	4-6	YJ	-	-	Calculus	-	
178a	20	5	Heavy	36+	OMA/MA	Probable Female	-	AMTL, calculus, caries, DEH, periodontal disease	OA and DJC in cervical spine; eburnation on right proximal femur; lamellar striae on bilateral humeral shaft fragments, on right tibia shaft fragment and on anterior surfaces of femora	
178b	<10	5	Heavy	18+	Adult	U	-	Calculus	-	
181	5	3	Heavy	4-5	YJ	-	-	DEH, supernumerary maxillary RC	-	
182	<5	4	Heavy	18+	Adult	U	-	-	-	
183	<5	5	Heavy	-	Undetermined	U	-	-	-	
184a	5	3	Heavy	1-6	YJ	-	-	-	-	
185	30	4	Severe	26-35	YMA	Probable Male	-	AMTL, calculus, caries, abscess, periodontal disease	Hypervascularity on orbital ridges, lateral rims and right zygomatic bone; lamellar bone on right tibial, and left and right femoral fragments	
186	75	4	Heavy	46+	MA	Female	-	AMTL, calculus, DEH	OA in lumbar spine, right knee, S1, left ankle; DJC in right hand, hip, left foot; <i>cribra orbitalia</i>	
187	80	3	Heavy	18+	Adult	U	-	Calculus, caries, DEH, periodontal disease	Woven bone on left and right posterior shafts of femora; DJC in right distal humerus	
193	<5	5+	-	-	Non-Adult	-	-	-	-	

194a	70	3	Heavy	3-4	YJ	-	-	Caries	Sinusitis in left sinus; <i>cribra orbitalia</i> in right orbit; pitting on superior intracranial surface of left greater wing of sphenoid; pitting on the right posterior surface of maxilla and orbital aspect of right zygomatic bone	
197a	95	3	Moderate	36+	OMA/MA	Male	171.17 +/- 4.05	AMTL, calculus, caries, DEH	DISH; sacroiliitis with unilateral (right) fusion; <i>cribra orbitalia</i> ; DJC at sternomanubrial joint, TMJ, clavicles, right and left glenoid, proximal humeri, proximal left radius, ulnae, femora, tibiae, feet; possible residual rickets; osteochondritis in distal tibia	
197b	20	3	Moderate	18+	Adult	U	-	-	Lamellar bone on lateral mid shafts of tibiae	
198	60	3	Moderate	26-35	YMA	Probable Male	-	AMTL, calculus, caries, DEH, periodontal disease, abscess	Sinusitis; spondylolysis in L5; cranial border shift of lumbar thoracic border; DJC in right mandible, distal left humerus. Schmorl's nodes in thoracic and lumbar spine	
199	10	5	Moderate	3-4	YJ	-	-	DEH on permanent dentition	-	
201	30	3	Moderate	c 3	YJ	-	-	Calculus, DEH	Torsion and exaggerated bowing of right femur -rickets; exaggerated lip at lateral proximal side of right tibia - likely rickets	
202	30	5	Moderate	18+	Adult	U	-	Calculus, DEH	Woven bone along posterior endocranial sagittal suture	
205	<10	4	Moderate	c 4	YJ	-	-	DEH	<i>Cribriform orbitalia</i> in left orbit	
206	<5	4	Severe	-	Undetermined	U	-	-	-	Single long-bone cortical fragment likely belongs to SK12833/BN 205
208	50	2	Moderate	36-45	OMA	Male	170.9 +/- 4.05	AMTL, calculus, DEH, periodontal disease	Sinusitis; <i>cribra orbitalia</i> ; hypervascularity on orbital rims and cranial vault; OA at proximal left humerus; DJC in humeri, radii, right ulna, right hand, in cervical and thoracic spine; hypervascular new bone in palate; cyst in right acetabular rim	
209	95	3	Slight	26-35	YMA	Female	156.9 +/- 3.55	Calculus, caries, abscess, periodontal disease	Woven bone on anterior distal radius shaft, on vertebral ends of right ribs, on right and left tibiae shafts; DJC on all rib tubercles; manubrium fused to sternum; DJC in humeri, radii, femora, tibiae, right fibula; OA in cervical spine and right ribs; <i>cribra orbitalia</i> ; sinusitis	
213	90	4	Moderate	36-	OMA	Female	153.2	Calculus, caries, DEH,	Possible sacroiliitis; lamellar bone on femoral shafts; DJC in	

				45			+/- 3.66	periodontal disease, left mandibular third molar still erupting/impacted	right hand, fibulae, tarsals	
215	<5	5+	-	4+	Non-Adult	-	-	-	-	
216	<5	3	Heavy	18+	Adult	U	-	Calculus	-	
219	5	5	Severe	3-4	YJ	-	-	-	-	
222	<5	5	Moderate	1-12 mths	Infant	-	-	-	-	
229a	20	3	Moderate	36-40 wks	Foetus/Neonate	-	-	-	Woven bone on endocranial parietals; focus of woven bone on ectocranial frontal bone	
229b	35	5*	Heavy	12-14	AO	-	-	-	-	
231	50	4	Moderate	3-4	YJ	-	-	DEH on permanent dentition	Possible rickets; woven bone on visceral surface of rib fragment	
234	60	3	Moderate	46+	MA	Male	162.8 +/- 3.27	-	DJC in spine; DJC in left elbow, right hand, femora, tibiae, right calcaneous, left tarsals; OA in knee and hip; Schmorl's nodes	
235	80	3	Moderate	3-5	YJ	-	-	-	Layer of woven bone in both orbits – possible scurvy; woven bone around right mandibular lingula; woven bone on inferior surface of pars basilaris; woven bone on left temporal; lamellar bone on ribs	
237a	35	4	Moderate	36+	OMA/MA	Probable Female	-	Calculus, DEH	DJC in right proximal tibia, left distal tibia, right tarsals	
237b	95	3	Moderate	26-35	YMA	Female	155.6 +/- 3.72	Calculus, DEH	<i>Cribriform orbitalia</i> ; sinusitis; OA in first left rib head, left rib facet on T1; OA on right proximal femur; DJC in right clavicle, distal humeri, proximal ulnae, femora; lamellar bone on right tibia and right fibula	
238	10	5	Heavy	18+	Adult	U	-	-	-	
239	95	3	Moderate	36-45	OMA	Female	155.2 +/- 3.95	AMTL, calculus, caries, abscess	Hypervascularity on superior occipital bone; OA on left first rib head, healed fracture mid-11 th rib; DJC in spine, clavicles, humeri, radii, ulnae, hands, femora	
240	5	5	Heavy	4-5	YJ	-	-	DEH on permanent dentition	-	

242	5	2	Moderate	18+	Adult	U	-	AMTL, calculus, DEH, abscess, periodontal disease	-	
244	25	3	Moderate	26-35	YMA	Probable Male	-	Calculus, periodontal disease	Lamellar bone on articular eminence of right temporal bone, rough and pitted bone at interosseous membrane attachment site of distal right fibula – mirrored in right distal tibia; DJC in distal right tibia, distal fibulae, right tarsals	
254	5	5	Heavy	18-25	YA	U	-	Calculus, DEH	-	
255	<5	5	Severe	18+	Adult	U	-	Calculus, peg tooth present	-	

Key: SP = Surface preservation: grades 0 (excellent), 1 (very good), 2 (good), 3 (moderate), 4 (poor), 5 (very poor), 5+ (extremely poor) after McKinley (2004); C = Completeness; F = Fragmentation: min (minimal), sli (slight), mod (moderate), sev (severe), ext (extreme)

Non-adult age categories: f (foetus, <38weeks *in utero*), p (perinate, c. birth), n (neonate, 0-1 months), i (infant, 1-12 months), yj (young juvenile, 1-5 years), oj (older juvenile, 6-11 years), j (juvenile, 1-12y), ad (adolescent 12-17y)

Adult age categories: ya (young adult, 18-25 years), yma (young middle adult, 26-35 years), oma (old middle adult, 36-45 years), ma (mature adult, 46+ years), a (adult, 18+ years)

Dental pathology: DEH (dental enamel hypoplasia), AMTL (ante-mortem tooth loss), PD (periodontal disease)

Skeletal pathology: OA (osteoarthritis), DDD (degenerative disc disease), TB (tuberculosis), HFI (hyperostosis frontalis interna); TMJ (temporo-mandibular joint), MT (metatarsal), C (cervical vertebra), T (thoracic vertebra), L (lumbar vertebra), S (sacral vertebra), DJC (degenerative joint changes)

2.1 PRESERVATION

Skeletal preservation depends upon a number of factors, including the age and sex of the individual as well as the size, shape and robusticity of the bone. Burial environment, post-depositional disturbance and treatment following excavation can also have a considerable impact on bone condition (Henderson 1987, Garland and Janaway 1989, Janaway 1996, Spriggs 1989). Preservation of human skeletal remains is assessed subjectively, depending upon the severity of bone surface erosion and post-mortem breaks, but disregarding completeness. Preservation is important, as it can have a large impact on the quantity and quality of information that it is possible to obtain from the skeletal remains.

2.1.1 Inhumation Preservation

Surface preservation, concerning the condition of the bone cortex, was assessed using the seven-category grading system defined by McKinley (2004a), ranging from 0 (excellent) to 5+ (extremely poor). Excellent preservation implied no bone surface erosion and a clear surface morphology, whereas extremely poor preservation indicated heavy and penetrating erosion of the bone surface resulting in complete loss of surface morphology and modification of the bone profile. Surface preservation could be variable throughout an individual skeleton, so the condition of the majority of bones in the skeleton was taken as the preservation grade for the whole skeleton. The degree of fragmentation was recorded using three categories ranging from 'minimal' (slight fragmentation of bones) to 'extreme' (heavy or extensive fragmentation with bones in multiple small fragments). Finally, the completeness of the skeletons was assessed and expressed as a percentage: the higher the percentage, the more complete the skeleton.

The vast majority of the remains were incomplete, with 93 skeletons (72.1%) only having less than 40% of the skeleton present (Figure 1). A total of 65.1% of the assemblage was less than 20% complete. Further investigation into this group revealed that most of the remains fell below the 5% completeness mark. This illustration will have to be considered in the context of the interpretation of the data, as it can cause problems with the observation of basic osteology such as age, sex, stature, the calculation of indices as well as observing palaeopathology. The remainder of skeletons (n=36, 27.9%) were distributed between the three brackets of greater completeness. A total of 13.2% of the skeletons were more than 80% complete and a similar number (10.1%) were between 40% and 60% complete. The smallest number of skeletons (n=6, 4.7%) were found to be in the 60-80% completeness bracket.

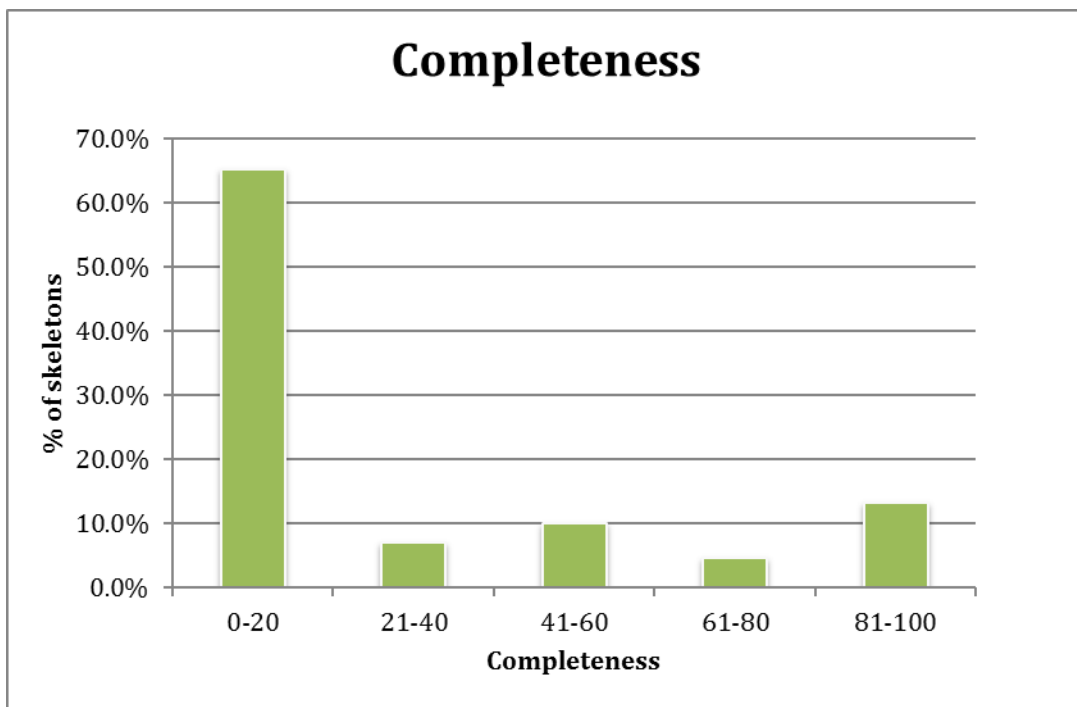


Figure 1 Completeness of inhumed skeletons

The fragmentation of the remains was equally severe. Over half of the skeletons (68.2%) were in poor condition with extreme fragmentation (Figure 2) and 36 fell into the moderately fragmented category (27.9%). Five individuals were only slightly fragmented (3.9%). The more severe levels of fragmentation prevented stature and cranial indices from being calculated.

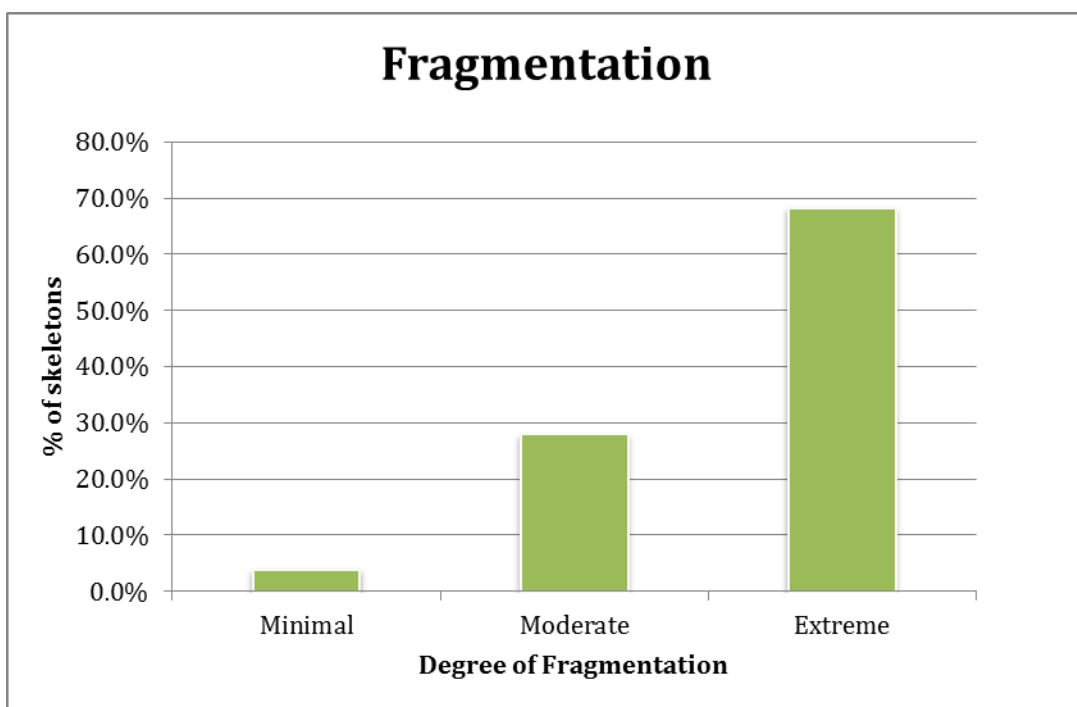


Figure 2 Fragmentation of inhumed skeletons

Figure 3 illustrates that most of the inhumations tended to be more heavily affected by surface erosion. The most severe erosion (Grade 5+) was observed in 24 skeletons (18.6%). 23 skeletons, who made up 17.8% of the overall remains were poorly preserved (Grade 5), and 36 skeletons were slightly less eroded (Grade 4; 27.9%). The bulk of the remains was affected by moderate surface erosion (Grade 3; n=41, 31.8%). Only five skeletons were in good condition (Grade 2; n=5, 3.9%).

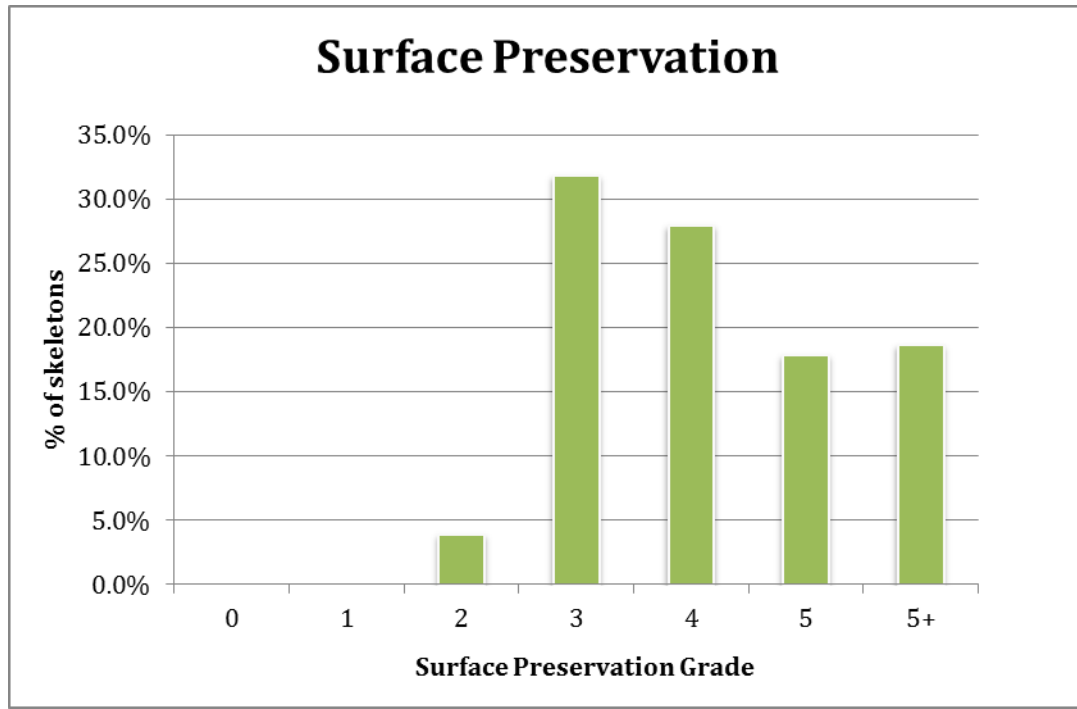


Figure 3 Surface preservation of inhumed skeletons

2.1.2 Cremated Bone Preservation

Preservation of the cremated bone was varied. A total of 26 burials (BNs) were analysed, some of which contained multiple spits or contexts. This meant that the number of contexts was higher than the number of burials (see Table 1). As can be observed in Figure 4, the bone in 53% of contexts (n=23) were in a poor condition and the bone in 44.2% (n=19) contexts was in moderate condition. Only around two percent (2.3%) of contexts contained bone that was in a good condition (1 context). In terms of burial numbers, the majority of cremated bone assemblages (50%, n=13) were moderately well preserved. This indicates that the burials falling into the poorly preserved range (46.2%, n=12) contained more contexts. Only the bone in one BN was well preserved (single context).

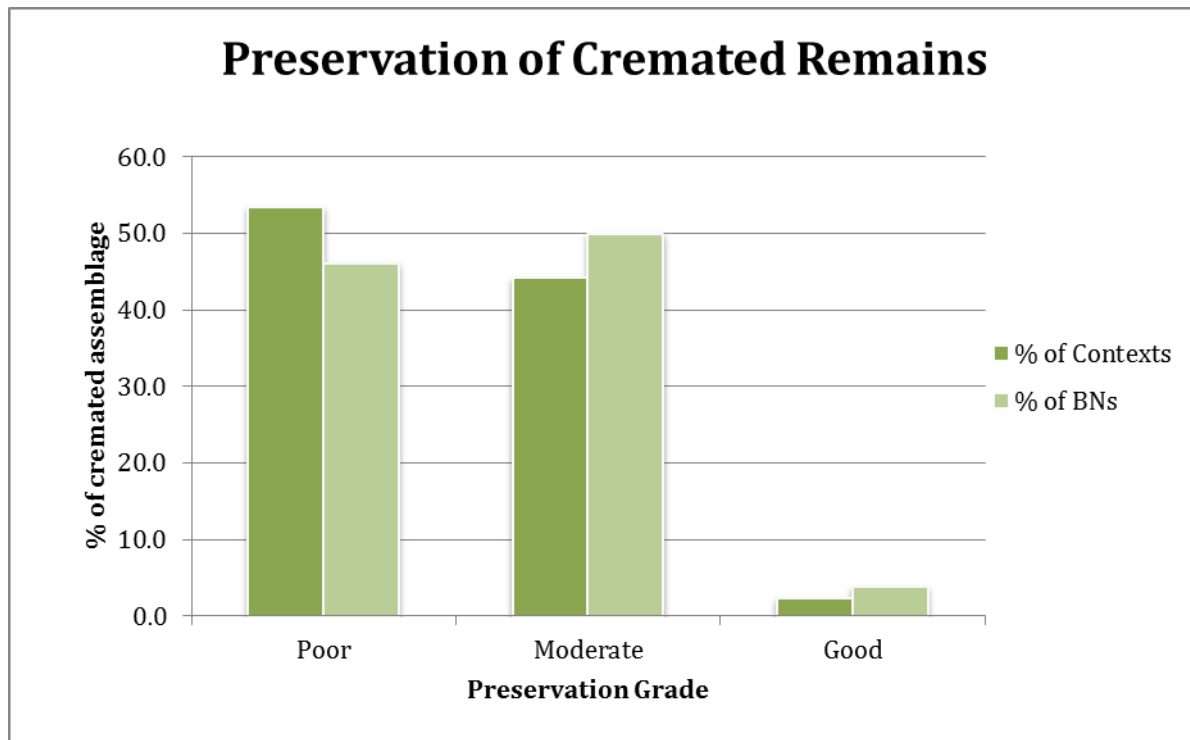


Figure 4 Preservation of cremated remains

The severity of cremated bone fragmentation is presented in the table below (Table 3). In the majority of assemblages, the bone in the 2mm sieve was unidentifiable. Most of the identifiable bone was recovered from the 10mm sieve, which is normal. Most tooth root fragments and hand and foot phalanges were recovered from the 5 and 2mm sieves.

Table 3 Cremated bone fragment size

BN	Context	Sieve Fractions						Total >2mm g	% of expected*	<2mm g	Total g	Max frag mm
		10mm		5mm		2mm						
		g	%	g	%	g	%					
113b	12422	0	0.00	2.9	58.00	2.1	42.00	5.0	0.31	0	5.0	14.7
115b	12405 AA	6.1	9.95	32.2	52.53	22.3	36.38	60.6	3.73	0.7	61.3	13.5
149b	12513 AA	3.8	26.57	8.6	60.14	1.4	9.79	13.8	0.85	0.5	14.3	13.8
149b	12530 AA	0	0.00	5.1	68.92	1.5	20.27	6.6	0.41	0.8	7.4	20.6
151	12406 AA	1	2.04	20.9	42.74	23.8	48.67	45.7	2.81	3.2	48.9	19.7
184b	12491 AA	2.3	47.92	0.8	16.67	1.6	33.33	4.7	0.29	0.1	4.8	11
184b	12492 AA	0.9	10.11	2.8	31.46	4.3	48.31	8.0	0.49	0.9	8.9	15.3
194b	12428 AA	20.1	18.12	49.7	44.82	39.3	35.44	109.1	6.71	1.8	110.9	25.6
194b	12429 AA	0	0.00	3	31.91	5.3	56.38	8.3	0.51	1.1	9.4	15.3
194b	12374 AA	4	27.59	6.2	42.76	3.8	26.21	14.0	0.86	0.5	14.5	30
210	12476 AA	0	0.00	0.2	3.77	4.1	77.36	4.3	0.26	1	5.3	8
214b	13122 AA	0	0.00	1.2	30.77	2.5	64.10	3.7	0.23	0.2	3.9	5.2
225	12341 AA	0	0.00	10.3	73.57	3.7	26.43	14.0	0.86	0	14.0	13.8
257	12400	50.4	11.69	207.5	48.12	167.1	38.75	425.0	26.14	6.2	431.2	20.5

258	12414 AA	6.4	15.42	19.7	47.47	14.7	35.42	40.8	2.51	0.7	41.5	13.5
259	12685 AA	7.2	18.85	18.4	48.17	11.9	31.15	37.5	2.31	0.7	38.2	28.7
260	12348	110.2	23.74	249.6	53.78	86.8	18.70	446.6	27.47	17.5	464.1	47.3
260	12350	9.3	92.08	0.7	6.93	0	0.00	10.0	0.62	0.1	10.1	32.8
261	12361 AA	0	0.00	1.1	34.38	2	62.50	3.1	0.19	0.1	3.2	7.2
262	12322 AA	0	0.00	5	55.56	3.7	41.11	8.7	0.54	0.3	9.0	22.4
263	12357 AA	0	0.00	0.9	39.13	1.3	56.52	2.2	0.14	0.1	2.3	11.2
263	12358 AA	0	0.00	0	0.00	0.9	100.00	0.9	0.06	0	0.9	7.8
263	12343 AA	0	0.00	2.8	24.14	8.4	72.41	11.2	0.69	0.4	11.6	9.6
264	12300 AA	4.6	5.23	27.8	31.63	53.5	60.86	85.9	5.28	2	87.9	26.4
264	12304 AA	0	0.00	2.8	24.14	8.5	73.28	11.3	0.69	0.3	11.6	18
265	12318 AA	8	6.26	40	31.30	74	57.90	122.0	7.50	5.8	127.8	25.8
266	12312 AA	24.3	15.41	80.2	50.86	50.8	32.21	155.3	9.55	2.4	157.7	29.5
266	12313 AA	1	6.71	7.9	53.02	5.8	38.93	14.7	0.90	0.2	14.9	21.2
267	12311 AA	49.3	14.19	171.2	49.27	118.5	34.10	339.0	20.85	8.5	347.5	12.7
269	12293 AA	1.6	25	2.7	42.19	2	31.25	6.3	0.39	0.1	6.4	10.3
269	12294 AA	1.8	28.13	2.4	37.50	1.6	25.00	5.8	0.36	0.6	6.4	13.6
269	12297 AA	6.8	15.49	15.9	36.22	16.9	38.50	39.6	2.44	4.3	43.9	38.4
270	12320 AA	1.8	4.55	15.2	38.38	21.1	53.28	38.1	2.34	1.5	39.6	25.5
271	13071 AB	0	0.00	0	0.00	0.3	75.00	0.3	0.02	0.1	0.4	9.2
271	13070 AA	0	0.00	1.1	78.57	0.3	21.43	1.4	0.09	0	1.4	14.6
271	13071 AA	2.8	5.02	27	48.39	25.3	45.34	55.1	3.39	0.7	55.8	16.2
271	13071 RF	49.9	28.19	69.7	39.38	51.7	29.21	171.3	10.54	5.7	177.0	46.6
272	13062 AA	15	15.81	42.1	44.36	36.4	38.36	93.5	5.75	1.4	94.9	24.8
272	13063 AA	20.4	30.77	31.5	47.51	13.6	20.51	65.5	4.03	0.8	66.3	28
272	13066 AA	0	0.00	0.7	50.00	0.6	42.86	1.3	0.08	0.1	1.4	12
273	12352 AA	2.7	15.25	9.8	55.37	5	28.25	17.5	1.08	0.2	17.7	25.9
273	12354 AA	0	0.00	0.5	20.00	1.9	76.00	2.4	0.15	0.1	2.5	11.2
274	13125	127.7	36.49	148.1	42.31	59.9	17.11	335.7	20.65	14.3	350.0	25

* Weight of bone >2mm expressed as a percentage of average weight of bone >2mm recovered from modern cremation burials (1,625.9g, McKinley 1993); >2mm sieve weight includes soil residue

It was possible to observe that the degree of fragmentation in each context was varied. Notably, the size of the largest fragment in every context was subject to variation – ranging from a maximum of 5.2mm in BN 214b to a maximum of 47.3mm in BN 260. Most of the larger fragments were slightly warped and the surface of the cortical bone was often affected by fine, irregular cracks, which ran longitudinally as well as transversely.

While the 10mm sieve yielded 12.9% of fragments on average, each context produced an average of 40.3% of fragments in the 5mm sieve and 42.3% in the 2mm sieve (see Table 3). This suggests that fragmentation was generally advanced and should be noted in the context of sex and age assessment of the remains. On average, the greatest portion of the bone assemblages was found in the 5mm sieve (31.3g). This was followed by an average 22.3g in the 2mm sieve and 12.54g in the 10mm sieve.

Table 3 further highlights that the quantities of the recovered remains from the contexts varied significantly. The heaviest total burial weighed 474.2g (BN 260; with both contexts for this burial

combined). The least substantial burial weighed only 0.4g (BN 271, Context 13071 AB), although it should be noted that this derived from one context which likely belonged to a larger cremation burial. As a comparison to the weights of bone recovered, the quantity of bone over 2mm in size recovered from modern adult cremations ranges from 1,001.5g to 2,422.5g with a mean of 1,625.9g (McKinley 1993). The cremation burials, which approached these values closest, were BN 260 with 28%, BN 257 with 26% and BN 267 with 21% of the mean expected weight. In total, only five burials contained more than 10% of the mean expected weight and 88% of all burials fell below this mark.

The identified bone was divided into four broad categories, namely the skull, axial skeleton (vertebrae and ribs), upper limb and lower limb (Table 4). Unspecified long bone fragments were also taken into consideration. The identification of fragments was possible for a mean proportion of 47% of all contexts. Overall, the mean proportion of skull fragments was 9.78%, of axial fragments 2%. The upper limb fragments and lower limb fragments made up 2.6% and 2.92%. The mean proportion of long bone fragments was 29.83%. For comparison, at the site To the Rear of California, Baldock, in Hertfordshire, the mean proportion of skull fragments was 26.17%, axial fragments made up 11.63%, upper limb fragments made up 22.27%, lower limb fragments 20.68% and long bone fragments 44.52% on average (Keefe *et al* 2015).

Table 4 Identifiable cremated remains

BN	Context	Identified Bone										Total ID g	Total ID %
		Skull		Axial		Upper Limb		Lower Limb		Long Bones			
		g	%	g	%	g	%	g	%	g	%		
113b	12422	0.6	12.00	0	0.00	1.5	30.00	0	0.00	1.0	20.00	3.1	62.00
115b	12405 AA	7.5	12.23	0.4	0.65	1.4	2.28	3.8	6.20	26.9	43.88	40.0	65.25
149b	12513 AA	0	0.00	0	0.00	0	0.00	1.9	13.29	11.5	80.42	13.4	93.71
149b	12530 AA	0	0.00	0	0.00	1.4	18.92	0	0.00	4.4	59.46	5.8	78.38
151	12406 AA	3.9	7.98	0.4	0.82	0	0.00	0	0.00	16.4	33.54	20.7	42.33
184b	12491 AA	0.3	6.25	0	0.00	0	0.00	0	0.00	2.7	56.25	3.0	62.50
184b	12492 AA	3.1	34.83	0	0.00	0	0.00	0	0.00	1.4	15.73	4.5	50.56
194b	12428 AA	11.5	10.37	0	0.00	8.4	7.57	7.3	6.58	41.7	37.60	68.9	62.13
194b	12429 AA	0.5	5.32	0	0.00	0	0.00	0	0.00	4.0	42.55	4.5	47.87
194b	12374 AA	1.3	8.97	0	0.00	0	0.00	3.1	21.38	6.0	41.38	10.4	71.72
210	12476 AA	0	0.00	0	0.00	0	0.00	0	0.00	0.0	0.00	0.0	0.00
214b	13122 AA	0.2	5.13	0.1	2.56	0	0.00	0	0.00	1.5	38.46	1.8	46.15
225	12341 AA	1.4	10.00	0.7	5.00	0	0.00	0	0.00	8.1	57.86	10.2	72.86
257	12400	54.5	12.64	25.7	5.96	26.1	6.05	9.6	2.23	71.6	16.60	187.5	43.48
258	12414 AA	1.6	3.86	0	0.00	1.1	2.65	0	0.00	19.1	46.02	21.8	52.53
259	12685 AA	8.4	21.99	1.7	4.45	1.5	3.93	0	0.00	9.9	25.92	21.5	56.28
260	12348	87.2	18.79	45	9.70	41.5	8.94	41.9	9.03	92.0	19.82	307.6	66.28
260	12350	4	39.60	0	0.00	0	0.00	0	0.00	0.0	0.00	4.0	39.60
261	12361 AA	0	0.00	0	0.00	0	0.00	0	0.00	0.8	25.00	0.8	25.00
262	12322 AA	0	0.00	0	0.00	0	0.00	0	0.00	6.0	66.67	6.0	66.67
263	12357 AA	0	0.00	0	0.00	0	0.00	0	0.00	0.6	26.09	0.6	26.09
263	12358 AA	0	0.00	0	0.00	0	0.00	0	0.00	0.0	0.00	0.0	0.00
263	12343 AA	0.9	7.76	0.2	1.72	0	0.00	0	0.00	3.2	27.59	4.3	37.07

264	12300 AA	4	4.55	1.4	1.59	4.4	5.01	0.9	1.02	17.4	19.80	28.1	31.97
264	12304 AA	1.4	12.07	0.3	2.59	0.2	1.72	0	0.00	1.5	12.93	3.4	29.31
265	12318 AA	0.4	0.31	2.1	1.64	2	1.56	1.9	1.49	46.6	36.46	53.0	41.47
266	12312 AA	12.3	7.80	4.4	2.79	0	0.00	2.7	1.71	48.9	31.01	68.3	43.31
266	12313 AA	1.7	11.41	0	0.00	0	0.00	0	0.00	4.1	27.52	5.8	38.93
267	12311 AA	39.7	11.42	23.5	6.76	0.1	0.03	0	0.00	129.8	37.35	193.1	55.57
269	12293 AA	0.1	1.56	0	0.00	0	0.00	0	0.00	0.0	0.00	0.1	1.56
269	12294 AA	0	0.00	0.4	6.25	0	0.00	0	0.00	0.2	3.13	0.6	9.38
269	12297 AA	12.8	29.16	1.9	4.33	1.4	3.19	1.9	4.33	5.7	12.98	23.7	53.99
270	12320 AA	0.5	1.26	0	0.00	0	0.00	0	0.00	16.4	41.41	16.9	42.68
271	13071 AB	0	0.00	0	0.00	0	0.00	0	0.00	0.0	0.00	0.0	0.00
271	13070 AA	0.2	14.29	0	0.00	0	0.00	0	0.00	0.3	21.43	0.5	35.71
271	13071 AA	7.9	14.16	0	0.00	0.3	0.54	0	0.00	20.2	36.20	28.4	50.90
271	13071 RF	14.1	7.97	26	14.69	8.5	4.80	6.6	3.73	45.9	25.93	101.1	57.12
272	13062 AA	6.5	6.85	0	0.00	0.8	0.84	8.5	8.96	39.3	41.41	55.1	58.06
272	13063 AA	3.9	5.88	0	0.00	4.6	6.94	22.9	34.54	18.8	28.36	50.2	75.72
272	13066 AA	0	0.00	0	0.00	0	0.00	0	0.00	0.8	57.14	0.8	57.14
273	12352 AA	10.2	57.63	0	0.00	0	0.00	0	0.00	3.5	19.77	13.7	77.40
273	12354 AA	0.1	4.00	0.2	8.00	0	0.00	0	0.00	0.6	24.00	0.9	36.00
274	13125	44.9	12.83	22.5	6.43	25.1	7.17	39.1	11.17	87.3	24.94	218.9	62.54

It was possible to identify especially cranial and long bone fragments, as the former are particularly distinct. Where it was not possible to determine exactly which limb a long bone fragment belonged to – upper or lower limb - it was categorised as long bone only. Due to the fragmentary nature of the cremated assemblage, this was often the case. Axial fragments were not identified as frequently. In some instances, however, it was possible to identify parts of the ribs or the vertebral bodies or facets. Some pelvic elements were present as well. Tooth roots were recovered frequently and in a small number of contexts parts of the crown were present, cracked but not completely fragmented.

2.2 MINIMUM NUMBER OF INDIVIDUALS

A count of the ‘minimum number of individuals’ (MNI) recovered from a cemetery is carried out as standard procedure in osteological reports on inhumations in order to establish how many individuals are represented by the articulated and disarticulated human bones (without taking the archaeologically defined graves into account). The MNI is calculated by counting all long bone ends, as well as other larger skeletal elements recovered. The largest number of these is then taken as the MNI. The MNI is likely to be lower than the actual number of skeletons, which would have been interred on the site, but represents the minimum number of individuals, which can be scientifically proven to be present.

Among the inhumed population at Bainesse a minimum of 52 individuals were present. This included 36 adults (left femoral mid shafts), and sixteen non-adults. The non-adult group included four adolescents (left mandibles), one older juvenile (right and left temporal bones), nine younger juveniles (left/right parietals), one infant (distal left femur), and one foetus/neonate (right parietal). The MNI was smaller than the number of archaeologically identified individuals, probably as a result of later truncations.

A small quantity of disarticulated human bone was recovered from the backfill of graves and unstratified deposits. When these elements were added to the overall MNI, the number of adults was increased from 36 to 39, with the identification of three adult femoral mid shafts. The number of non-adults increased by one, as a left and right perinate ulna was found. With the addition of the three adults and one non-adult the total population MNI was increased to 56 from the disarticulated human remains.

The minimum number of individuals in cremated bone assemblages is difficult to assess with 100% accuracy, unless elements are duplicated or there is a clear double burial, i.e. an adult and non-adult. It appeared that at least fifteen individuals (ten adults and five non-adults) were present in the 26 cremation burials analysed. This number should be considered with caution, however, as unless the element is easily identifiable, it is not always easy to recognise if a bone is duplicated or not.

2.3 ASSESSMENT OF AGE

Age was determined using standard ageing techniques, as specified in Scheuer and Black (2000a; 2000b) and Cox (2000). For non-adults age was estimated using the stage of dental development (Moorrees *et al* 1963a; 1963b), dental eruption (Ubelaker 1989), measurements of long bones and other appropriate elements, and the development and fusion of bones (Scheuer and Black 2000b). In adults, age was estimated from stages of bone development and degeneration in the pelvis (Brooks and Suchey 1990, Lovejoy *et al* 1985) and ribs (modified version of methods developed by İşcan *et al* 1984; 1985 and İşcan and Loth 1986 provided in Ubelaker 1989), supplemented through examination of patterns of dental wear (Brothwell 1981, Miles 1962).

The individuals were divided into a number of age categories. Non-adults were subdivided into 'foetuses' (f: where the age estimate clearly fell below 38-40 *weeks in utero*), 'perinates' (p: where the age estimates converged around birth), 'neonates' (n: where the age estimate suggested 0-1 month), 'infant' (i; 1-12 months), juvenile (j; 1-12 years), and adolescent (ad; 13-17 years). Adults were divided into 'young adult' (ya; 18-25 years), young middle adult (yma; 26-35 years), old middle adult (oma; 36-45 years), and mature adult (46+ years). A category of 'adult' (a) was used to designate those individuals whose age could not be determined beyond the fact that they were eighteen or older.

For each skeleton as many criteria as possible (preservation allowing) were used to estimate age. However, it is important to note that several studies (for example Molleson and Cox 1993, Molleson 1995, Miles *et al* 2008) have highlighted the difficulty of accurately determining the age-at-death of adults from their skeletal remains, with age-at-death frequently being underestimated for older individuals. The categories defined here should be taken as a general guide to the relative physiological age of the adult, rather than being an accurate portrayal of the real chronological age; no doubt many of those aged '46+' would in reality have been in their sixties, seventies or even eighties when they died.

2.3.1 Age Distribution of the Inhumations

The non-adult proportion of the 129 inhumed skeletons at Bainesse consisted of 33 individuals (25.4%,

Figure 5). The vast majority of these were younger juveniles (n=16), who made up 48.5% of the group. Older juveniles and adolescents were represented in equal numbers (n=4, 12.1%). One foetus/neonate (3%) of 36 to 40 weeks of age (BN 229a) was present, as well as one infant (BN 222; 3%). Due to the incomplete, fragmentary and often eroded nature of the skeletons at the site, seven individuals could only be estimated to be non-adults without a more defined age group. Five individuals from this category were likely older than four years, based on the development of the dentition.

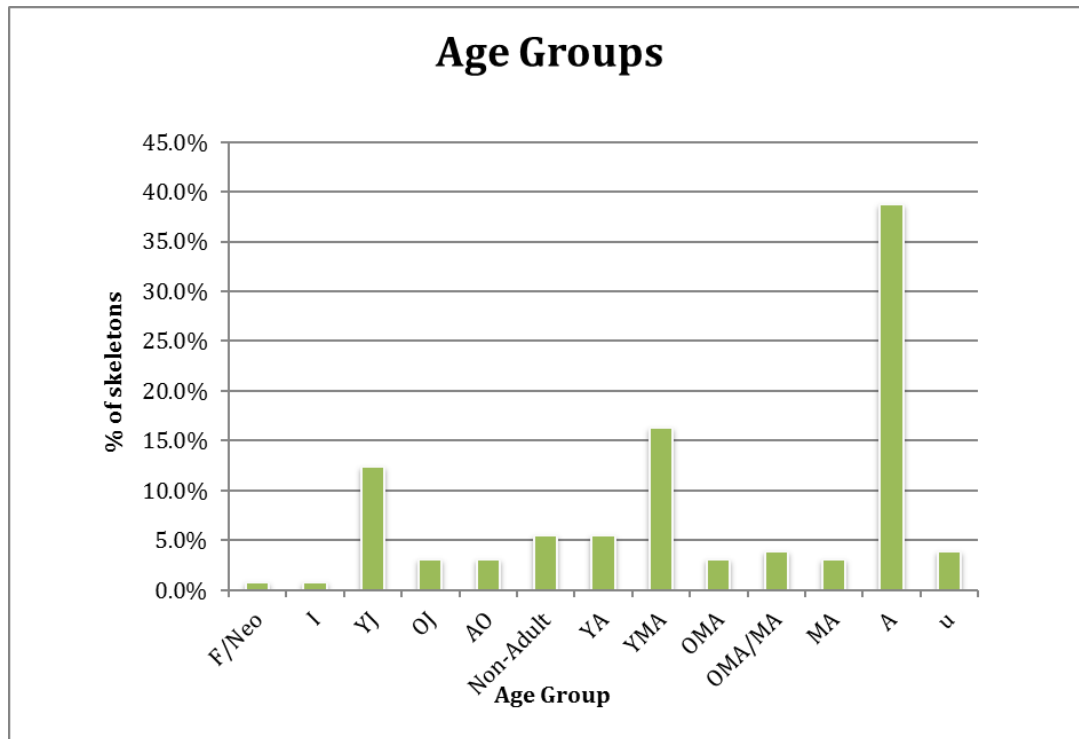


Figure 5 Age distribution at Bainesse

At Western Road, 35% of the non-adults were young juveniles and another 35% were older juveniles, with 25% being adolescents and only 5% of infants (Caffell and Holst 2016). At The Land to the Rear of California, Baldock, only eleven non-adults were identified, of whom 81% were juveniles, mostly older juveniles (Keefe *et al* 2015). A similar non-adult age distribution was also observed at Horncastle, with 75% of the non-adults being juveniles and most of these in the older juvenile age group. Adolescents made up the remaining 25% (Caffell and Holst 2007).

While a quarter of the individuals at Bainesse were non-adults, the majority were adults (n=91, 70.5%), although it was impossible to determine the age of five individuals (3.9%) as no ageing criteria survived. These were categorised as unaged ('U'), as they may have been either adults or non-adults. The generally poor preservation at the site also contributed to the large number of adults of unspecified age: slightly more than half of the entire adult group fell into this category (n=50, 54.9%). Figure 6 shows the sex and age distribution of adults from Bainesse. The percentage is calculated based on the total number of skeletons in each sex category.

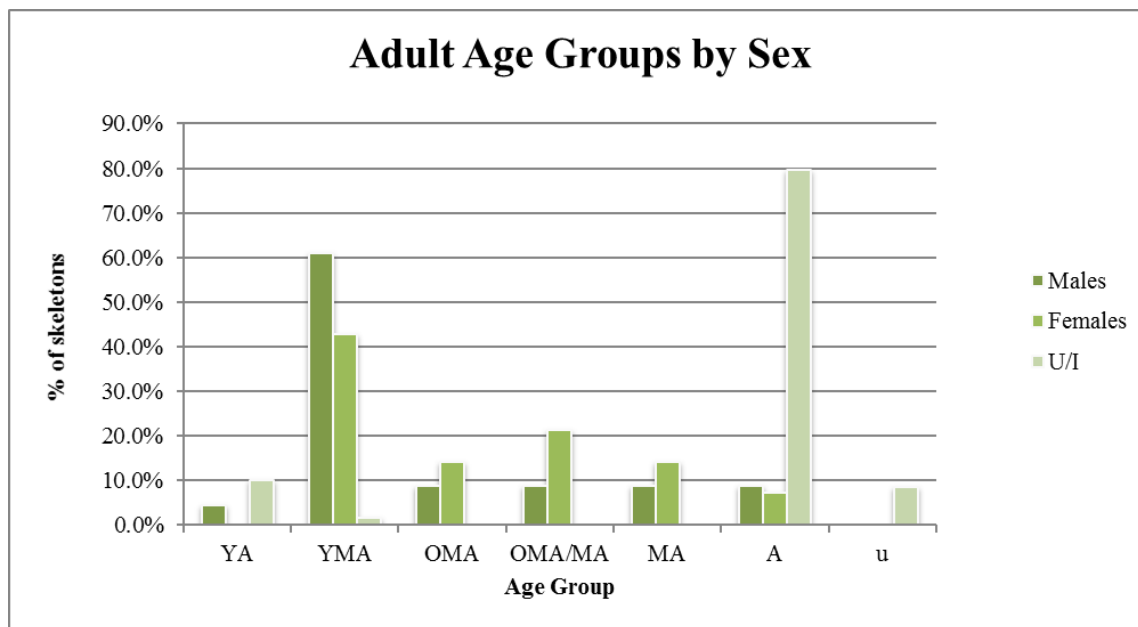


Figure 6 Adult age distribution by sex

The second largest group represented were young middle adults aged between 26 and 35 years ($n=21$, 23.1%). It is possible that the 50 adults whose age could not be more closely defined distorted the high number of individuals in this age category. However, the general adult group is also likely to include young middle adults. Seven individuals died when they were aged between eighteen and 25 years old (7.7%), and four individuals were old middle adults (4.4%). A further five individuals (5.5%) were older than 36, but it was not possible to determine whether they were younger than 45 and these were placed in the 36+ year age category. A further four individuals were older than 46 years (4.4%).

At Bainesse, the relatively small number of skeletons who could be sexed (37 individuals) consisted of more males than females (23 versus 14; see Figure 6). It was possible to determine that an equal number of males and females reached the age of 46+ years (2 individuals). However, due to the unequal numbers of males and females present at the site, the proportions within the age group differed. While only 8.7% of males were mature adults, females were more likely to reach this age group with 14.3% of females being represented. A similar pattern emerged for individuals of both sexes within the old middle adult group (36-45 years). Two males and two females died when they were in this age category. A further two males and three females who were older than 36 but could not be aged more closely were present in the cemetery (8.7% and 21.4% respectively). In terms of mature adults, females proportionally outnumbered males, but the numbers of individuals represented were equal (2 each, 8.7% and 14.3% respectively).

Most individuals recovered from the site fell into the young middle adult age range (26-35), with fourteen males (60.9% of males) and six females (42.9% of females). All the females from Bainesse were older than 26 years. One male fell into the young adult age range (4.3% of males). A total of six individuals whose sex could not be determined were young adults (Figure 6).

It was noticeable that young adults were not present in numbers comparable to those of the young middle adults. Especially for females, this is unusual, due to expected complications of childbirth and resulting higher mortality in this age group. While one of the adolescents was estimated to be a possible

female, this does not add much to compensate for the lack of young adults. Young adult females were also noticeably absent at the comparative sites at Horncastle (Caffell and Holst 2007) and Baldock, (Keefe *et al* 2015). At the latter site, no females were recorded for the young adult and young middle age groups. In this respect, the Bainesse demography resembles more that from Western Road in Leicester, where over half of all women died as young middle adults (Caffell and Holst 2014a).

At Bainesse, the proportion of adults to non-adults was 70.5% to 25.6% (with 3.9% of individuals of unknown age). The adult proportion was thus smaller than at Horncastle, where 88.2% of the remains were adults (Caffell and Holst 2007). It was also slightly smaller than at Baldock, where 80.7% were adults (Keefe *et al* 2015). At Western Road, the proportion of adults was closer to that of Bainesse, with 76.3% of adults (Caffell and Holst 2014a). The proportion of adults at Bainesse is smaller than observed in other populations.

2.3.2 Age Distribution in the Cremation Burials

Due to the nature of cremated bone, determining the accurate age of an individual is difficult and often impossible. Ageing was roughly assessed here based on the size of the bone and in the case of the non-adults measurements of the bones were also taken where possible.

A total of 38.46% of the cremation burials contained adult individuals and 19.23% contained non-adults, while 42.3% of the cremated bone assemblages remained unaged (Table 5). Unfortunately, no closer age identification was possible due to a lack of ageing characteristics. Double or multiple cremation burials were not observed, but this may have been due to poor preservation. In at least two contexts, an abundance of animal bone was present among the human bone (BN 210 and 271, both unknown age).

Table 5 Cremated bone assemblage – age estimates (by burial number)

Adult		Non-Adult		Unknown		Total
10	38.46%	5	19.23%	11	42.31%	26

2.4 SEX DETERMINATION

Sex determination was carried out using standard osteological techniques, such as those described by Mays and Cox (2000). Assessment of sex involves examination of the shape of the skull and the pelvis and can only be carried out once sexual characteristics have developed, during late puberty and early adulthood. Evidence from the pelvis was favoured as its shape is directly linked to biological sex (the requirements of childbirth in females) whereas the shape of the skull can be influenced by factors such as age (Walker 1995). Measurements of certain bones were used to supplement the morphological assessment.

2.4.1 Sex Distribution of the Inhumations

The fact that the skeletal assemblage was poorly preserved had an enormous impact on the proportion of individuals whose sex could be determined (Figure 7). Of the adult group, 53 skeletons (58.2%) were not

sexed ('unsexed') and one individual had female and male traits present and thus had to be considered indeterminate. It should be noted that five individuals for whom neither age nor sex could be determined were not included with the adult population for this analysis.

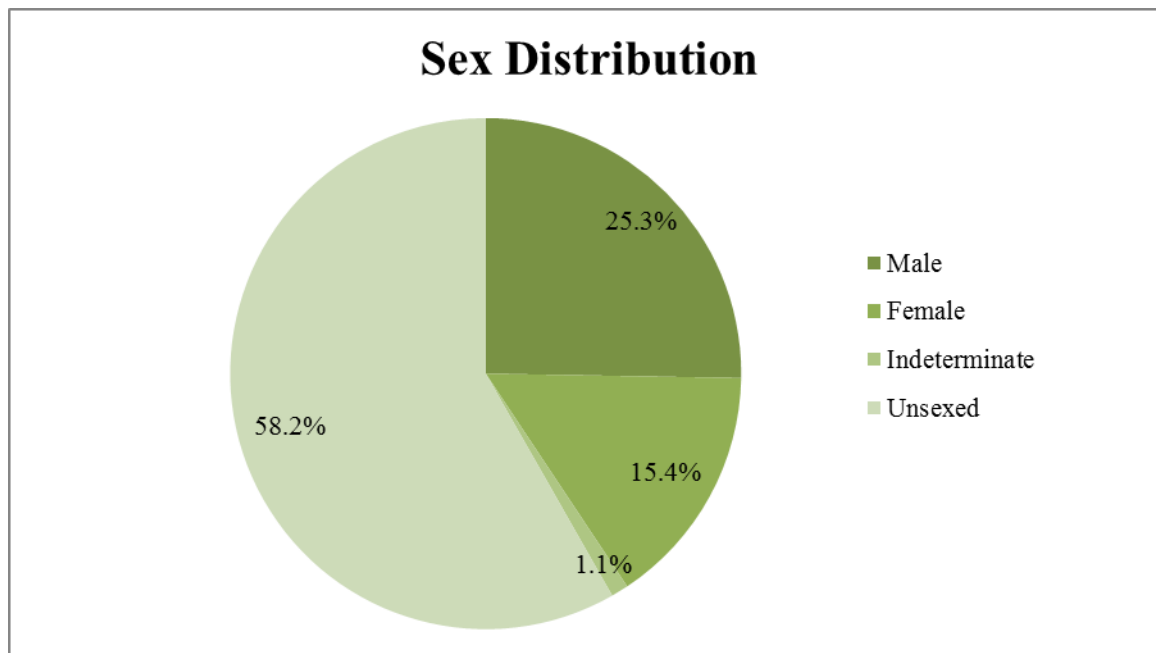


Figure 7 Sex of inhumed skeletons

Fourteen of the individuals were female (15.4%). They were outnumbered by males who made up 25.3% of all adults (n=23). A chi square test was run to assess whether this difference was significant and the result with one degree of freedom was negative, indicating that it was not.

Comparative sites such as Baldock, at the Land to the Rear of California, also included a larger number of males. At this roadside settlement, 44% of adults were male while only 32% were female (Keefe *et al* 2015). Critically, the difference at Baldock was not considered to be statistically significant – similarly to Bainesse. At Western Road, the male proportion was 69.7% and it was determined that the sex difference was significant. It is generally common for Roman cemeteries to include more males than females, but it should be emphasised here that the large number of adults of unknown sex may have skewed the full demographic picture from Bainesse.

There were no sexually dimorphic elements in the disarticulated bone assemblage.

2.4.2 Sex Distribution of the Cremated Bone Assemblages

As with ageing cremated remains, estimating sex in cremated bone assemblages is difficult as sexually dimorphic bones rarely survive. It was not possible to determine sex for any of the cremated individuals at Bainesse.

2.5 ANCESTRY

The term 'ancestry' is used to describe the genetic background of individuals. An attempt was made to determine the ancestry of each individual based on the visual appearance of traits in the cranial skeleton, as described by Byers (2010, 154-165). A metric method was also applied based on eight cranial measurements (Giles and Elliot 1962 in Byers 2010, 168-171). Unfortunately, the expression of the various traits used to define ancestral groups can be ambiguous and assessing them is subjective; consequently, it can be very difficult to determine ancestry (Byers 2010, 152-154). Preservation is also an issue as most of the traits used to assess ancestry in skeletal remains are in the cranium and the cranium frequently did not survive intact at Bainesse.

Two individuals (BN 6 and BN 7) are likely to have had African ancestry. This was determined by visual assessment and was based on the presence of morphological ancestral traits such as nasal guttering, a wide nasal aperture, rectangular orbits, a hyperbolic palatal shape, and a low nasal root. The remaining individuals only showed traits that would suggest a Caucasian or possibly Caucasian ancestry, except for one individual, BN 140, who displayed mixed African and white traits. However, for the majority of skeletons it was not possible to observe ancestry due to poor preservation.

It was not possible to estimate ancestry in any of the cremated or disarticulated human remains.

2.6 METRIC ANALYSIS

2.6.1 Stature

Stature depends on two main factors, heredity and environment; it can also fluctuate between chronological periods. Stature can only be established in skeletons if at least one complete and fully fused long bone is present, but preferably using the combined femur and tibia. The bone is measured on an osteometric board, and stature is then calculated using a regression formula developed upon individuals of known stature (Trotter 1970). Where possible, bones from the legs were used in preference to those of the upper limb as these carry the lowest error margin (*ibid*).

Different formulae have been developed for different ancestral groups (Trotter 1970). Consequently, where ancestry had been identified as 'white' or 'black', the 'white' or 'black' regression formulae were applied. Where individuals were assessed as being of mixed ancestry, or ancestry was unknown, the choice of which formula to use was an issue. According to Byers (2010, 153), individuals with mixed white and black traits should be classified as black, so applying the black formula could be appropriate. Since most skeletons were white, the white formula was applied to those individuals whose ancestry could not be assessed.

Stature was calculated for fifteen individuals (16.5% of adults). This included nine males and six females. It was possible to determine that female stature at Bainesse ranged from 153.2cm to 161.5cm with a mean of 157.2cm. This compared relatively closely to the average height calculated for this period, which is 159cm (Roberts and Cox 2003, 142). Although the females seem to be slightly shorter than those from other Roman sites, they still fall well within the mean range for the period, which is 150cm to 168cm (*ibid*, 142).

For the male population the regression formulae calculated a range from 161.4cm to 171.2cm and a mean of 165.9cm. This result was only based on seven individuals; however, as two of the males (BN 7 and BN 140) exhibited traits indicating potential mixed ancestry (Table 6). These were regarded separately and their living heights were 160.7cm and 164.0cm (BN 140 and BN 7 respectively). The mean male stature calculated for this site was below the male Roman mean calculated by Roberts and Cox, which is 169cm (2003, 142).

Table 6 Male statures by ancestry

	White	Black/Mixed?
Formula used	White	Black
Number of Skeletons	7	2
Min (cm)	161.4	160.7
Mean (cm)	165.9	162.4
Max (cm)	171.2	164.0

2.6.2 Platymeric and Platycnemic Indices

Leg measurements were obtained from the femora and tibiae and used to calculate the shape and robusticity of the femoral shaft (*platymeric* index) and the tibial shaft (*platycnemic* index; Bass 1987).

Due to the poor preservation, only few measurements could be taken (Table 7). The table below summarises the measurements that could be taken. The right femora of all males and females (100%, n=7) were *platymeric* (*broad and flat*). Only six femora were measured on the left side. Here, the measurements of one female and five males also fell into the *platymeric* range.

Table 7 Platymeric index

Side	Sex	No	Min	Max	Mean	Platymeric		Eurymeric		Stenomic	
						n	%	n	%	n	%
Right	Female	1	75.59	75.59	75.59	1	100.0%	0	0.0%	0	0.0%
	Male	6	65.59	81.17	73.44	6	100.0%	0	0.0%	0	0.0%
	Unsexed/ Ind	0	0.00	0.00	-	0	-	0	-	0	-
Left	Female	1	72.75	72.75	72.75	1	100.0%	0	0.0%	0	0.0%
	Male	5	63.11	80.52	72.71	5	100.0%	0	0.0%	0	0.0%
	Unsexed/ Ind	0	0.00	0.00	-	0	-	0	-	0	-

Overall, it was observed that all male tibiae (100%), seven right bones and two left tibiae were *eurycnemic* (broad). The female tibiae were more varied, with one right tibia (50%) falling into the *mesocnemic* range (average), and one falling into the *eurycnemic* range (50%). The only left tibia, which belonged to a female fell into the *mesocnemic* range (average). The results are summarised in Table 8 below.

Table 8 Platycnemic Index

Side	Sex	No	Min	Max	Mean	Hyperplatycnemic		Platycnemic		Mesocnemic		Eurycnemic	
						n	%	n	%	n	%	n	%
Right	Female	2	67.00	70.33	68.67	0	0.0%	0	0.0%	1	50.0%	1	50.0%
	Male	7	71.01	92.18	79.08	0	0.0%	0	0.0%	0	0.0%	7	100.0%
	Unsexed/ Ind	0	0.00	0.00	-	0	-	0	-	0	-	0	-
Left	Female	1	67.48	67.48	67.48	0	0.0%	0	0.0%	1	100.0%	0	0.0%
	Male	2	75.10	76.90	76.00	0	0.0%	0	0.0%	0	0.0%	2	100.0%
	Unsexed/ Ind	0	0.00	0.00	-	0	-	0	-	0	-	0	-

2.6.3 Cranial Indices

Standard measurements of the cranium and mandible were taken where preservation allowed, including from reconstructed skulls. Poor preservation also had an extreme impact on how many cranial measurements could be taken. Only one adult female, BN 209, had an intact skull allowing the calculation of the cranial index. Her cranium fell into the *mesocranic* range and was thus of average shape.

The cranial breadth-height index expresses the relationship between the breadth and height of a skull as a percentage. It was only possible to calculate this index for the adult female, BN 209. She had an average or medium skull (*metriocranic*). The mean height index fell into the low category.

The fronto-parietal index expresses the relationship between the minimum breadth of the frontal bone and the maximum cranial breadth. Only BN 209 was measured for this index and fell into the *stenometopic* (narrow) range. Her orbital index result was *chamaeonchic* (wide range). One other individual was measured for the orbital index, which was *hypsiconchic* (narrow).

The nasal index of adult female BN 209 was *mesorrhinic* (average nasal aperture). The maxilla-alveolar index of BN 209 was fairly broad (*brachystaphyline*).

It was not possible to undertake metric analysis of the cremated bone assemblage or in the disarticulated remains.

2.7 NON-METRIC TRAITS

Non-metric traits are additional sutures, facets, bony processes, canals and foramina, which occur in a minority of skeletons and are believed to suggest hereditary affiliation between skeletons (Saunders 1989). The origins of non-metric traits have been extensively discussed in the osteological literature and it is now thought that while most non-metric traits have genetic origins, some can be produced by factors such as mechanical stress (Kennedy 1989) or environment (Trinkhaus 1978). A total of thirty cranial (skull) and thirty post-cranial (bones of the body and limbs) non-metric traits were selected from the osteological literature (Buikstra and Ubelaker 1994; Finnegan 1978; Berry and Berry 1967) and recorded. Only the results for the adult skeletons are presented here.

2.7.1 Cranial Traits

The most frequent non-metric trait in the cranium was the *precondylar tubercle* (bony nodule on the base of the skull), which 52.6% of individuals with the part present for observation had (10/19). A total of 16.7% of individuals (2/12) had an ossicle at the lambda (small extra bone at the back of the skull) and one skeleton (4%, 1/25) had retained the *metopic suture* (Table 9).

Table 9 Cranial non-metric traits (adults)

Midline Traits	Trait Present	Part Present	%
Ossicle at Lambda	2	12	16.7%
Ossicle at Bregma	0	15	0.0%
Metopic Suture	1	25	4.0%
Precondylar Tubercle	10	19	52.6%
Palatine Torus	0	15	0.0%

Paired Traits	Right			Left		
	Trait Present	Part Present	%	Trait Present	Part Present	%
Highest Nuchal Line	0	24	0.0%	0	24	0.0%
Lambdoid Ossicle	7	14	50.0%	8	13	61.5%
Coronal Ossicle	0	16	0.0%	0	16	0.0%
Ossicle at Asterion	0	4	0.0%	0	5	0.0%
Ossicle at Parietal Notch	0	3	0.0%	1	7	14.3%
Ossicle at Pterion	0	4	0.0%	1	6	16.7%
Parietal Foramen	10	19	52.6%	9	18	50.0%
Auditory Torus	0	28	0.0%	0	28	0.0%
Foramen of Huschke	0	25	0.0%	0	26	0.0%
Mastoid For. Extrasutural	10	22	45.5%	10	23	43.5%
Sutural Mastoid Foramen	4	10	40.0%	4	11	36.4%
Open Post. Condylar Canal	3	9	33.3%	4	9	44.4%
Double Condylar Facet	2	23	8.7%	2	24	8.3%
Double Ant. Condylar Canal	3	18	16.7%	4	21	19.0%
For. Ovale Incomplete	0	4	0.0%	0	4	0.0%
Open For. Spinosum	1	5	20.0%	2	5	40.0%
Access. Less. Palat. For.	2	8	25.0%	3	10	30.0%
Maxillary Torus	1	17	5.9%	0	18	0.0%
Mandibular Torus	1	29	3.4%	1	27	3.7%
Staphne's Defect	0	18	0.0%	0	16	0.0%
Zygomatic. Facial For. Abs.	1	18	5.6%	2	18	11.1%
Access. Infra-orb. For.	1	11	9.1%	2	12	16.7%
Access. Supraorbital For.	4	18	22.2%	3	19	15.8%
Bridging Supraorbital Notch	2	18	11.1%	4	23	17.4%
Anterior Ethmoid For. Ex.	2	2	100.0%	2	2	100.0%

Posterior Ethmoid For. Ex.	0	2	0.0%	0	2	0.0%
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In terms of bilateral traits, the most common traits were *ethmoid foramen extrasutural* present (small hole inside the orbit). However, only two individuals had the part present as the bone of the orbit is fragile. *Parietal foramen* (small hole in the parietal bone) were frequent on both sides; 52.6% (10/19) had one present in the right side and 50% (9/18) in the left. It was also observed that *ossicles in the lambdoid suture* (small extra bones along the back of the skull) occurred often, especially on the left side where 61.5% (8/13) with the area present had the trait present. *Mastoid foramen extrasutural* (small hole behind the ear) were also common with 45.5% (10/22) in the right and 43.5% (10/23) present in the left side (see Table 9).

2.7.2 Post-Cranial Traits

Particularly frequent non-metric traits in the post-cranial skeleton were *exostoses in the trochanteric fossa* (spicules of bone on the femur), with 35% of the right and 33% of the left bones affected. Also common were lateral tibial squatting facets (small facets in the ankle, present in 25% of the right and 33.3% of the left tibiae). Double Atlas facets (extra facet in the neck vertebra) were present in four of 23 individuals (17.4%) on the right, and in five of 24 bones on the left (20.8%). Other traits were also present and can be found in Table 10 below.

Table 10 Post-cranial non-metric traits (adults)

Midline Traits	Trait Present	Part Present	%
Sternal Foramen	0	8	0.0%

Paired Traits	Right			Left		
	Trait Present	Part Present	%	Trait Present	Part Present	%
Lateral Atlas Bridging	0	22	0.0%	0	23	0.0%
Double Atlas Facet	4	23	17.4%	5	24	20.8%
Posterior Atlas Bridging	1	22	4.5%	1	23	4.3%
Transverse For. Bipartite	1	15	6.7%	0	15	0.0%
Suprascapular Foramen	0	8	0.0%	0	5	0.0%
Accessory Acromial Facet	0	7	0.0%	0	7	0.0%
Circumflex Sulcus	1	11	9.1%	0	13	0.0%
Supracondyloid Process	0	23	0.0%	0	24	0.0%
Septal Aperture	2	17	11.8%	0	16	0.0%
Accessory Sacral Facet	0	13	0.0%	0	11	0.0%
Acetabular Crease	0	19	0.0%	1	20	5.0%
Allen's Fossa	0	17	0.0%	0	18	0.0%
Poirier's Facet	0	17	0.0%	0	18	0.0%
Plaque	1	17	5.9%	2	18	11.1%

Hypotrochanteric Fossa	2	18	11.1%	2	18	11.1%
Exostosis in Troch. Fossa	7	20	35.0%	6	18	33.3%
Third Trochanter	1	21	4.8%	0	20	0.0%
Emarginate Patella	0	10	0.0%	0	13	0.0%
Vastus Notch	0	9	0.0%	1	13	7.7%
Vastus Fossa	1	10	10.0%	0	13	0.0%
Med. Tib. Squatting Facet	1	18	5.6%	1	13	7.7%
Lat. Tib. Squatting Facet	4	16	25.0%	4	12	33.3%
Peroneal Tubercle	0	16	0.0%	0	15	0.0%
Double Ant. Calc. Facet	0	18	0.0%	2	16	12.5%
Absent Ant. Calc. Facet	2	19	10.5%	0	15	0.0%
Double Inf. Talar Facet	1	15	6.7%	5	17	29.4%
Med. Talar Facet	0	14	0.0%	0	17	0.0%
Os Trigonum	1	16	6.3%	4	20	20.0%
Lat. Talar Extension	0	15	0.0%	0	20	0.0%

Non-metric traits were not observed in the cremated bone assemblage or in the disarticulated remains.

2.8 CONCLUSION

The skeletal remains at Bainesse were in markedly poor condition, with generally heavy fragmentation, poor surface preservation and most skeletons (72%) were less than 20% complete. However, 13.2% of skeletons were more than 80% complete and most of these were well preserved. The poor preservation had an impact on the osteological analysis, with 60% of adult individuals remaining unsexed and 55.4% of the adults without a specific age.

Men outnumber the women on this site with 25% of adults sexed as male and 15.2% as female. At Bainesse, there was a particularly low number of young adults (18-25 years old) recorded for both sexes. This was unusual considering such lifecycle events as childbirth, which would have been dangerous for women. There was a considerable peak in mortality in the young middle adult age category (26-35 years old). Notably, proportionally fewer females had died in this age group than males. Fewer than 15% of adults were in the old middle adult (36-45 years old) and mature adult (46+ years old) age groups. However, it is not certain what actual ages the 50% of adults whose age could not be determined more precisely would have been and it is possible that these represented more mature individuals.

A quarter of the Bainesse population was made up of non-adults, half of whom were younger juveniles, aged between one and six years. Older juveniles and adolescents represented a quarter of the non-adults. One foetus/neonate and one infant were also identified. In seven individuals it was not possible to determine age in seven non-adults more precisely than to say that they were likely non-adults and most of these were likely more than four years old.

Two males were of possible African ancestry based on morphological traits of the skull and another male was likely of mixed ancestry.

The stature of males from Bainesse ranged from 161.4cm to 171.2cm, with a mean height of 165.9cm. The female stature ranged from 153.2cm to 161.5cm with a mean of 157.2cm. While all individuals fell within the calculated range for the Roman period, both sexes were slightly below the mean living height for the Roman period.

The cremation burials at Bainesse were excavated as burials, and in some instances contained several contexts. They were generally moderately to poorly preserved and ranged in weight from 0.4g to 464.1g. Most of the bone derived from the 5mm sieve, and most of the identifiable bone was represented by long bone fragments (mean of 29.38%). Ten of the burials contained adults and five burials contained possible non-adults. At least two cremation burials contained animal bone.

3.0 PATHOLOGICAL ANALYSIS

Pathological conditions (disease) can manifest themselves on the skeleton, especially when these are chronic conditions or the result of trauma to the bone. The bone elements to which muscles attach can also provide information on muscle trauma and excessive use of muscles. All bones were examined macroscopically for evidence of pathological changes. Fuller descriptions of the pathological lesions observed can be found in Appendix A.

3.1 CONGENITAL CONDITIONS

Heredity and environment can influence the embryological development of an individual, leading to the formation of a congenital defect or anomaly (Barnes 1994). The most severe defects are often lethal, and if the baby is not miscarried or stillborn, it will usually die shortly after birth. Such severe defects are rarely seen in archaeological populations, but the less severe expressions often are, and in many of these cases the individual affected will have been unaware of their condition. Moreover, the frequency with which these minor anomalies occur may provide information on the occurrence of the severe expressions of these defects in the population involved (*ibid*), and may provide information on maternal health (Sture 2001).

3.1.1 Variation in Number of Vertebral Segments

The usual number of segments in the spine is 33, including seven cervical (neck) vertebrae, twelve thoracic vertebrae (bearing the ribs), five lumbar vertebrae (lower back), five fused segments in the sacrum (back of the pelvis), and four segments in the coccyx (tailbone). Occasionally the overall number of segments may vary. It is more common for an individual to have an additional vertebra than to have a reduction in the number of vertebrae (Barnes 1994, 78). Assessing the number of vertebrae in the spine of archaeological individuals can be difficult, due to the fact that skeletons may be incomplete, or because

disarticulated bone can be present in the backfill of the grave and become intermixed with those of the articulated skeleton.

When additional vertebrae occur they often appear at the borders between the thoracic and lumbar spine, or between the lumbar vertebrae and sacrum. They may appear as a fully-fledged thoracic or lumbar vertebra, but frequently they will take on a mixture of the characteristics of the vertebrae on either side of the border, so appearing to be part-thoracic/ part-lumbar, or part-lumbar/ part-sacrum (Barnes 1994, 78). When this occurs they are described as 'transitional vertebrae' (see Section 3.1.2 below).

In BN 123 (SK 12871), six sacral vertebrae were observed. It is possible that this was as an additional vertebra, or mark a cranial border shift between the sacral and coccyx areas of the spine. Since the coccyx was not present, it was not possible to identify whether this was an extra sacral vertebra or a cranial border shift with sacralisation of the first coccygeal vertebra. According to Barnes (2012) supernumerary vertebrae are formed from an extra pair of solemites that can be added to the vertebral column between borders, which is why they occur most often in these areas.

3.1.2 Transitional Vertebrae

The vertebrae are divided into different groups by 'borders', and during development each group receives instructions governing the type of vertebrae into which they will develop. If these borders move up or down the spine then a vertebra becomes incorporated into an adjacent group, receives the wrong instructions, and takes on the characteristics of the new vertebra type (Barnes 1994, 79). The resulting vertebrae are termed 'transitional vertebrae'. Border-shifts have the effect of increasing the number of vertebrae in a particular group, but do so by reducing the number present in the adjacent group. The overall number of vertebrae remains the same, which is not the case with genuine additional segments or reductions in the number of segments.

It was possible to identify four individuals with border shifts. All of these were cranial (upwards) shifts of the thoraco-lumbar border with lumbarisation of the twelfth thoracic vertebra (the twelfth thoracic vertebra was of lumbar appearance). The prevalence for border shifts was calculated by including all individuals with at least one border area between vertebrae types in the spine present. A total of 21 individuals had at least one border present in the spine, with a prevalence of 19.05% (4/21). If only the thoraco-lumbar border was used for prevalence – considering that the shifts only occurred here – the prevalence rate was 30.8% (4/13).

Three of the four individuals with transitional vertebrae at the thoraco-lumbar border were male, while one individual was an adolescent and could therefore not be sexed. In terms of male prevalence, 37.5% of men (3/8 individuals) with a border area present in their spine exhibited a shift while none of the females had shifts.

In comparison, at Baldock 17.5% (7/40 individuals) had transitional vertebrae present with an equal prevalence in males and females (17.4 and 17.6% respectively) (Keefe *et al* 2015). The incidence of shifts

in the thoraco-lumbar border was 21.33% (7/33, *ibid*). At Western Road, 10.5% of thoraco-lumbar borders were affected overall (5.9%, 1/17 in adults) and the majority of shifts occurred at the border between sacrum and coccyx (Caffell and Holst 2014a, 27).

3.1.3 Cleft Neural Arches

The two halves of the neural arch normally surround and protect the spinal cord, but they can fail to unite during development leaving a cleft in the back of the vertebra. However, the spinal cord remains protected as the gap is bridged by a tough fibrous tissue (Barnes 1994, 117-120). Cleft neural arches are most common at the border regions between the vertebra types, especially in the sacrum where the entire bone may be involved (*ibid*, 119-120). Cleft sacral arches have often been termed '*spina bifida occulta*' in the palaeopathological literature, but the causes of cleft arches and true spina bifida are quite different, and cleft neural arches are not related to the more severe *spina bifida cystica* (*ibid*).

BN 22 (SK 13275) had a cleft neural arch in the first cervical vertebra. The anterior neural arch of the first cervical vertebra is expected to fuse between the ages of five and six (Schaefer *et al* 2009). BN 22 was much older than this as a young middle adult aged 26 to 35 years. Barnes (1994, 120) states that clefting of the anterior neural arch is usually asymptomatic due to tough fibrous bands which take the place of the missing bone.

In one individual, BN 77 (SK 13027, adolescent), it was noted that the posterior arches of at least the third to fifth sacral vertebrae were not fused together. Although post-mortem damage made it impossible to observe the entire posterior sacrum, it is likely that the first and second sacral vertebrae were also bifid – thus involving the entire sacrum.

3.1.4 Coxa Vara

Coxa vara is a condition where the neck of the femur is short and horizontal, so that the collo-diaphyseal angle (angle between the femoral head and the femoral shaft) is below 125 degrees. This causes the head of the femur to lie below the greater trochanter. The condition is not present at birth, but develops slowly due to a congenital ossification defect of the femoral neck (Salter 1999). Because of the defect, the muscles of the hip cannot hold the pelvis level during walking and the individual will have a lurching (although painless) type of limp (*ibid*). *Coxa vara* was present in two individuals at Bainesse. BN 16 (SK 13192) was a mature adult female *Coxa vara* was associated with bilateral slight flattening of the superior surface of the femoral head.

BN 144 (SK 12860) was identified as a second individual with *coxa vara*. The skeleton was young middle adult female and also exhibited flattening on the superior surface of the femoral heads. Overall, two of fourteen women (14.3%) at Bainesse had *coxa vara*.

3.1.5 Fusion of the Manubrium and Sternum

The manubriums of BN 17 (young middle adult male) and 209 (young middle adult female) had fused to

their sternums. The manubrium can become either partially or completely fused to the sternum because of a failure of the cartilaginous manubrio-mesosternal joint to develop (Barnes 1994). According to Barnes (*ibid*), fusion can interfere with optimum respiration and has been associated with lung infections, however, neither of the young middle adults had any signs of infection on the pleural surfaces of their ribs.

3.1.6 Cysts

Cysts were noted in the acetabuli of two individuals, BN 17 (young middle adult male) and BN 208 (old middle adult male). In BN 17, the lesion was small and was located on the lunate surface of the acetabulum, immediately inferior of the anterior iliac spine on the inferior facing surface. It was smooth and had rounded edges. In BN 208, it was located on the superior margin of the right acetabulum. It appeared to be a small, hollow lesion inferior of the anterior iliac crest. It is likely that the cysts were developmental.

3.1.7 Non-Osseous Union of Carpals

In BN 123, an old middle adult male, non-osseous union of the lunate with the triquetral was observed bilaterally. The right lunate had porotic changes present on the articular facet with the triquetral. These were mirrored in the triquetral and were also observed in the same carpals of the left hand, except for the left triquetral, which was lost post-mortem. Although a cystic lesions or DJD were also considered as causative factors for this, the symmetry was suggestive of non-osseous union and thus a developmental condition.

3.1.8 Other Developmental Anomalies

Skull

In BN 197a (SK 13146, old middle adult/mature adult male), a small nodule of dense bone was observed bilaterally on the lateral aspects of the mandibular neck, at the lateral extent of the mandibular condyles. This was likely developmental in origin.

Spine

BN 144 (SK 12860, young middle adult female) exhibited a developmental misalignment of the second cervical vertebra. The angle of the left inferior apophyseal facet was pointed more laterally than the right.

Foot

In one individual (BN 87/ SK 12748), the left talus had fused to the left calcaneus at the surface of the anteromedial articular facet of the joints between the two bones, and that it likely had separated at some point. This was characterised by round nodules of bone where the smooth facet should have been. It is

possible that this condition was developmental, but may also have a traumatic aetiology.

3.2 METABOLIC CONDITIONS

3.2.1 *Cribra Orbitalia*

Cribra orbitalia is a term used to describe fine pitting in the orbital roof, which develops during childhood and often recedes during adolescence or early adulthood. Until recently, iron deficiency anaemia was the accepted cause of these lesions (Stuart-Macadam 1992), but a strong case has been made by Walker *et al* (2009) for different types of anaemia as the causative factor. These include megaloblastic anaemia in the New World, suggesting a diet deficient in Vitamin B₁₂ (i.e. plant-based and lacking in animal products) and/or folic acid. Such dietary deficiency could have been exacerbated through poor sanitation leading to infection and infestation with gut parasites (*ibid*). In malarious areas of the Old World, haemolytic anaemia (e.g. sickle cell anaemia and thalassemia) may be important in the development of *cribra orbitalia* (*ibid*). However, for areas such as northern Europe they have proposed that *cribra orbitalia* may be more likely related to conditions such as scurvy (Vitamin C deficiency) or chronic infections (*ibid*). *Cribra orbitalia* is often used as an indicator of general stress (Lewis 2000, Roberts and Manchester 2005) and is often found associated with agricultural economies (Roberts and Cox 2003).

It was possible to observe at least one orbit in 31 individuals (24% of all 129 individuals). *Cribra orbitalia* was present in 80.8% of these (42/52). Most individuals exhibited from Stage 1 or 2 *cribra orbitalia*. 81.4% of adult orbits were affected (35/43 orbits), including a prevalence of 89.3% (25/28 orbits) in males and 66.7% (8/12 orbits) in females. Approximately three quarters of observable non-adult orbits showed signs of *cribra orbitalia* (77.8%, 7/9 orbits).

It was noted that the right orbit was more often affected by *cribra orbitalia* in adults as well as in the non-adults. Preservation of orbits may have been a factor in affecting this pattern, as more left orbits were present than right orbits. This may also suggest that had orbits been observable, the prevalence rates would have decreased. However, at the Roman site at Baldock, a similarly high prevalence rate was noted (Keefe *et al* 2015). At Bainesse, *cribra orbitalia* generally appeared bilaterally, although it was only possible to observe one orbit in ten adults and three non-adults, as the other side was either absent or too eroded.

Overall, the prevalence for *cribra orbitalia* was noted to be much higher than the British Roman mean, with 16.9% of orbits affected and 9.6% of individuals (Roberts and Cox 2003, 141). This was clearly much lower than that recorded at Bainesse (80.8% of orbits and 83.9% of individuals affected). At Western Road, 36% of individuals (with observable orbits) and 33.3% of orbits were affected (Caffell and Holst 2014a, 38). Here, the prevalence was higher in the left orbit (*ibid*). The prevalence at Horncastle was again higher with a true prevalence rate (orbits affected) of 44.4% and 46.7% of individuals showing signs of *cribra orbitalia* (Caffell and Holst 2007). At the Roman site of Baldock, 37.1% of adults were affected and 100% of non-adults, with 25.8% of adult orbits and 100% of non-adult orbits affected (Keefe *et al* 2015, 36-37).

3.2.2 Scurvy (Vitamin C Deficiency)

Scurvy develops following a prolonged deficiency in Vitamin C, which is found in fresh fruits and vegetables, as well as in marine fish. It is important to bear in mind that cooking food will destroy a large percentage of the Vitamin C it contains (Ortner 2003, 384). According to Aufderheide and Rodríguez-Martín (1998) it will take one to three months for the first symptoms to appear, if the consumption of Vitamin C is stopped completely. Scurvy leads to haemorrhages as weakened blood vessel walls are more prone to injury through minor trauma (Brickley and Ives 2008, 48). Children and infants are more likely to develop scurvy than adults, and the skeletal changes are usually most severe in infants. Ortner (2003, 384) has reported that the highest prevalence of scurvy occurs among infants between eight to ten months of age, although Lewis (2007, 127) indicates a broader age bracket of six months to two years. It is likely that many past populations experienced periodic shortages of Vitamin C in their diets, particularly during winter when fresh food was scarce (Brickley and Ives 2008, 50).

Vitamin C deficiency was almost certainly present in BN 235, a younger juvenile of between three and five years. This individual had new bone layering in the superior surfaces of both orbits, greyish fine woven bone around right lingula of the mandible and around the area of area of the unerupted right mandibular second molar. Greyish woven bone was also observed on the inferior surface of the pars basilaris of the occipital bone, which may be evidence for the condition. Woven bone on the orbit roof is believed to result from haemorrhages in the orbits, something that is frequently associated with scurvy in infants and young children (Ortner 2003, 386) but also seen in adults (Brickley and Ives 2008, 58-59). Ortner (2003, 385-386) also notes bone formation/ increased porosity on the occipital bone and sphenoid bone (adjacent to the temporal bone) to be associated with scurvy in infants, and comments that bone formation in infantile scurvy may occur around the attachments of muscles related to chewing (Ortner and Ericksen 1997). Although woven bone in the orbit roofs can occur with adult scurvy, trauma is also a potential cause of the lesions (*ibid*). While it is possible that this individual had suffered from scurvy, other causes may have led to the lesions observed.

Evidence for scurvy is scarce in Roman Britain, with just 0.03% of the population affected (Roberts and Cox 2003, 142). In Leicester, a young juvenile from Newarke Street had lesions potentially associated with scurvy, although a more positive diagnosis was not possible (Keefe and Holst 2013, 13) and two non-adults from Western Road had lesions indicative of scurvy (Caffell and Holst 2016). At Western Road, 9.1% of the non-adults (1/11) and 10.5% of the orbit roofs were affected (2/19).

One individual, BN 194a, a younger juvenile of three to four years of age, had pitting on the superior intracranial surface of the left greater wing of the sphenoid. This was severe and was located laterally of the foramen rotundum, within the depressed and concave area of the greater wing. Slight pitting was further observed on the right posterior maxilla and the anterior orbital aspect of the right zygomatic bone. It is possible that these bony lesions relate to scurvy; however, without the presence of other skeletal manifestations of scurvy, a positive diagnosis of the condition could not be made.

3.2.3 Rickets (Vitamin D Deficiency)

Lack of Vitamin D leads to the development of rickets and osteomalacia in children and osteomalacia in adults (Lewis 2007, 119). The poorly mineralised bone resulting from Vitamin D deficiency is incapable of supporting normal loads, and as a result it bends under weight-bearing. As children are growing, the long bones are affected; in adults the bones of the torso are more commonly involved (Ortner 2003, 393-401; Brickley and Ives 2008, 75-150). Although Vitamin D can be obtained from food sources (primarily eggs and oily fish), most Vitamin D is synthesised by the body during exposure to sunlight (Brickley and Ives 2008, 82-84). Therefore, the development of rickets and osteomalacia is usually associated with post-medieval urban populations (Lewis 2007, 121; Ortner 2003, 393). However, cultural practices can also have an impact on diet and the amount of sunlight exposure. These include infant and child feeding practices, the type of clothing worn, amount of time spent outdoors, housing styles, and work environments, and all can vary according to age, sex and social status (Brickley *et al.* 2014). A diet deficient in calcium can also lead to the development of rickets (*ibid*).

Three skeletons from Bainesse showed evidence for bowing of bones, including BN 197a, an old middle /mature adult male. The changes in 197a were characterised by a medial deviation of the right distal tibia. Although the left distal tibia in this individual was not completely present, the same deviation was observable in the remains of the distal shaft. This may have been caused by residual rickets from childhood. The occurrence of bowing was observed in two out of 45 relatively complete adult tibiae, which is a prevalence of 4.44%.

BN 201 (around three year old young juvenile) showed evidence for torsion and exaggerated bowing of the femora and an exaggerated lip of the lateral proximal tibia, which is indicative of rickets. BN 231 (3-4 year old younger juvenile) was also thought to have suffered from rickets. The proximal half of the right ulna of this individual deviated severely in anteromedial direction and the right humeral shaft appeared elongated anteroposteriorly. The latter bone was not bowed, however.

Overall, four of 57 relatively complete non-adult long bones were affected by bowing. This was a proportion of 7.02% of all non-adult bones and two of eleven non-adults with at least one long bone shaft intact possibly suffered from rickets. This was a proportion of 18.18% of non-adults with rickets. For comparison, at Roman Western Road, the proportion of non-adult long bones affected by bowing was 16.0% (15/94 relatively complete long bone shafts), and the overall prevalence of non-adults with rickets was 11.2% (Caffell and Holst 2014a), which is slightly lower than that at Bainesse. The proportion of individuals with evidence for rickets in the Roman period in Britain was 0.8% (Roberts and Cox 2003, 143).

3.3 TRAUMA

Obviously, the evidence for trauma in archaeological populations is restricted to that visible in the skeletal remains, unless soft tissue is preserved (Roberts and Manchester 2005, 85-86). Therefore, most of the soft-tissue injuries sustained by archaeological populations will be invisible, although occasionally soft tissue injuries can be inferred through ossification of the tissues at the site of damage, known as *myositis ossificans* (*ibid*). Much of the evidence for trauma in archaeological populations focuses on

fractures to the bones (*ibid*, 84-85), although long standing well-healed fractures may be hard to detect (Jurmain 1999, 186).

Ante-mortem injuries occurred during life and show evidence for healing, whereas peri-mortem injuries occurred around the time of death and consequently no evidence for healing will be seen. Peri-mortem injuries did not necessarily occur at the instant of death. It takes time for evidence of healing to be visible in the bone following an injury, and also for bone to lose the physical characteristics it had in life following death. Therefore 'peri-mortem' really refers to a three-week window either side of death (Roberts and Manchester 2005, 114). It is impossible to determine from the macroscopic appearance of the bone whether an injury occurred a week before the person died, or minutes before they died; or whether the injury was caused the day or a week after they had died. Distinguishing between peri-mortem trauma and post-mortem damage can be difficult. Generally, post-mortem breaks will have a paler surface than the surrounding bone and broken edges will usually be perpendicular to the bone (*ibid*, 114-116; Lovell 1997, 145; Sauer 1998). Recent post-mortem breaks are usually easily distinguished, but breaks that occurred while the skeleton was in the burial environment and long before the skeleton was excavated may be much harder to identify as such.

3.3.1 Ante-Mortem Fractures to the Ribs

Only one individual at Bainesse had a well-healed rib fracture. This was BN 239 (SK 13135), who was an old middle adult female. The fracture was located in the mid-shaft of the eleventh rib. The prevalence for rib fractures was 3.7% (1/27 individuals with ribs present). The prevalence rate in adults was 4.76% (1/21 adults with at least one rib present), which was much lower than the 18.6% of individuals - or 22.2% of adults - affected by rib fractures at Baldock (Keefe *et al* 2015). It was more similar to the rib fracture incidence at Horncastle, where an overall prevalence of 5.6% (individuals with fractures) was recorded (Caffell and Holst 2007).

Rib fractures can occur as a result of a direct blow or through a fall (Roberts and Manchester 2005, 105; Galloway 1999a, 107). Although coughing can also cause rib fractures (Roberts and Manchester 2005, 105), the latter is more common in elderly individuals (Dandy and Edwards 2003, 161). Isolated rib fractures usually heal well without active treatment (*ibid*).

3.3.2 Spondylolysis

Spondylolysis refers to the separation of the neural arch of a vertebra from the body just beneath the superior articular facets at the *pars interarticularis*. Debate has focussed on whether the condition is congenital, develops as a result of trauma, or requires a combination of trauma and an underlying developmental weakness (Ortner 2003). It is possible that repeated stress placed on the lower back, for example through bending and lifting, or movements associated with activities such as dancing, gymnastics, weight lifting, kayaking, wrestling, long jumping and playing football may lead to the development of *spondylolysis* (Roberts and Manchester 2005, 106; Galloway 1999a, 101). Dandy and Edwards (2003, 433) also indicate that *spondylolysis* may be more common in young, active individuals, particularly athletes. The affected individual may suffer from slight discomfort in their lower back

(Roberts and Manchester 2005, 107).

Three individuals at Bainesse had *spondylolysis*. In BN 17 (SK 13260), a young middle adult male, the inferior portion of the neural arch of the fifth lumbar vertebra was separated, including the inferior facets (Plate 1). In this individual, the *spondylolysis* was accompanied by a cranial border shift of the lumbar-thoracic border.



Plate 1 Spondylolysis of the fifth lumbar vertebra of BN 17

BN 22 (SK 13275) had *spondylolysis* bilaterally in the fifth lumbar vertebra, similar to BN 17. This individual, also a young middle adult male, had points of separation at the right lamina inferior of the superior apophyseal facet. The spinous process and the right inferior facet were thus fully separated from the rest of the vertebra.

BN 198 (SK 13152), a young middle adult male, also had *spondylolysis* in the fifth lumbar vertebra. This was the only individual with a unilateral separation at the right lamina. This individual a cranial border shift was recorded of the lumbar-thoracic border. This was similar to BN 17, who featured the same type of transitional vertebra.

Roberts and Manchester suggest that it is usually the fifth lumbar vertebra that is affected by *spondylolysis* (2005, 106), which was the case at Bainesse. Overall, of sixteen fifth lumbar vertebral arches present, three were affected by *spondylolysis*, which was a prevalence of 18.75%. When only adults were considered in this calculation, the prevalence was 21.43% (3/14 L5 arches present). If all present vertebral arches were considered, the prevalence of *spondylolysis* was 0.64% (3/467). At Baldock, 9.4% of fifth lumbar vertebral arches were affected (Keefe *et al* 2015), and at Horncastle it was 9.1% (Caffell

and Holst 2007, 25). Baines thus had a higher frequency of *spondylolysis* when compared to other contemporary sites in Britain. The crude prevalence at Baines was 2.33% (3/129 individuals). In comparison, the average crude prevalence of spondylolysis in the Roman period in Britain was 2.0%, (Roberts and Cox 2003, 151-152 *calculation in table is incorrect CPR=0.04 when in fact total no. 2,475, no. affected 49= CPR 1.97%).

3.3.3 Ante-Mortem Limb Fractures

There is limited information on the prevalence of fractures in Roman populations in Britain (Roberts and Cox 2003, 151-158), although in Roman Cirencester fibulae were most frequently fractured (4.7%), followed by ulnae (2.9%) and tibiae (2.4%; *ibid* 151). The tibiae (4.2%; 3/71), clavicles (4.1%; 3/74) and radii (3.1%; 2/64) were among those more frequently fractured at California. At Horncastle, 10.3% of fibulae were fractured, followed by 6.5% of tibiae, 3.1% of ulnae and 2.8% of distal hand phalanges (Caffell and Holst 2007, 21).

Upper Limb Fractures

At Baines, fractures were relatively uncommon, which may in part be due to the poor preservation observed.

The left third metacarpal (bone in the centre of the palm) in BN 78 (a young middle adult female) showed evidence for a well-healed fracture (Plate 2). The fracture had occurred in the proximal mid-shaft and was an oblique fracture, running from the plantar mid-shaft to the dorsal proximal third of the shaft. The distal half of the bone deviated laterally. The fracture itself had healed very well and only a slight ridge of dense cortical bone was noted along the fracture line. The crude prevalence of fractures to the third metacarpal was 3.70% (1/27). One of nineteen individuals with at least one third metacarpal present was affected, which was a prevalence of 5.26%. For comparison, the crude prevalence rate for fractured third metacarpals at Baldock was 1.6% (1/63 adult third metacarpals) or 2.8% of the population (1/36, Keefe *et al* 2015). At Driffeld Terrace, York, three of 109 observable bones were fractured (2.8%), which was a slightly lower prevalence than at Baines (Caffell and Holst 2012a, 62).



Plate 2 Fracture of the third metacarpal of BN 78

Lower Limb Fractures

BN 17, a young middle adult male had a deformed distal right foot phalanx. This may have been due to a fracture, but this could not be diagnosed with certainty. The distal end of the phalanx deviates to the right and the proximal end shows a bulbous protrusion of dense bone on the left lateral aspect, while the inferior aspect is irregularly shaped. Fractures of the foot phalanges are not uncommon, as these are likely to occur when objects are dropped on them (Dandy and Edwards 2003).

A mature adult male (BN 87), showed evidence for a fracture of the left tibia and fibula (Plates 3 and 4). Both bones sustained a fracture, which was well-healed. Unfortunately, both long bones were fragmentary, which made it difficult to assess the nature of the fracture, particularly of the tibia. Both bones were broken around the distal midshaft/central midshaft. The proximal and distal parts appeared misaligned, with the distal part of the tibia deviated slightly anteriorly of the proximal shaft. A dense bone callous with some lamellar striae covered the affected area. Most injuries to the distal tibia occur when the foot is in contact with the ground, and the body rotates while the foot is held in place (Galloway 1999b, 198), essentially leading to a twisted ankle.



Plate 3 Fractured left fibula BN 87



Plate 4 Fractured left tibia of BN 87

The fracture of the fibula was well-healed, but the fractured bone ends had overlapped, with the distal shaft being located slightly anteriorly of the proximal shaft. A blow from behind may have caused both fractures, or alternatively, a severe twist of the leg, as both bones are connected by the interosseous membrane. Fractures to the fibula shaft can be caused by a direct blow to the side of the leg, or through rotation injuries at the ankle (Galloway 1999b, 203; Dandy and Edwards 2003, 255-256). Such fractures would be painful to walk on during healing, as the fibula is involved in the ankle joint, although 'as long as the tibia remains intact the patient can bear weight through the limb, but will avoid the heel strike phase of gait if possible' (Dandy and Edwards 2003, 260). Since the tibia was not intact in this case, the individual was unlikely to be able to walk until the fracture was healed and the overlap of the fibular fracture would have caused secondary problems.

Fibula fractures were observed in 3.03% of observable fibulae (1/33, 12 males, 6 females, 1 unsexed adult). The crude prevalence of fibula fractures in the adult population was 1.10% (1/91). Fractures of the fibula were only observed in males (8.33% of males with at least one fibula present). The same pattern

emerged at Baldock, where only males were affected by fibula fractures. Fibula fractures occurred at Baldock in 2.8% of observable fibulae (2/72, 21 males, 14 females and 2 unsexed adults; Keefe *et al* 2015).

Tibia fractures were present in 4.0% of the adult population with at least one tibia present (1/25, or 7.14% of males with at least one tibia present). A total of 2.22% of tibiae were fractured (1/45, or 3.70% of male tibiae present 1/27). This was a lower prevalence rate than at Horncastle, where tibia fractures were the second most frequent type of fracture, affecting 11.8% of individuals, or 6.5% of bones (Caffell and Holst 2007). There is limited information on the prevalence of fractures in Roman populations in Britain (Roberts and Cox 2003, 151-158), although in one population fibulae were the most frequently fractured bones (4.7%), followed by ulnae (2.9%) and tibiae (2.4%; *ibid* 151).

3.3.4 *Osteochondritis Dissecans*

Localised death (necrosis) of a small part of the joint surface can be caused by trauma. When this happens, the damaged piece can become detached from the rest of the joint surface, known as *osteochondritis dissecans* (Roberts and Manchester 2005, 121). These lesions appear as roughly circular, porous depressions in the joint surfaces of skeletal remains.

One individual had *osteochondritis dissecans* in the distal joint surface of the right tibia with the talus. The individual affected was BN 18 (SK 13175), an unsexed adult.

3.3.5 *Myositis Ossificans Traumatica*

Myositis ossificans traumatica is caused by the avulsion of tendons or muscle attachments (Aufderheide and Rodríguez-Martín 1998, 26); severe trauma to muscular tissue can sometimes result in the ossification of the muscle tissue itself (Ortner 2003, 133). The most commonly observed sites are on the femur at the insertion of the extensors and abductors, the humerus at the insertion of *deltoid* and *pectoralis* (major and minor) (*ibid*). These traumatic lesions are most commonly seen in young adults (*ibid*, 134).

At Bainesse, at least three individuals had likely *myositis ossificans traumatica*. BN 18 (SK 13175, unsexed adult) had new bone nodules on the medial surface of the distal right fibula, at the attachment site of the interosseous membrane and the interosseous ligament of the tibiofibular joint. The right distal tibia of this skeleton was too fragmented in this area to observe whether this bone was also affected. It is likely that a traumatic event caused the ossification of the membrane.

BN 87 (SK 12731, mature adult male) had developed *myositis ossificans traumatica* in his left lower leg. This was almost certainly a consequence of the tibial and fibular fractures, which he sustained. The lesions were observed posterodistally of the fracture site in the proximal fibula at the attachment of the interosseous membrane between the tibia and fibula.

The third individual with suspected soft tissue ossifications was BN 244 (SK 12310), a young middle adult

male. This individual also exhibited bony nodules at the right tibiofibular joint, which involved the medial aspect of the distal fibula as well as the lateral shaft of the distal tibia. Ossification was present at the attachment site of the interosseous membrane, probably secondary to trauma.

3.4 INFECTIOUS DISEASE

Infectious disease can involve the skeleton, but since bone cannot respond quickly, only evidence for chronic, longstanding infections can be observed in archaeological skeletal remains (Roberts and Manchester 2005, 167). Acute conditions, where the patient either recovers or dies within a short space of time will not be seen. Initial bone formation in response to infection is disorganised (woven bone), but with time, as healing takes place, woven bone is remodelled and transformed into lamellar bone. Consequently, woven bone presence indicates an infection that was active at the time the person died, whilst lamellar bone indicates an infection that had healed; a combination of both suggests a recurring or longstanding infection (*ibid*). Although specific diseases may cause new bone to be deposited on the skeleton, it is almost always impossible to diagnose these from the bones alone. Hence, evidence for infection is discussed as 'non-specific' infection.

3.4.1 Maxillary Sinusitis

Infection of the maxillary sinuses can result from upper respiratory tract infections, pollution, smoke, dust, allergies, or a dental abscess that has penetrated the floor of the sinus cavity (Roberts and Manchester 2005, 174-176). Not many sinuses were available for observation due to poor general preservation and the fragility of the maxilla area. In some instances, the sinuses were fully preserved, which meant that it was not possible to access the sinus cavity in order to score absence or presence of the condition.

It was possible to observe the sinuses of 27 individuals (20.93% of inhumations) at Bainesse, including sixteen males, six females, one unsexed adult and four non-adults. A total of 44 sinuses were analysed, which were more or less equally distributed between right (20 sinuses) and left (24 sinuses) sides. The sinusitis prevalence for both sides was similar, with 45% (9/20) of observable right and 41.7% (10/24) of left sinuses affected.

Two of four non-adults were affected by sinusitis (50%) and ten of 23 adults (43.5%) had the condition. The overall prevalence was 44.4% (12/27). At Bainesse, males were less likely to have the condition with six of sixteen individuals (37.5%) showing evidence for sinusitis, while in the females, the prevalence of 66.7% (4/6).

At Baldock, the overall prevalence of sinusitis was 20.0% - less than half that recorded at Bainesse - and females were less likely to be affected than males (Keefe *et al* 2015). In comparison, the Roman site at Horncastle had a sinusitis prevalence of 38.5% of individuals and 30.4% of sinuses (Caffell and Holst 2007, 27). The crude prevalence of sinusitis among adults in Roman Britain was 1.8% of individuals affected (Roberts and Cox 2003, 113).

3.4.2 Rib Lesions

The presence of new bone formation on the pleural surfaces of the ribs has been associated with lung infections, including tuberculosis (Roberts and Manchester 2005, 190; Santos and Roberts 2006, 2001; Matos and Santos 2006; Mays *et al* 2002). However, because other lung infections (such as chronic bronchitis and pneumonia, Roberts and Cox 2003) can also cause these lesions, tuberculosis cannot be diagnosed purely on the presence of rib lesions alone. Exposure to polluted atmospheres and the inhalation of fungal spores may also precipitate the development of rib lesions.

Four individuals at Bainesse had rib lesions on the pleural surfaces of the ribs (14.81% of 27 individuals with ribs present). Two of these, BN 15 (young adult male) and BN 209 (young middle adult female) have been discussed in the section on hypertrophic pulmonary osteoarthropathy in this report. One of the two other individuals affected by rib lesions was BN 231, a younger juvenile. The fourth individual was BN 140, a young middle adult male (Plate 5).



Plate 5 Rib fragment with woven bone BN 140

Most of the evidence for rib lesions was found on relatively small rib fragments, which could not be sided or specifically numbered. In fact, it was only possible to side the ribs affected in BN 15 (two right, four left). Ten ribs overall showed signs of woven bone on the visceral (lung) surfaces. This meant that the overall frequency of rib lesions was 2.6% (10/380 ribs total). Adults were more commonly affected by rib lesions than non-adults (3.14% and 1.08% respectively). However, a higher proportion of non-adults had lesions (16.67%, 1/6) when compared to the adults (14.3%, 3/21). Males were more frequently affected than females (22.22%, 2/9 and 11.11%, 1/9 respectively).

Comparatively, 11.6% of individuals at Baldock had rib lesions, which was slightly lower than at Bainesse and compared to the crude prevalence for the Roman period (2.1%) (Roberts and Cox 2003, 114), the prevalence rate of rib lesions from Bainesse was very high. The proportion of adults with rib lesions at Horncastle (16.7%, Caffell and Holst 2007, 27) was comparable with that from Bainesse. All of the individuals affected by rib lesions exhibited woven bone deposits, indicating the infection active at the

time of death. The number of affected ribs per person ranged from one to six.

3.4.3 Periosteal Reactions

New bone deposits on the surfaces of the bones can indicate inflammation of a sheath of tissue (the periosteum) which surrounds all bones (Ortner 2003, 206-207). Inflammation may be due to infection, but low-grade trauma and chronic ulceration can also lead to new bone formation (Roberts and Manchester 2005; Ortner 2003, 206-207). Periosteal reactions are commonly observed in archaeological populations, particularly on the tibiae, and their prevalence has been used as a general measure of stress in past populations (Ortner 2003, 209). Woven bone deposits are indicative of inflammation that was active at the time of death, while lamellar bone indicates that the inflammation was healing.

Skull

A number of individuals at Bainesse exhibited periosteal reactions on the skull. One mature adult male, BN 87, had a small circular lesion of porous, grey woven bone on the floor of the left maxillary sinus. This infection may have been an early stage of sinusitis, although the perfectly circular nature of the affected area was uncharacteristic of sinusitis. The lesion appeared to have been active around the time of death. BN 123, an old middle adult male had a small area of grey woven bone on the external surface of the maxilla, superior to the socket of the left first molar. This infection was almost certainly related to dental health and was active when the individual died. An adolescent, BN 124, had a lesion of grey woven bone around the lingula of the left mandible. Lamellar bone was present superiorly at the auditory meatus of the temporal bones. In BN 133, a younger juvenile, patchy woven bone was present around the right maxilla (superior of socket for right maxillary first molar). The lesion was located at the anterior margin of the orbit and was shaped irregularly. It was not possible to determine the cause of it.

In BN 202, an unsexed adult, a small area of vascularised (pitted) new bone was observed at the endocranially posterior aspect of the obliterated sagittal suture. There was a thin layer of grey bone and small impressions of meningeal vessels were observed in this area.

The only foetus/neonate on site, BN 229a, had plaque-like woven bone on the endocranial skull surface of both parietals (Plate 6). The grey woven bone was multi-layered and was perhaps indicative of meningitis or was caused by birth trauma. Further grey woven bone was noted on the ectocranial surface of the frontal bone, which had sharp irregular margins perhaps due to birth trauma.



Plate 6 Endocranial surface of parietal bone of BN 229a with woven bone

BN 235, a younger juvenile, had grey woven bone around the right lingula of the mandible and on the inferior surface of the pars basilaris. This was associated with scurvy and has been discussed in Section 3.2.2.

Two individuals had developed irregular new bone on the palate. While some irregularity is normal in this area, the noted bone was beyond normal variation. These changes were present in BN 140, a young middle adult male, and in BN 208, an old middle adult male. In BN 140, additional evidence of slightly pitted new bone was observed, which may suggest healing inflammation.

Fifteen individuals showed evidence for slight pitting on the ectocranial (outer) skull surface. This was usually slight and occurs quite frequently in archaeological populations. BN 7, BN 17, BN 22, BN 99, BN 120, BN 154 (young middle adult males), BN 15 (young adult male) and BN 16 (mature adult male) had hypervascularity on the ectocranial surface of the cranium and on the orbital ridges and rims. Although only a few fragments of the cranium were present for BN 51, an unsexed adult, hypervascularity was noted on one of these fragments on the ectocranial surface. In BN 92a (unsexed adult), the hypervascularity was observed on the nuchal crest and the rest of the occipital bone.

BN 144, a young middle adult female had hypervascular pitting on the parietal and occipital surfaces of the skull and BN 158, an adult female, had the changes visible on the superior aspect of the ectocranial surface and on the superior half of the occipital bone. BN 185 was a young middle adult male with hypervascularity observable on the orbital ridges and rims, as well as on the right zygomatic bone, and a further old middle adult male (BN 208) had the same pitting on the orbital rims, ridges and the cranial vault (ectocranially). BN 239, an old middle adult female displayed hypervascularity on the superior surface of her occipital bone.

In terms of crude prevalence, fifteen of 91 (6.48%) adults were affected by hypervascularity at Bainesse

The proportion of affected individuals was much higher when only adult skeletons with at least one identified cranial fragment present were considered; 25.42% (15/59) crania were affected, which means a quarter of all adults.

Upper Limbs

A young middle adult female (BN 209) had lamellar bone on distal left humerus on the anterior aspect, and she exhibited woven bone on the distal anterior shaft of the right radius. Similar lesions were seen in the lower limbs of this individual, as well as on the visceral surfaces of a number of ribs. The pattern of the distribution of lamellar and woven bone in this individual was suggestive of hypertrophic pulmonary osteoarthropathy (discussed in Section 3.4.4). BN 15 (young adult male) also had lamellar and woven bone deposits on several bones, which caused a layered appearance, especially in the ribs. This individual was also considered to have hypertrophic pulmonary osteoarthropathy.

Lower Limbs

BN 140, a young middle adult male had a distinct patch of woven new bone on the anterior aspect of the right fibula. This had not yet integrated into the cortical bone. It was located at the attachment site for the interosseous membrane with the tibia and was mirrored in the right tibia. The distal lateral and lateral half of the posterior surface of the bone were affected by woven bone in a roughly triangular shape. A small patch of woven bone on a left posterior distal tibial fragment suggested that the left ankle was also affected.

BN 15 (young adult male) had new bone formation on both tibiae, which was considered to be part the condition he suffered from, hypertrophic pulmonary osteoarthropathy (discussed in Section 3.4.4).

BN 57, a young middle adult male and BN 124 (adolescent) had well integrated lamellar striae on the medial midshaft surfaces of both tibiae. In BN 156 (young middle adult male), distinct lamellar striae were present on the medial and posterior aspects of the left tibial mid-shaft, and BN 158 (adult female) and BN 237b (young middle adult female) had a well integrated layer of lamellar bone on the shafts of both tibiae. More integrated lamellar striae were also observed in BN 197b (adult), on the lateral mid shafts of the tibiae.

An adolescent (BN 77), an unsexed adult (BN 92b) and BN 173, a young middle adult female, had lamellar bone on the midshaft of both femora. BN 187 had grey fine woven bone on the mid-posterior, proximal, and midshaft surfaces of both femora. BN 86, a young middle adult male, had lamellar bone on the anterior surface of his distal femoral shafts and the tibiae bilaterally, on the proximal medial surface of shaft.

Overall, 14.06% of femora showed signs of infection (9/64, adult femora). In the adults, 48% of tibiae were affected (12/25 complete tibiae).

A disarticulated left tibial midshaft was recovered from Context 12779, which exhibited lamellar bone on its posterior surface.

Foot

New bone formation was encountered on the dorsal surfaces of the left second, third, and fifth metatarsal of Skeleton 86. The affected surfaces were visibly thickened and appeared pitted (vascularised). The left second metatarsal was most heavily affected and had a finely porous surface on the joint with the intermediate cuneiform. The dorsal rim of this proximal articulation featured marginal osteophytes, and slight contour changes were visible on the joint surface. The intermediate cuneiform appeared most affected by new bone and porosity, as the dorsal rim of the plane facet with the medial cuneiform was also lipped with marginal osteophytes. Dense islands of new bone were present on the dorsal surface the intermediate cuneiform. While the joint surface with the medial cuneiform was affected by the same changes as the joint with the proximal second metatarsal, the facets with the navicular and the left cuneiform appeared normal. The medial cuneiform also had a lipped rim on the dorsal aspect of the articular facet with the intermediate cuneiform. This was unilateral and the right foot did not produce the same changes. This may have been related to the periosteal reactions observed in the fibulae and tibiae of this individual (see section above).

3.4.4 Hypertrophic (Pulmonary) Arthropathy

Hypertrophic arthropathy is principally linked to cancer of the lungs, although cancer of other tissues and pleural and cardiac lesions may also initiate the condition (Ortner 2003, 354). Characteristic lesions of the condition include symmetrical new bone formation along the diaphyses of long bones, which is densest at the mid shaft and becomes less severe at the metaphyses. The bones most commonly affected include the radius, ulna, tibia and fibula, while less commonly involved are the femur, humerus, metacarpals and metatarsals (Aufderheide and Rodríguez-Martín 1998, 91). The ribs, clavicle and scapula, however, are only affected in the most advanced cases (*ibid*). In the early stages of the condition, bone deposition is fibrous (woven) which later remodels into florid lamellar bone (Ortner 2003, 354). In modern cases, the bony lesions disappear once the primary cause has been removed (*ibid*).

A young adult male (BN 15/ SK 13168) may have had hypertrophic pulmonary osteoarthropathy. The individual exhibited lesions, which are likely indicative of this condition. These included woven bone layers on both tibiae, mostly located on the medial and lateral aspects of the shafts. Lamellar new bone was present on the posterior aspect of the tibial shafts. The distal fibulae were also symmetrically affected by lamellar and woven bone (Plate 7). On both bones, the interosseous membrane attachment area was affected with heavy, irregular lamellar bone, which appeared to be a little denser than anywhere else. Just below the line of the peroneus longus attachment on the lateral side of the fibulae, there was further lamellar bone present, which covered the entire distal shaft. The individual exhibited further woven bone lesions on the distal anterior surface of the right radial shaft, just proximally of the articular facet. At least six of the central ribs on both sides had woven bone lesions on their visceral surfaces. The woven bone was most obvious towards the sternal ends of the ribs. Four left ribs had woven bone on the visceral aspect of rib necks and heads. Most cases of hypertrophic pulmonary arthropathy appear in older

age groups, although when identified in children ‘...the lesions are usually related to congenital intra-thoracic lesions’ (Wynne-Davies and Fairbank 1982 cited in Aufderheide and Rodríguez-Martín 1998, 91).



Plate 7 Fibulae with periosteal reactions from BN 15

It is possible, that BN 209 (SK 13080), a young middle adult female, also suffered from pulmonary hypertrophic osteoarthropathy. She had grey woven bone lesions in the same area of the right anterior distal radius as BN 15. She also had woven bone on the visceral surfaces of the seventh or eighth and the fourth or fifth ribs. In this individual, several layers of woven bone were atop of one another and it was noted on other central ribs that woven bone had likely fallen off post-mortem due to lighter areas of cortical bone. More woven bone was observed on the lateral aspect of the proximal midshaft of the right tibia. Lamellar bone was present on the entire lateral aspect and complete midshaft of the tibia. On the left tibia, woven bone was present on the anterior crest of the mid- and distal shaft. While in modern populations, lung cancer is thought to be the main cause of hypertrophic pulmonary arthropathy, in pre-antibiotic populations chronic lung disease may have contributed to a greater number of cases than today (Mays *et al* 2002).

At Baldock, an older adolescent male was diagnosed with hypertrophic pulmonary osteoarthropathy. The individual exhibited many of the same lesions of grey woven bone recorded for BN 15 (Keefe *et al* 2015). A young middle adult female from Oxford and Newarke Street, with symmetrical new bone formation affecting many of the limb bones was also thought to have hypertrophic pulmonary arthropathy (Keefe and Holst 2013).

Other conditions, which may be worth considering when attempting a differential diagnosis, are fluorosis and hypervitaminosis. Fluorosis, caused by increased fluoride levels in the body stimulates osteoblastic

activity, resulting in new bone deposition (Aufderheide and Rodríguez-Martín 1998, 317). Fluorosis may develop in individuals exposed to the industrial processing of ore or indirectly through the drinking of contaminated water (*ibid*). The bony lesions are similar in appearance to hypertrophic pulmonary arthropathy; fluorosis has a predilection for the axial skeleton (trunk); this is in contrast with the frequent lesions observed in the limbs of the two individuals described here. Hypervitaminosis also shares a similar pattern of lesions, however; it is an unlikely cause, being stimulated by an overdose of Vitamin A.

3.5 JOINT DISEASE

The term joint disease encompasses a large number of conditions with different causes, which all affect the articular joints of the skeleton. Factors influencing joint disease include physical activity, occupation, workload and advancing age, which manifest as degenerative joint changes and osteoarthritis. Alternatively, joint changes may have inflammatory causes in the *spondyloarthropathies*, such as septic or rheumatoid arthritis. Different joint diseases affect the articular joints in a different way and it is the type of lesion, together with the distribution of skeletal manifestations, which determines the diagnosis (Rogers 2000; Roberts and Manchester 2005).

3.5.1 Spinal Degenerative Joint Changes

The most common type of joint disease observed tends to be degenerative joint changes (DJC). Degenerative joint changes are characterised by both bone formation (osteophytes) and bone resorption (porosity) at and around the articular surfaces of the joints, which can cause great discomfort and disability (Rogers 2001).

The intervertebral discs are the 'shock absorbers' of the spine, but these can degenerate as a result of gradual desiccation (age-related drying), which then causes transmission of the stress from the vertebral discs to the articular facets and ligaments (Hirsh 1983, 123). Spinal osteophytes form to compensate for the constant stress that is placed on the spine as a result of human posture (Roberts and Manchester 2005, 106). Increasing stress or activity can therefore lead to increased size and prevalence of osteophytes (*ibid*).

Most spines were incomplete, which, combined with the post-mortem fragmentation and erosion in some spines, made it difficult to identify specific vertebrae. For the purposes of calculating prevalence rates, any unidentified vertebral bodies that were present were counted, provided they could be identified to vertebra type (i.e. cervical, thoracic, lumbar or sacral).

In total, 39.56% (36/91 adult individuals) had at least one recognisable vertebral body present. This included 82.61% of males (19/23), 85.71% (12/14) females and 9.26% (5/54) of adults. For the purposes of calculating prevalence rates, any unidentified vertebral bodies that were present were included, provided they could be identified to vertebra type (i.e. cervical, thoracic, lumbar or sacral). Overall, 398 complete vertebral bodies were recorded for all skeletons and this gave an average of 4.37 (398/91) vertebral bodies per known adult skeleton. It should be noted here that a total of 24 vertebrae

were potentially present in each skeleton; this meant that only 18.22% of the full vertebral column was present on average for each individual (398/2184 vertebral bodies).

The most complete part of the spine was the cervical area, where on average 1.6 vertebral bodies were present for each adult. This meant that 22.92% of the expected cervical spine was observable. In the lumbar spine, 0.86 bodies were recorded on average, which was 17.4% of the expected complete lumbar spine. The thoracic spine was on average least complete, with only 1.82 vertebral bodies per individual on average (15.2% of expected total). Only seven first sacral vertebral bodies were present, which amounted to 7.69% of the expected total.

Of the male spines, 11.92 vertebrae (226.5 vertebrae of 19 individuals) were recovered on average and this number was similar in females, where 12.93 vertebral bodies (155 vertebrae of 12 individuals) were observable. For the unsexed adult population, less than one body was present on average per skeleton (0.31, 16.5 vertebrae of 54 adults).

Disregarding age distribution, 39.07 % of vertebral bodies were affected by degenerative changes (Table 11). If age was taken into account, it was observable that there was a steady increase of degenerative changes with age, as would be expected. It was noted that the cervical spine was most frequently affected, with changes seen on 44.8% of available vertebrae, closely followed by 37.65% in the thoracic spine. In the lumbar spine, 33.54% of vertebrae exhibited joint changes and in the sacral spine, it was 28.57%. Females were slightly more frequently affected (39.35%) by degenerative changes than males (37.97%). The unsexed adults were most frequently affected (51.52%), although it is possible that this was due to poor preservation of vertebrae.

Table 11 Prevalence of DJC on vertebral bodies

Sex	Age Group	Cervical Bodies			Thoracic Bodies			Lumbar Bodies			Sacral Bodies			Total Bodies		
		With DJC	N	%	With DJC	N	%	With DJC	N	%	With DJC	N	%	With DJC	N	%
Male	YA	0	6.5	0.0%	0	12	0.0%	0	5	0.0%	0	0.5	0.0%	0	24	0.0%
	YMA	8	47	17.0%	7.5	46	16.3%	6	24	25.0%	0.5	1.5	33.3%	22	118.5	18.6%
	OMA	11	13	84.6%	16.5	18	91.7%	0.5	5	10.0%	0	0.5	0.0%	28	36.5	76.7%
	OMA/MA	12.5	13	96.2%	8	14	57.1%	2.5	5	50.0%	0	0	-	23	32	71.9%
	MA	4	4	100.0%	4	6	66.7%	4	4	100.0%	0.5	0.5	100.0%	12.5	14.5	86.2%
	A	0.5	1	50.0%	0	0	-	0	0	-	0	0	-	0.5	1	50.0%
	u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	Total	36	84.5	42.6%	36	96	37.5%	13	43	30.2%	1	3	33.3%	86	226.5	38.0%
Female	YA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	YMA	6.5	22.5	28.9%	11	31	35.5%	4.5	17	26.5%	0	2	0.0%	22	72.5	30.3%
	OMA	2.5	13	19.2%	2.5	24	10.4%	0	10	0.0%	0	1	0.0%	5	48	10.4%
	OMA/MA	9	9.5	94.7%	5	5	100.0%	0	0	-	0.5	0.5	100.0%	14.5	15	96.7%
	MA	0.5	0.5	100.0%	6	6	100.0%	6	6	100.0%	0.5	0.5	100.0%	13	13	100.0%
	A	6.5	6.5	100.0%	0	0	-	0	0	-	0	0	-	6.5	6.5	100.0%
	u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-

	Total	25	52	48.1%	24.5	66	37.1%	10.5	33	31.8%	1	4	25.0%	61	155	39.4%
Un-Sexed	YA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	YMA	0	0	-	1	1	100.0%	0	0	-	0	0	-	1	1	100.0%
	OMA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	OMA/MA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	MA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	A	3.5	9.5	36.8%	0	1	0.0%	1.5	1.5	100.0%	0	0	-	5	12	41.7%
	u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	Total	3.5	9.5	36.8%	2	4	50.0%	3	3	100.0%	0	0	-	8.5	16.5	51.5%
Total	YA	0	6.5	0.0%	0	12	0.0%	0	5	0.0%	0	0.5	0.0%	0	24	0.0%
	YMA	14.5	69.5	20.9%	19.5	78	25.0%	10.5	41	25.6%	0.5	3.5	14.3%	45	192	23.4%
	OMA	13.5	26	51.9%	19	42	45.2%	0.5	15	3.3%	0	1.5	0.0%	33	84.5	39.1%
	OMA/MA	21.5	22.5	95.6%	13	19	68.4%	2.5	5	50.0%	0.5	0.5	100.0%	37.5	47	79.8%
	MA	4.5	4.5	100.0%	10	12	83.3%	10	10	100.0%	1	1	100.0%	25.5	27.5	92.7%
	A	10.5	17	61.8%	0	1	0.0%	1.5	1.5	100.0%	0	0	-	12	19.5	61.5%
	u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	Total	64.5	146	44.2%	62.5	166	37.7%	26.5	79	33.5%	2	7	28.6%	156	398	39.1%

For comparison, at Baldock the frequency of DJC in the vertebral bodies was 15% (Keefe *et al* 2015, 77), which was much lower than at Bainesse and the overall prevalence rate between males and females was much more similar (*ibid*). At Driffeld Terrace, degenerative changes were seen in 29.4% of the bodies, affecting 50.0% of adults (Caffell and Holst 2012a, 90). A similar prevalence was recorded at Horncastle, where 29.0% of vertebral bodies were affected, mostly involving the lower cervical, mid-thoracic and lumbar spines (Caffell and Holst 2007, 33).

A total of 39 adults had at least one apophyseal facet (joints between vertebrae) present. This number included twenty males (86.96% of all adult males, 20/23), twelve females (85.71% of all adult females, 12/14) and seven unsexed or indeterminate adults (12.96% of that group, 7/54). None of the individuals buried at Bainesse had a fully complete spine with all apophyseal facets present. The problem of incomplete spines has been discussed above in relation to the number of vertebral bodies preserved. A similar approach was taken to calculating prevalence rates: all unidentified facets (i.e. those which could not be identified to a specific vertebra) were still counted if they could be identified to a vertebra type (i.e. cervical, thoracic, lumbar or sacral). If all apophyseal facets were present, then each skeleton would have 98. In terms of the skeletons who had facets recorded (39 individuals), this would mean that each skeleton had 34.18 facets present, but if this number is considered in terms of all Bainesse adults (91 adults), each one only had 14.65. Females had slightly more facets available for observation, with 43.08 per person (517/12), males had 37.05 on average (741/20).

In total, 30.91% of vertebral facets were affected with degenerative joint changes. These changes were most prevalent in the lumbar spine, where 37.69% (98/260) were affected, followed by the thoracic spine (35.44%, 191/539). The sacral facets were less frequently affected with 30.43% (7/23) with DJC, while the cervical spine had the lowest prevalence (22.70%, 116/511) (Table 12).

Table 12 Prevalence of DJC in the vertebral facets

Sex	Age Group	Cervical Facets			Thoracic Facets			Lumbar Facets			Sacral Facets			Total Facets		
		Wit h DJC	N	%	Wit h DJC	N	%	Wit h DJC	N	%	Wit h DJC	N	%	Wit h DJC	N	%
Male	YA	1	27	3.7%	0	25	0.0%	0	20	0.0%	0	2	0.0%	1	74	1.4%
	YMA	13	170	7.6%	29	143	20.3%	14	79	17.7%	0	8	0.0%	56	400	14.0%
	OMA	24	47	51.1%	34	77	44.2%	0	18	0.0%	0	1	0.0%	58	143	40.6%
	OMA/M A	25	35	71.4%	49	56	87.5%	19	19	100.0%	0	0	-	93	110	84.5%
	MA	3	7	42.9%	0	0	-	3	3	100.0%	2	2	100.0%	8	12	66.7%
	A	0	2	0.0%	0	0	-	0	0	-	0	0	-	0	2	0.0%
	u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	Total	66	288	22.9%	112	301	37.2%	36	139	25.9%	2	13	15.4%	216	741	29.1%
Female	YA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	YMA	12	61	19.7%	45	117	38.5%	18	41	43.9%	2	3	66.7%	77	222	34.7%
	OMA	5	56	8.9%	23	72	31.9%	19	37	51.4%	1	3	33.3%	48	168	28.6%
	OMA/M A	19	37	51.4%	3	5	60.0%	8	9	88.9%	0	0	-	30	51	58.8%
	MA	1	4	25.0%	6	17	35.3%	12	29	41.4%	2	4	50.0%	21	54	38.9%
	A	7	22	31.8%	0	0	-	0	0	-	0	0	-	7	22	31.8%
	u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	Total	44	180	24.4%	77	211	36.5%	57	116	49.1%	5	10	50.0%	183	517	35.4%
Un-Sexed	YA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	YMA	0	0	-	2	5	40.0%	0	0	-	0	0	-	2	5	40.0%
	OMA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	OMA/M A	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	MA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	A	6	43	13.95%	0	22	0.0%	5	5	100.0%	0	0	-	11	70	15.7%
	u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	Total	6	43	13.95%	2	27	7.4%	5	5	100.0%	0	0	-	13	75	17.3%
Total	YA	1	27	3.70%	0	25	0.0%	0	20	0.0%	0	2	0.0%	1	74	1.4%
	YMA	25	231	10.82%	76	265	28.7%	32	120	26.7%	2	11	18.2%	135	627	21.5%
	OMA	29	103	28.16%	57	149	38.3%	19	55	34.5%	1	4	25.0%	106	311	34.1%
	OMA/M A	44	72	61.11%	52	61	85.2%	27	28	96.4%	0	0	-	123	161	76.4%
	MA	4	11	36.36%	6	17	35.3%	15	32	46.9%	4	6	66.7%	29	66	43.9%

A	13	67	19.40 %	0	22	0.0%	5	5	100.0 %	0	0	-	18	94	19.1%
u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
Total	116	51 1	22.70 %	191	53 9	35.4 %	98	26 0	37.7%	7	2 3	30.4%	412	133 3	30.9%

An increase of DJC prevalence with age was noted, which was unsurprising considering the development pattern of the condition. While only one facet of a total 74 in young adults was recorded to show DJC (1.35%), it was 21.53% in young middle adults (135/627). A slight increase was present in old middle adults (34.08%), which doubled in old middle adult/mature adulthood (76.40%).

Females were generally more frequently affected by DJC of the apophyseal facets than males, with a prevalence of 35.40% compared to 29.15%.

The overall prevalence of DJC in apophyseal facets was lower at Baldock, where 20% of all facets were affected (Keefe *et al* 2015, 58). However, males were slightly more frequently affected than females with 21.1% and 18.6% respectively (*ibid*). At Driffeld Terrace, 20.0% (622/3106) of vertebral apophyseal facets (joints between the vertebrae) were affected by DJC (Caffell and Holst 2012a).

3.5.2 Extra-Spinal Degenerative Joint Changes

In terms of extra-spinal joint changes, it should be noted that overall there was no joint surface that was not affected by DJC in at least one individual, except for those of the hands and feet.

DJC was most prevalent in the lateral clavicle of the shoulder (50%), the proximal ulna at the elbow (48.57%) and the acetabulum of the hip (50%). However, in most individuals the changes were slight. This pattern was also evident in the distribution of extra-spinal osteoarthritis (Section 3.5.3).

In males and females, the prevalence for DJC in the lateral clavicle (shoulder) was equal (50% in both groups). However, females were more likely to have DJC in the elbow (45.45%-50%), while males had DJC more frequently in the ankle (distal tibia, 55%). The knee joints were also frequently affected by DJC, but the area affected was different in males and females. While males had a prevalence of 60.87% in the proximal tibia, females were more frequently affected in the distal femur (64.29%). In the wrist area, half of the observable distal radius joints in females showed evidence for DJC, while half of males had DJC in the distal ulna. Females were more likely to demonstrate joint changes in the fingers (Table 13).

Table 13 Prevalence of extra-spinal DJC

Joint	Bone	Male			Female			Unsexed			Total		
		With DJC	N	%	With DJC	N	%	With DJC	N	%	With DJC	N	%
Jaw	TMJ	0	27	0.00%	1	12	8.33%	0	5	0.00%	1	44	2.27%
	Mandible	3	22	13.64%	3	8	37.50%	0	0	-	6	30	20.00%
Sternoclavicular	Manubrium	4	11	36.36%	2	6	33.33%	0	0	-	6	17	35.29%
	M Clavicle	4	14	28.57%	3	9	33.33%	0	1	0.00%	7	24	29.17%

Shoulder	L Clavicle	4	8	50.00%	2	4	50.00%	0	0	-	6	12	50.00%
	Glenoid	6	17	35.29%	3	11	27.27%	0	0	-	9	28	32.14%
	P Humerus	6	19	31.58%	6	14	42.86%	0	1	0.00%	12	34	35.29%
Elbow	D Humerus	6	16	37.50%	5	11	45.45%	1	3	33.33%	12	30	40.00%
	P Radius	5	15	33.33%	3	11	27.27%	0	0	-	8	26	30.77%
	P Ulna	9	19	47.37%	7	14	50.00%	1	2	50.00%	17	35	48.57%
Wrist	D Radius	7	22	31.82%	5	10	50.00%	0	0	-	12	32	37.50%
	D Ulna	6	12	50.00%	3	9	33.33%	0	0	-	9	21	42.86%
	Scaphoid	4	13	30.77%	2	11	18.18%	0	0	-	6	24	25.00%
	Lunate	4	12	33.33%	2	9	22.22%	0	0	-	6	21	28.57%
Hand	Carpals	20	63	31.75%	16	44	36.36%	0	1	0.00%	36	108	33.33%
	P Metacarpals	17	85	20.00%	12	45	26.67%	0	4	0.00%	29	134	21.64%
Fingers	D Metacarpals	11	69	15.94%	3	55	5.45%	0	6	0.00%	14	130	10.77%
	Phalanges	28	282	9.93%	24	147	16.33%	0	8	0.00%	52	437	11.90%
Hip	Acetabulum	10	23	43.48%	11	19	57.89%	0	0	-	21	42	50.00%
	P Femur	4	28	14.29%	9	19	47.37%	0	5	0.00%	13	52	25.00%
Knee	D Femur	7	21	33.33%	9	14	64.29%	0	6	0.00%	16	41	39.02%
	Patella	5	19	26.32%	0	10	0.00%	1	2	50.00%	6	31	19.35%
	P Tibia	14	23	60.87%	6	15	40.00%	0	6	0.00%	20	44	45.45%
Ankle	D Fibula	7	17	41.18%	5	9	55.56%	0	1	0.00%	12	27	44.44%
	D Tibia	11	20	55.00%	4	11	36.36%	0	4	0.00%	15	35	42.86%
	Talus	7	22	31.82%	5	14	35.71%	1	9	11.11%	13	45	28.89%
Foot	Tarsals	29	116	25.00%	16	58	27.59%	3	21	14.29%	48	195	24.62%
	P Metatarsals	3	89	3.37%	0	57	0.00%	0	21	0.00%	3	167	1.80%
Toes	D Metatarsals	0	51	0.00%	1	32	3.13%	0	2	0.00%	1	85	1.18%
	Phalanges	6	112	5.36%	2	39	5.13%	0	7	0.00%	8	158	5.06%

TMJ = temporomandibular joint; P= proximal; D= distal; M= medial; L= lateral; Hand= proximal metacarpals, triquetral, pisiform, hamate, trapezium, capitate, trapezoid; Fingers= distal metacarpals and phalanges; Foot= calcaneus, cuboid, navicular, medial, lateral and intermediate cuneiforms and proximal metatarsals; Toes= distal metatarsals and phalanges

An adult ulna was recovered from the disarticulated bone assemblage, which had marginal osteophytes around the rim of the olecranon process indicative of DJC (from Context 12698/ BN 202).

The prevalence for extra-spinal joint disease at Bainesse was relatively high. The hips and knees, being the weight bearing joints of the lower limb, frequently degenerate in modern populations (Roberts and Manchester 2005), with Aufderheide and Rodríguez-Martín (1998) suggesting over 50% of those over 60 years of age may suffer from degeneration of the hips. Although joint degeneration of the upper limb joints (shoulder, elbow and wrist) may also be associated with advancing age, it could also develop through trauma or occupation-related stress (*ibid*). Being one of the few joints connecting the arm to the torso, the sternoclavicular joint is involved in every movement of the upper arm, therefore is one of the most frequently used joints in the body (Yood and Goldenberg 1980, 232). As such, degeneration at these joints is not uncommon and was found to affect almost all patients over the age of 50 in an autopsy study series (*ibid*, 235).

As a comparison, the joints affected most frequently at Horncastle were the medial (69.2%) and lateral ends of the clavicles (15%), the hips (41.2%) and the temporo-mandibular joints (18.2%, Caffell and Holst 2007, 31).

3.5.3 Osteoarthritis

Osteoarthritis (OA) is a degenerative joint disease of synovial joints characterised by the deterioration of the joint cartilage, leading to exposure of the underlying bony joint surface. The resulting bone-to-bone contact can produce polishing of the bone termed 'eburnation', which is the most apparent expression of OA. Other features associated with degeneration of the joint include osteophytes (bone formation) on the surface or around the margins, porosity on the surface and the development of cysts (Rogers 2000; Roberts and Manchester 2005). OA is frequently associated with increasing age, but can be the result of mechanical stress and other factors, including lifestyle, food acquisition and preparation, social status, sex and general health and body weight (Larsen 1997; Roberts and Manchester 2005). OA was recorded as present when at least three of the features associated with OA were present (osteophytes, porosity and eburnation); eburnation, even if occurring alone, was always considered to be indicative of OA (Roberts and Manchester 2005).

3.5.4 Spinal Osteoarthritis

The vertebrae articulate with each other via pairs of apophyseal joints on the posterior side of the spine. Being synovial joints, they are vulnerable to developing the condition. Osteoarthritis in the apophyseal facets was noted in six adult individuals at Bainesse. This group included one male and five females. The only male affected by OA in the spine was BN 197a, an old middle adult/mature adult; four cervical and one thoracic facet exhibited eburnation in this individual.

In the female group, a mature adult (BN 186) had OA in her lumbar and sacral facets in severe form (Plate 8). Two further old middle adults/mature adults also exhibited signs of OA, but these were mostly located in the cervical spine and not very extreme. One old middle adult also had OA in her spine. This was BN 213 and the condition was only recorded in the thoracic area.



Plate 8 Osteoarthritis in facets of S1 of BN 186

Although this is very unusual, a young middle adult (BN 209), was recorded to have slight eburnation in the cervical and thoracic spine indicative of OA. In this case, it should be considered that the individual may have developed OA due to an underlying pathological condition.

3.5.5 Extra-Spinal Osteoarthritis

Extra-spinal osteoarthritis was noted in several joint surfaces at Bainesse (Table 14). It was present in eight males and seven females (15 adults). If this number is divided by the number of adults on site (91, excluding individuals of unknown age), a crude prevalence of 16.48% is calculated. If only adults with at least one observable extra-spinal joint are considered, the prevalence was 27.27% (15/55). It was noted that 34.8% (8/23) of males had at least one extra-spinal joint with OA, while 50% of the female group (7/14) was affected. None of the unsexed or indeterminate adults had any sign of OA present.

Table 14 Prevalence of extra-spinal osteoarthritis

Joint	Bone	Male			Female			Unsexed			Total		
		With OA	N	%	With OA	N	%	With OA	N	%	With OA	N	%
Jaw	TMJ	0	27	0.00%	0	12	0.00%	0	5	0.00%	0	44	0.00%
	Mandible	1	22	4.55%	0	8	0.00%	0	0	-	1	30	3.33%
Sternoclavicular	Manubrium	0	11	0.00%	0	6	0.00%	0	0	-	0	17	0.00%
	M Clavicle	0	14	0.00%	0	9	0.00%	0	1	0.00%	0	24	0.00%
Shoulder	L Clavicle	0	8	0.00%	0	4	0.00%	0	0	-	0	12	0.00%
	Glenoid	0	17	0.00%	0	11	0.00%	0	0	-	0	28	0.00%
	P Humerus	2	19	10.53%	1	14	7.14%	0	1	0.00%	3	34	8.82%
Elbow	D Humerus	1	16	6.25%	0	11	0.00%	1	3	33.33%	2	30	6.67%
	P Radius	0	15	0.00%	2	11	18.18%	0	0	-	2	26	7.69%
	P Ulna	0	19	0.00%	1	14	7.14%	1	2	50.00%	2	35	5.71%
Wrist	D Radius	0	22	0.00%	0	10	0.00%	0	0	-	0	32	0.00%

	D Ulna	0	12	0.00%	0	9	0.00%	0	0	-	0	21	0.00%
	Scaphoid	0	13	0.00%	0	11	0.00%	0	0	-	0	24	0.00%
	Lunate	0	12	0.00%	0	9	0.00%	0	0	-	0	21	0.00%
Hand	Carpals	0	63	0.00%	0	44	0.00%	0	1	0.00%	0	108	0.00%
	P Metacarpals	0	85	0.00%	0	45	0.00%	0	4	0.00%	0	134	0.00%
Fingers	D Metacarpals	0	69	0.00%	0	55	0.00%	0	6	0.00%	0	130	0.00%
	Phalanges	0	282	0.00%	0	147	0.00%	0	8	0.00%	0	437	0.00%
Hip	Acetabulum	0	23	0.00%	0	19	0.00%	0	0	-	0	42	0.00%
	P Femur	7	28	25.00%	6	19	31.58%	0	5	0.00%	13	52	25.00%
Knee	D Femur	5	21	23.81%	2	14	14.29%	0	6	0.00%	7	41	17.07%
	Patella	1	19	5.26%	1	10	10.00%	1	2	50.00%	3	31	9.68%
	P Tibia	0	23	0.00%	2	15	13.33%	0	6	0.00%	2	44	4.55%
Ankle	D Fibula	0	17	0.00%	0	9	0.00%	0	1	0.00%	0	27	0.00%
	D Tibia	0	20	0.00%	1	11	9.09%	0	4	0.00%	1	35	2.86%
	Talus	0	22	0.00%	3	14	21.43%	1	9	11.11%	4	45	8.89%
Foot	Tarsals	0	116	0.00%	3	58	5.17%	3	21	14.29%	6	195	3.08%
	P Metatarsals	0	89	0.00%	0	57	0.00%	0	21	0.00%	0	167	0.00%
Toes	D Metatarsals	0	51	0.00%	0	32	0.00%	0	2	0.00%	0	85	0.00%
	Phalanges	0	112	0.00%	0	39	0.00%	0	7	0.00%	0	158	0.00%

TMJ = temporomandibular joint; P= proximal; D= distal; M= medial; L= lateral; Hand= proximal metacarpals, triquetral, pisiform, hamate, trapezium, capitate, trapezoid; Fingers= distal metacarpals and phalanges; Foot= calcaneus, cuboid, navicular, medial, lateral and intermediate cuneiforms and proximal metatarsals; Toes= distal metatarsals and phalanges

The joint most frequently affected by OA was at the hip, in the proximal femur (where leg and pelvis join). OA was present in thirteen of 52 proximal femora observable, resulting in a prevalence of 25%. This was followed by the knee, which was affected in 17.07% of adults with a distal femur present. Three (of 31) patellae (kneecaps) had eburnation and thus OA present (Plate 9). The shoulder and ankle joints were also affected – albeit to a lesser degree - with a prevalence of 8.82% (3/34 observable proximal humeri) and 8.89% (4/45 observable tali) respectively. A few instances of OA in the elbow were also noted; this included two of 26 proximal radii (7.69%) and two of 30 distal humeri (6.67%).



Plate 9 OA in the knee of BN 186

Males and females had OA in the proximal humerus (shoulder) in almost equal numbers (10.53% and 7.14% respectively). While males had a prevalence of OA of 6.25% in the area of the elbow (distal humerus), females were more likely to show signs in the proximal radius (18.18%) and the proximal ulna (7.14%, both part of shoulder joint). Females were also more frequently affected by OA in the proximal femur (31.58%, males 25%). However, males had more OA in the knee than females (distal femur, 23.81%; females 14.29%).

At Baldock, 25.0% of adults with at least one observable extra-spinal joint had developed OA (Keefe *et al* 2015, 61). This suggests that OA was similarly prevalent as at Bainesse. At Baldock, the joints most commonly affected by OA were the hip and wrist (*ibid*). The same pattern was present at Horncastle, and the prevalence of extra-spinal OA was similar, affecting 26.7% of adults (Caffell and Holst 2007, 34).

3.5.6 Schmorl's Nodes

Schmorl's nodes are another condition that can affect the spine. They manifest as indentations in the upper and lower surfaces of the vertebral bodies caused by the pressure of herniated vertebral discs (Aufderheide and Rodríguez-Martín 1998). Discs may rupture due to trauma, but vertebrae weakened by infection, osteoporosis or neoplastic disease may be more vulnerable (Roberts and Manchester 2005). Schmorl's nodes are often associated with degenerative changes to the vertebral bodies (Aufderheide and Rodríguez-Martín 1998, Hilton *et al* 1976) and are most commonly seen in the lower thoracic vertebrae (Hilton *et al* 1976).

Males were proportionally more frequently affected by Schmorl's nodes, with eight individuals of twelve (with at least one vertebral body present) showing signs of Schmorl's nodes. This meant that 42.11% of males were affected, while in the female group only 16.67% had Schmorl's nodes (2/12). The lesions affected ten of a total 36 adults (with at least one vertebral body present). Thus, the overall prevalence of

individuals with Schmorl's nodes was 27.78%.

It was possible to record Schmorl's nodes in 11.4% of vertebral bodies (Table 15). They were most prominent in the thoracic spine (18.7%), although the prevalence was almost the same as in the lumbar vertebrae (18.4%). As expected, Schmorl's nodes were not seen in the cervical spine or first sacral vertebrae. They were seen in all age categories, which suggests that perhaps stress on the spinal column was part of the population's lifestyle from an early age. Although prevalence drops significantly in the old middle adult age category (1.8%), it reaches 18.1% in the old middle adult/mature adult and 27.5% in the mature adult age groups. Schmorl's nodes were approximately three times as frequent in males than in females (16.6% and 5.2% respectively). This may indicate that at Bainesse, males were more likely to undertake activities that put a lot of stress on the spine.

Table 15 Prevalence of Schmorl's nodes (SN)

Sex	Age Group	Cervical Bodies			Thoracic Bodies			Lumbar Bodies			Sacral Bodies			Total Bodies		
		With SN	N	%	With SN	N	%	With SN	N	%	With SN	N	%	With SN	N	%
Male	YA	0	6.5	0.0%	4	12	33.3%	0	5	0.0%	0	0.5	0.0%	4	24	16.7%
	YMA	0	47	0.0%	14.5	46	31.5%	5	24	20.8%	0	1.5	0.0%	19.5	118.5	16.5%
	OMA	0	13	0.0%	1.5	18	8.3%	0	5	0.0%	0	0.5	0.0%	1.5	36.5	4.1%
	OMA/MA	0	13	0.0%	6	14	42.9%	2.5	5	50.0%	0	0	-	8.5	32	26.6%
	MA	0	4	0.0%	1.5	6	25.0%	2.5	4	62.5%	0	0.5	0.0%	4	14.5	27.6%
	A	0	1	0.0%	0	0	-	0	0	-	0	0	-	0	1	0.0%
	u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	Total	0	84.5	0.0%	27.5	96	28.6%	10	43	23.3%	0	3	0.0%	38	226.5	16.8%
Female	YA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	YMA	0	22.5	0.0%	0	31	0.0%	1.5	17	8.8%	0	2	0.0%	1.5	72.5	2.1%
	OMA	0	13	0.0%	0	24	0.0%	0	10	0.0%	0	1	0.0%	0	48	0.0%
	OMA/MA	0	9.5	0.0%	0	5	0.0%	0	0	-	0	0.5	0.0%	0	15	0.0%
	MA	0	0.5	0.0%	3.5	6	58.3%	3	6	50.0%	0	0.5	0.0%	6.5	13	50.0%
	A	0	6.5	0.0%	0	0	-	0	0	-	0	0	-	0	6.5	0.0%
	u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	Total	0	52	0.0%	3.5	66	5.3%	4.5	33	13.6%	0	4	0.0%	8	155	5.2%
Un-Sexed	YA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	YMA	0	0	-	0	1	0.0%	0	0	-	0	0	-	0	1	0.0%
	OMA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	OMA/MA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	MA	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	A	0	9.5	0.0%	0	1	0.0%	0	1.5	0.0%	0	0	-	0	12	0.0%
	u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
	Total	0	9.5	0.0%	0	4	0.0%	0	3	0.0%	0	0	-	0	16.5	0.0%
Total	YA	0	6.5	0.0%	4	12	33.3%	0	5	0.0%	0	0.5	0.0%	4	24	16.7%
	YMA	0	69.5	0.0%	14.5	78	18.6%	6.5	41	15.9%	0	3.5	0.0%	21	192	10.9%
	OMA	0	26	0.0%	1.5	42	3.6%	0	15	0.0%	0	1.5	0.0%	1.5	84.5	1.8%

OMA/MA	0	22.5	0.0%	6	19	31.6%	2.5	5	50.0%	0	0.5	0.0%	8.5	47	18.1%
MA	0	4.5	0.0%	5	12	41.7%	5.5	10	55.0%	0	1	0.0%	10.5	27.5	38.2%
A	0	17	0.0%	0	1	0.0%	0	1.5	0.0%	0	0	-	0	19.5	0.0%
u	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-
Total	0	146	0%	31	166	18.7%	14.5	79	18.4%	0	7	0.0%	45.5	398	11.4%

At Horncastle, Schmorl's nodes were seen in 12.3% of all vertebrae (31/252, Caffell and Holst 2007, 37) and at Western Road, a higher prevalence of 21.8% was recorded (Caffell and Holst 2014a, 85). At both sites, females were less likely to be affected by Schmorl's nodes than males - similarly to Bainesse. At Driffild Terrace, the prevalence of vertebrae affected was much higher than at Bainesse (24.3%, Caffell and Holst 2012a, 94). At Baldock, 23.6% of vertebrae had Schmorl's nodes present, while 80.4% of adults with at least one vertebra were affected (Keefe *et al* 2015, 63). The crude prevalence of Schmorl's nodes Roman Britain by Roberts and Cox was 8.9% (2003, 147), which was much lower than that from Bainesse (27.78%). The average prevalence of vertebral bodies affected (17.7%, Roberts and Cox 2003, 147), however, was slightly higher than at Bainesse (11.4%).

3.5.7 Diffuse Idiopathic Skeletal Hyperostosis - DISH

Diffuse *idiopathic skeletal hyperostosis* (diffuse skeletal growth of unknown cause), also known as DISH, is characterised by additional bone formation at the attachment sites of muscle and ligaments, as well as on the right side of the spinal bodies. The spinal osteophyte formation often causes fusion of a number of vertebrae, and takes a candle wax-like appearance. Although osteoarthritis and DISH are often observed in the same skeleton, they are not associated (Rogers and Waldron 2001, 359).

DISH has been associated with excessive calorie intake, diabetes, obesity and ageing, but other theories suggest that DISH may be a response to skeletal stress, with ossified muscle and ligament attachments and extra bone formation at the spine to support a large figure and a deteriorating skeleton (Arriaza 1993, 275). Greater prevalence rates of DISH have been found in monastic populations (Rogers 2000, 171), which could be due to the fact that this condition is more common in males, or older age groups, or may be related to the better nutrition of monks compared with other populations.

BN 197a, an old middle adult/mature adult male had the characteristic paravertebral osteophytes of 'candle-wax' appearance along the right anterolateral aspect of the bodies of the fourth to the eleventh thoracic vertebrae. However, only the eighth and ninth bodies were completely fused, while the fifth to seventh vertebrae were in the process of fusing when this individual died. Roberts and Manchester recommend that 'fusion of four contiguous vertebrae is necessary for a diagnosis' (2005, 160) and as such the diagnosis has to remain tentative. Symptoms of DISH largely consist of back stiffness; more severe effects, such as compression of the spinal cord or paraplegia are only found in few extreme cases (Rogers and Waldron 2001, 361).

It was observed that the individual also suffered from slight kyphosis due to the fusion of the vertebral bodies and the degeneration of some due to age. However, this was mostly slight and likely did not affect the individual to a more noticeable extent than the fusion of the spine. The inferior apophyseal facets of

the eighth thoracic vertebrae had also fused to the superior facets of the ninth thoracic vertebra. However, this appeared to be confined to the facet rims. The sacroiliac joint was fused (Section 3.7) unilaterally on the right side and it is possible that this was a secondary complication of the disease. The individual also had widespread ossification of ligamentous attachments and enthesal changes (Plate 10), which fit the disease pattern.



Plate 10 Patella of BN 197a with enthesal changes at the *rectus femoris* attachment

DISH occurs most often in older men and affects foremost the thoracic spine, but is not restricted to this. A Roman mature adult male skeleton from Oxford and Newarke Street in Leicester also suffered from DISH

3.6 NEOPLASMS

Two individuals at Bainesse had evidence of a bony growths in their sinuses. In both individuals, these smooth growths of dense bone protruded from the floor of the left sinus into the cavity itself. In BN 87, a mature adult male, the growth was located mid-sinus and had an irregular but smooth topography, with a rounded small nodule extending upwards (Plate 11). It appeared to be hollow and was associated with an underlying abscess. BN 87 had very poor dental health and exhibited several abscesses in the left maxilla, which may have caused the growth to cordon off soft tissue from reaching the sinus. If this was the case, then the condition was likely a granuloma related to the abscess below, which was connected to the inside of the growth. However, a differential diagnosis as an exostotic osteomyelitic lesion cannot be ruled out completely in this case, as these have also been associated with poor dental health (Kendall *et al* 2015).



Plate 11 Left sinus of BN 87

In BN 140, a young middle adult male, the growth is also smooth and slightly larger than that in BN 87. It is located directly proximally of the left maxillary first molar, which has been lost post-mortem. It may be that there was an abscess at the first molar socket which the hollow, bulbous growth cordoned off from the sinus; a hole is present where the molar root would have been located, providing a direct connection between the tooth root and the inside of the growth. It is likely that this was a granuloma, as in BN 87, and a differential diagnosis as an exsiccotic osteomyelitic reaction to bacteria cannot be ruled out.

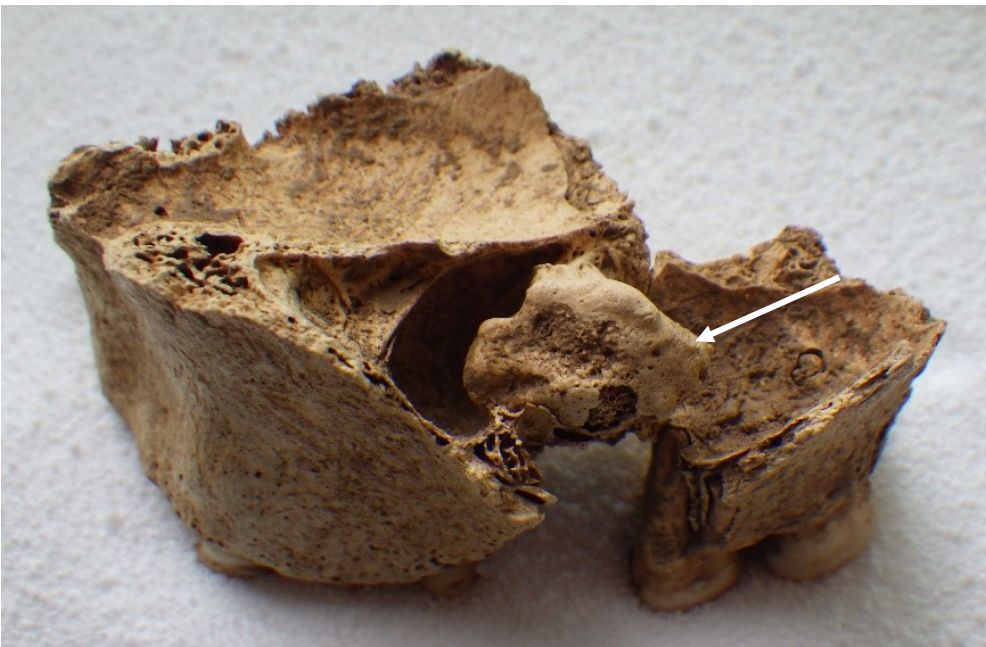


Plate 12 Left sinus of BN 140

3.7 MISCELLANEOUS PATHOLOGY

3.7.1 Fusion of Sacrum and Pelvis

Two individuals at Bainesse had a unilateral fusion of the sacro-iliac joint; BN 123 (SK 12871), old middle adult male, with a left pelvis that had fused to the sacrum at the joint. The two bones broke apart post-mortem and clearly showed that the superior demiface of the auricular surface had fused to the sacral joint surface. The remainder of the auricular surface shows some irregular patches on the inferior demiface where fusion may have taken place, but these are distinctly marked with deep ridges, which were not in contact with the sacral joint.

In BN 197a (SK 13146, old middle adult/mature adult male), fusion of the pelvis and sacrum was located on the right side and occurred as a bony bridge along the superior-anterior portion of the ala to the retro-auricular margin of the pelvis (Plate 13). This was associated with diffuse idiopathic skeletal hyperostosis and is described below.



Plate 13 Fusion of sacrum and pelvis BN 197a

Barnes (2012) refers to a condition known as 'sacroiliac coalition', where cartilaginous plates between the two bones ossify as the elements develop. However, she also states that 'there is no indication of a joint having ever been present, as the union is smooth and uninterrupted' she suggests other reasons for the fusion of the joint could be related to degenerative joint disease (*ibid*, 167). It is possible that the ankylosis was the result of a developmental anomaly, or may be due to trauma. However, considering the age of the two individuals, degenerative changes are the likely cause of the fusion in both individuals,

although in BN 197, it is also possible that the fusion was associated with the pathological pattern of DISH, which this individual suffered from.

3.7.2 *Sacroiliitis*

Sacroiliitis describes a condition where one or both of the sacro-iliac joints are affected by inflammation. The sacro-iliac joint is the joint between the sacrum at the base of the spine with the pelvis. If this area is inflamed, pain may be present in the lower back and buttocks. Sacroiliitis is associated with seronegative spondyloarthropathies, but can also be a complication of brucellosis (Lethinen *et al* 2009, Darton *et al* 2013).

Two individuals are considered to have suffered from *sacroiliitis* at Bainesse; both of these were affected occurred bilaterally. In BN 144, a young middle adult female, the auricular surfaces were highly irregular and slightly porotic. In BN 213, an old middle adult female, the appearance of the auricular and retroauricular surfaces were similarly irregular, and additionally ossification of the sacro-iliac ligament attachment sites were observed. This individual exhibited a multitude of heavy enthesal changes throughout the skeleton, but predominantly in the hip and legs.

3.7.3 *Ischial Bursitis* ('Weaver's Bottom')

Inflammation of the bursa (a fluid-filled sac that cushions bones and tendons) that overlies the ischial tuberosity ('sitting bones') of the pelvis is often observed in individuals who sit for long periods of time on hard surfaces, but can also be caused through falling onto the backside (Cho *et al* 2004). Symptoms include chronic buttock pain that may radiate down the posterior thigh, which can be disabling and cause problems with walking (*ibid*). Gowland (2016) has noted an association of inflammation of the ischium with decubitus ulcers (pressure sores), which tend to occur in immobile individuals including the elderly.

A mature adult female, BN 186 had unusually irregular dense bone nodules occurring with porosity on the ischial tuberosity (part of the pelvis one sits on), which may be indicative of ischial bursitis. This diagnosis was likely, owing to the fact that the individual was a mature adult. It may suggest that she was largely immobile and/or spent a lot of time seated.

3.7.4 Ankle Fusion

A mature adult male, BN 87, exhibited bilateral fusion of the left calcaneus and talus (Plate 14). The bones were likely fused at the medial calcaneal-talar articulation, where dense nodules of bone indicated separation ante-mortem or an incomplete fusion. Both the medial anterior talar facet and the articulating anterior calcaneal facet were absent. BN 87 had a healed fracture in the left lower leg (tibia and fibula), which may be related to this condition. If the left ankle was fused congenitally and thus restricted the movement of the ankle, this could have contributed to the fracture. However, it is also possible that the traumatic incident that caused the fracture of the leg may have damaged the ankle, causing it to develop fusion site.



Plate 14 Left calcaneus and talus of BN 87

3.7.5 Meningeal Impressions

One old middle adult or mature adult male, BN 175, exhibited exaggerated meningeal impressions in the endocranial surface of both parietals. This was especially pertinent at the anteroinferior aspect of both bones. However, no bony reaction was visible around the impressions, and no remodelling of bone. This may have been a very exaggerated case of normal variation.

3.8 CONCLUSION

A relatively wide range of pathological conditions was observed at Bainesse, although it needs to be recognised that the poor preservation and high fragmentation of the remains would have had an impact on the survival of pathological lesions in this population.

Developmental conditions were observed in the Bainesse sample, including transitional vertebrae, which tended to be observed in males, as well as an individual with an extra sacral vertebra. A small number of individuals displayed cleft (open) neural arches in their vertebrae, and two females were affected by *coxa vara*, a condition that is characterised by a lower than normal angle of the femoral neck.

A majority of individuals with observable orbits had *cribra orbitalia* present in slight form, which was much more prevalent than the Roman mean. These lesions can be taken as general indicator of childhood stress in the individuals affected.

At Bainesse, a small number of individuals were observed to have suffered traumatic injuries. One adult individual appeared to have had a fractured rib, possibly from a fall. Another adult had a potential

fracture of a distal foot phalanx (toe), and a young middle adult female had a broken third metacarpal (palm bone). An adult male had suffered a fracture in the mid/distal shaft of his left tibia and fibula. While the fracture site had healed fully, soft tissue trauma was observable at the joint, as well as fusion of the ankles, which may have exacerbated the likelihood of injury if this was a pre-existing condition or may have been a secondary complication of the fracture. Further soft tissue trauma was recorded in a small number of individuals, especially in the ankle region. *Spondylolysis* (separation of the spinous process of the 5th lumbar vertebra) was relatively common at Bainesse compared to other Roman populations.

Evidence for inflammatory lesions was observed in a number of skeletons. Sinusitis was more common at Bainesse than the Roman mean, although few sinuses survived. The same can be said for rib lesions indicating potential respiratory tract infections. Periosteal reactions were also observed in the only foetus/neonate found on site, which may indicate meningitis or birth trauma. Two individuals were identified to suffer from hypertrophic (pulmonary) arthropathy. It is likely associated with chronic lung disease, which causes widespread inflammatory lesions throughout the skeleton.

Joint disease was common at Bainesse and was frequently observed in the spines of the adult population, affecting slightly more females than males. It is likely that habitual activities had contributed to the high prevalence of the condition. There were slight differences in the patterns of joints affected between males and females, but the overall distribution was the same, with the shoulder, ankle, elbow and knees being the most frequently affected joints. Osteoarthritis in the spine was only observed in a small number of individuals, and the extra-spinal expression of the condition was present in 16.5% of individuals, affecting largely the hip and knee. A quarter of individuals were affected by Schmorl's nodes, which were more prevalent in males than females.

Two individuals were noted to have a granuloma or exostosis in their sinus and two individuals suffered from sacroiliitis, which is characterised by inflammation between the pelvis and tail bone and is usually associated with inflammatory joint diseases (spondyloarthropathies) and brucellosis. DISH, a condition that can be associated with Type II Diabetes, was present in one adult. 'Weaver's Bottom', was likely present in one mature adult female, which may indicate immobility of the individual, who may have been confined to a sitting position for some time prior to their death.

4.0 DENTAL HEALTH

Analysis of the teeth from archaeological populations provides vital clues about health, diet and oral hygiene, as well as information about environmental and congenital conditions (Roberts and Manchester 2005). All teeth and jaws were examined macroscopically for evidence of pathological changes. True prevalence rates were calculated as a proportion of tooth positions or teeth (as appropriate for the condition observed), and also as a proportion of the individuals with tooth positions or teeth present.

Forty-six adults had tooth positions present (22 males, thirteen females and eleven unsexed/indeterminate individuals). The numbers were slightly different when only the presence of teeth was investigated; teeth were present in 22 males, fourteen females and 38 unsexed/indeterminate

adults. This added up to a total of 74 adult individuals with teeth present. The male group had a total of 480 tooth positions and 525 teeth, the female group had 226 positions and 244 teeth. In the unsexed/indeterminate group, 110 positions and 279 teeth were observed.

Of the non-adults, neither the foetus/neonate nor the infant had any teeth or tooth positions. Fifteen younger juveniles had deciduous dentitions, while only eleven had permanent teeth. Three older juveniles had deciduous and permanent teeth. None of the adolescents had deciduous teeth, however, four adolescents had permanent teeth. Of the unspecific non-adult group, three had deciduous teeth and five had permanent teeth. A total of 112 tooth positions were recorded for the non-adult group and 506 teeth, including deciduous and permanent, were analysed.

In total 928 positions and 1,554 teeth were recorded (Table 16).

Table 16 Summary of tooth and socket preservation in inhumations

	Males	Females	Unsexed/ Indeterminate Sex	Non-adults	Total
Tooth positions	480	226	110	112	928
Teeth lost PM	16	30	42	3	91
Teeth present	525	244	279	506	1554

Post-mortem tooth loss was limited, at 10.8%. Females were more affected frequently by post-mortem tooth loss than males with 13.3% as opposed to 3.3%. Post-mortem tooth loss was most severe in the unsexed and indeterminate adult category (38.2%), which likely had to do with the poor preservation of these skeletal remains. Non-adults were least affected by post-mortem tooth loss, with 2.7% of all teeth lost post-mortem.

The data for Bainesse has been compared, where possible, to other sites throughout the following section. It is important to bear in mind that the age distribution of the population will have had an impact on the frequency of dental disease observed, since many conditions accumulate during life. Therefore, a population containing a large proportion of older adults (e.g. Horncastle) would be expected to have a higher prevalence of many dental diseases than a population containing a large proportion of younger adults.

With regards to cremated remains, the roots of the teeth can survive quite well. In the pyre, the enamel of the erupted teeth usually flakes away from the dentine, so crowns do not always survive. Unerupted teeth are slightly better protected from the crypts of the maxilla and mandible however, and can often be identified (McKinley 1994). Overall, seventeen cremation context contained fragments of teeth (Table 17). These were largely root fragments, but in some cases, crown fragments were present. No dental pathology was recorded on any of the cremated tooth fragments and thus the following discussion focuses solely on the teeth recovered from the inhumations.

Table 17 Dental fragments recovered from cremation contexts

BN	Context	Dentition Recovered
113b	12422	6 roots, single
115b	12405AA	8 roots, single
151	12406AA	1 root frag
184b	12491AA	1 root frag
184b	12492AA	2 root frags
194b	12428AA	5 root frags
194b	12429AA	2 root frags
257	12400	1 root frag
258	12414AA	1 root frag
260	12348	13 tooth frags, incl 5 roots
264	12300AA	2 crown cusp frags, 4 roots
266	12312AA	3 root frags
269	12297AA	5 molar crown fragments, 3 cusps
271	13071AA	1 root frag
271	13071RF	4 root frags
272	13062AA	1 root frag
274	13125	7 root frags

4.1 CALCULUS

If plaque is not removed from the teeth effectively (or on a regular basis) then it can mineralise and form concretions of calculus on the tooth crowns or roots (if these are exposed), along the line of the gums (Hillson 1996, 255-257). Mineralisation of plaque can also be common when the diet is high in protein (Roberts and Manchester 2005, 71). Calculus is commonly observed in archaeological populations of all periods, although poor preservation or damage caused during cleaning can result in the loss of these deposits from the teeth (*ibid*, 64).

It was possible to observe that 477 of a total of 1,048 adult teeth (45.5%) were affected by calculus deposits of varying degrees. In Table 18, the results were separated into sex and age groups. This shows that 46.5% off all present teeth in the male group were affected by calculus. Females were more frequently affected, with a prevalence rate of 61.1%. 30.1% of the teeth belonging to the unsexed/indeterminate adult group had calculus deposits present. No calculus was observed on the single tooth recovered for an unsexed and unaged individual.

Table 18 Dental calculus (Adults)

Age Group	Male Teeth			Female Teeth			Unsexed/ Indet Teeth			Total Teeth		
	Calc	Total	%	Calc	Total	%	Calc	Total	%	Calc	Total	%
YA	32	32	100.0%	0	0	-	14	50	28.0%	46	82	56.1%
YMA	164	334	49.1%	75	136	55.1%	5	11	45.5%	244	481	50.7%
OMA	25	58	43.1%	35	43	81.4%	0	0	-	60	101	59.4%
OMA/MA	17	38	44.7%	29	42	69.0%	0	0	-	46	80	57.5%
MA	3	16	18.8%	8	15	53.3%	0	0	-	11	31	35.5%
A	3	47	6.4%	2	8	25.0%	65	217	30.0%	70	272	25.7%
u	0	0	-	0	0	-	0	1	0.0%	0	1	0.0%
Total	244	525	46.5%	149	244	61.1%	84	279	30.1%	477	1048	45.5%

Non-adults were also affected by calculus; deposits were observed on eleven of the 203 deciduous teeth (5.4%) and 43 of 303 permanent teeth (14.2%). Figure 8 highlights the relationship between age and calculus: while the younger juveniles had no permanent teeth with calculus deposits (mostly due to the permanent dentition still erupting), a small percentage of deciduous teeth were affected (5%). The older juveniles had more frequent calculus deposits on their deciduous teeth (29%) and also exhibited a higher number of permanent teeth (31.6%) with calculus. Adolescents only had permanent teeth present, 28.4% of which exhibited calculus.

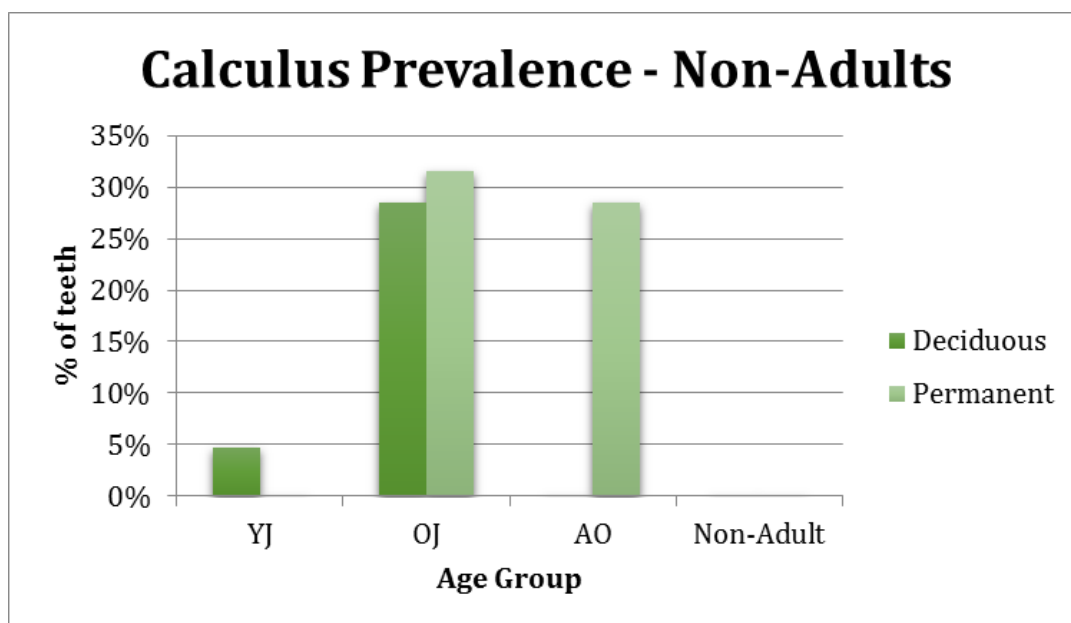


Figure 8 Calculus prevalence non-adults

Although the non-adults at Bainesse displayed much less calculus on their dentitions than those from Western Road (28.9% of deciduous teeth, 41.2% of permanent teeth; Caffell and Holst 2014a), the pattern remained the same; more permanent teeth were affected. This was not true for the Roman cemetery at Horncastle (62.5% of deciduous teeth, 33.3% of permanent teeth affected by calculus; Caffell and Holst 2007).

The calculated male prevalence for young adults was observed to be at 100% (only one individual

present, all teeth affected). No female dentitions could be observed as no individuals were present in this age group. The calculus prevalence was similarly high in both the male and female groups in the young middle adult age range (26-35 years; 49.1% and 55.1% respectively). However, the female prevalence (81.4%) was almost double that of the male group (43.1%) in the old middle adult range (36-45 years). Although a steady decrease was visible in the female prevalence in the old middle adult/mature adult (69%) and mature adult (53.3%) ranges, this was also observed in the males. While males in the old middle adulthood/mature adulthood age groups still had a prevalence of 44.7%, the individuals who were definite mature adults had a prevalence of 18.8%.

While the overall adult prevalence rate for calculus at Bainesse was significantly lower than that at Western Road (73.4%, Caffell and Holst 2014a), Baldock (83.1%, Keefe *et al* 2015) and Horncastle (95.1% of adult teeth, Caffell and Holst 2007), it was slightly higher than the calculated mean prevalence for the Roman period (43.4%; Roberts and Cox 2003, 132).

4.2 PERIODONTAL DISEASE

Calculus deposits in-between and around the necks of the teeth can aggravate the gums leading to inflammation of the soft tissues (gingivitis). In turn, gingivitis can progress to involve the bone itself, leading to resorption of the bone supporting the tooth, and the loss of the periodontal ligament that helps to anchor the tooth into the socket (Roberts and Manchester 2005, 73). It can be difficult to differentiate between periodontal disease and continuous eruption (whereby the teeth maintain occlusion despite heavy wear) in skeletal material, since both result in exposure of the tooth roots (Roberts and Manchester 2005, 74).

Periodontal disease (Plate 15) was observed in twelve of fourteen males (85.7%), six of six females (100%) and three of four unsexed or indeterminate individuals (75%). In total, 21 of 24 individuals whose maxilla and/or mandible could be inspected and who did not have ante-mortem tooth loss present, showed signs of periodontal disease (87.5%).

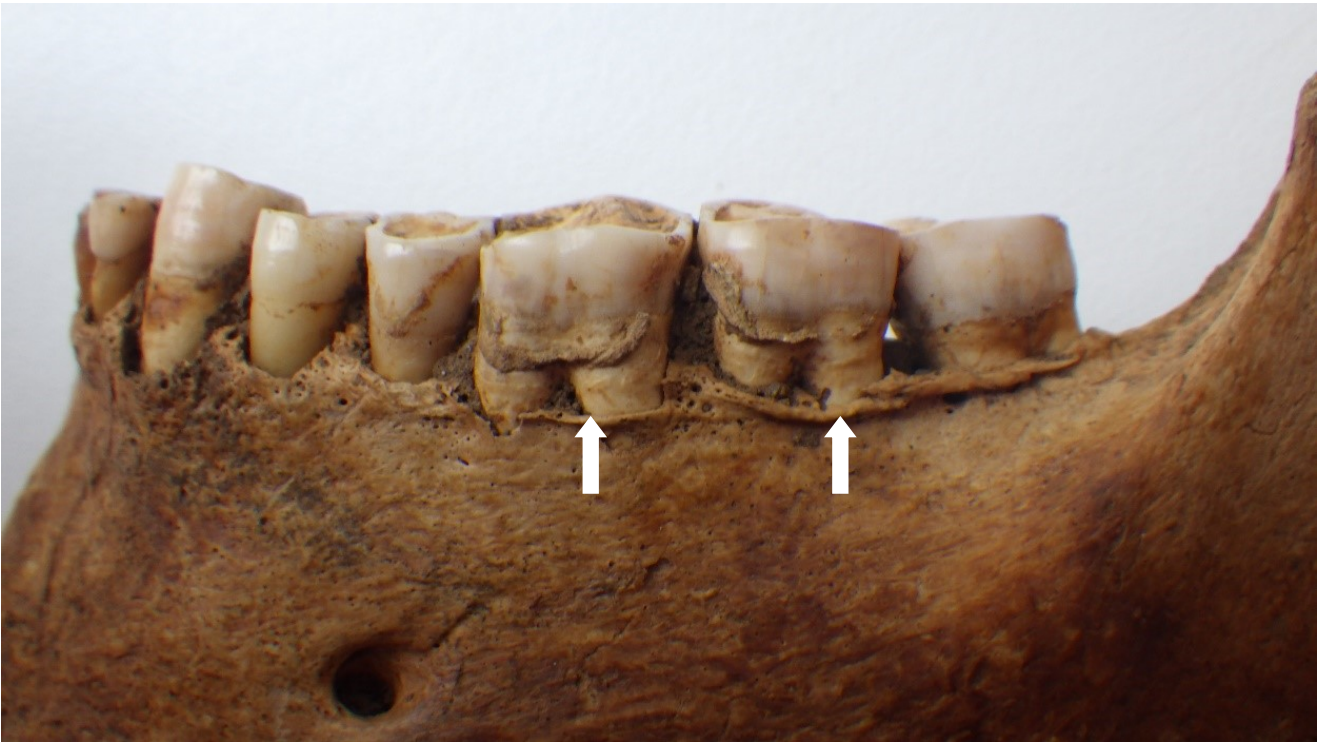


Plate 15 Periodontal disease on left mandible of BN 208

Most of these individuals were old middle adults (100%) or mature adults, although this may be related to the fact that wherever ante-mortem tooth loss occurred, periodontal disease was not recorded. One young middle adult male and one unsexed adult did not show any evidence of alveolar resorption.

Roberts and Cox (2003,137) calculated a periodontal disease prevalence of 29.3% in the Roman period. The prevalence at Bainesse was much higher than that, but this may be related to poor preservation. At Horncastle and Baldock, 100% of individuals and 97.4% of adults were recorded to have been affected by periodontal disease (Caffell and Holst 2007, 47; Keefe *et al* 2015), and at Western Road it was 65% (Caffell and Holst 2014a).

4.3 DENTAL CARIES

Dental caries (tooth decay) forms when bacteria in the plaque metabolise sugars in the diet and produce acid, which then causes the loss of minerals from the teeth and eventually leads to the formation of a cavity (Zero 1999). Simple sugars can be found naturally in fruits, vegetables, dried fruits and honey, as well as processed, refined sugar; since the latter three contain the most sucrose they are most cariogenic. Complex sugars are usually less cariogenic and are found in carbohydrates, such as cereals. However, processing carbohydrates, including grinding grains into fine powders or cooking them, will usually increase their cariogenicity (Moynihan 2003).

Twenty-one (28.4%) of adults were affected by dental caries. This included eight of twenty-two males (36.4%) and eight of fourteen females (57.1%). Five of 38 unsexed/indeterminate individuals also exhibited signs of caries (13.2%).

The proportion of teeth affected overall was 8.8% (92/1048). This included a slightly higher proportion in the females (13.5%) than in the males (9.5%) at Bainesse. Within the unsexed/indeterminate group, nine of the 279 teeth present had caries (3.2%).

The frequency of caries increases with age because the dental enamel does not repair itself. It was possible to observe this pattern at Bainesse to some extent (Table 19). It was noted that individuals in the old middle adult-mature adult (36+ years) and mature adult (46+ years) age ranges had proportionally more teeth with caries. Females were proportionally more frequently affected by caries, with 33.3% of mature adult teeth affected as opposed to 25% in males. In the 36+ age range (oma/ma), males had a higher proportion of caries (34.2%) when compared to females (7.1%). In the middle and lower age ranges, females had higher proportions of caries (i.e. 11.8% in yma range and 11.6% in oma range). Only one non-adult, a younger juvenile, had caries in one of their permanent teeth (BN 194a).

Table 19 Dental caries (permanent dentition)

Age Group	Male Teeth			Female Teeth			Unsexed/ Indet Teeth			Total Teeth		
	Caries	Total	%	Caries	Total	%	Caries	Total	%	Caries	Total	%
YA	0	32	0.0%	0	0	-	1	50	2.0%	1	82	1.2%
YMA	28	334	8.4%	16	136	11.8%	0	11	0.0%	44	481	9.1%
OMA	0	58	0.0%	5	43	11.6%	0	0	-	5	101	5.0%
OMA/MA	13	38	34.2%	3	42	7.1%	0	0	-	16	80	20.0%
MA	4	16	25.0%	5	15	33.3%	0	0	-	9	31	29.0%
A	5	47	10.6%	4	8	50.0%	8	217	3.7%	17	272	6.3%
u	0	0	-	0	0	-	0	1	0.0%	0	1	0.0%
Total	50	525	9.5%	33	244	13.5%	9	279	3.2%	92	1048	8.8%

The caries prevalence at Bainesse was similar to that calculated for the period by Roberts and Cox (2003, 132). It generally also conformed to values calculated for other Roman sites, such as that at Western Road (8.2%, Caffell and Holst 2014a). It was, however slightly lower than that of Horncastle (11.4%, Caffell and Holst 2007) and Baldock (13.8%, Keefe *et al* 2015).

4.4 ABSCESSSES

Dental abscesses occur when bacteria enter the pulp cavity of a tooth causing inflammation and a build-up of pus at the apex of the root. Eventually, a hole forms in the surrounding bone allowing the pus to drain out and relieve the pressure. They can form as a result of dental caries, heavy wear of the teeth, damage to the teeth (e.g. fractures), or periodontal disease (Roberts and Manchester 2005).

Eleven individuals in the adult group had at least one dental abscess present. Of all 816 recorded adult tooth positions, seventeen were affected by an abscess (2.1% overall). Older individuals were more likely to have an abscess (1.7% prevalence in young middle adults to 6.8% in mature adults).

Males had a higher frequency of dental abscesses, with an overall 2.7% of tooth positions affected. Females had a prevalence of 1.3%. In males, abscesses became more prevalent with age, while in females only young middle adults and old middle adults had abscesses. This may be related to the low number of

observable tooth positions for females (n=226).

The mean prevalence of abscesses in Roman Britain is 3.9% (Roberts and Cox 2003, 137), which was higher than that observed at Bainesse. The prevalence at Bainesse was much closer to that observed at Western Road (1.7%; Caffell and Holst 2014a), but lower than that at Baldock (4.6%, Keefe *et al* 2015).

One of the old middle adult females, BN 239, suffered from advanced ante-mortem tooth loss (possibly abscess-related) and had an abscess at the socket of the left second mandibular molar (Plate 16). This was not the most extreme expression of an abscess at Bainesse, but it was notable due to the perfectly circular shaped hole that formed a channel from the apical area of the socket through the medial side of the left mandible.



Plate 16 Dental abscess with channel in BN 239

4.5 ANTE-MORTEM TOOTH LOSS

Ante-mortem tooth loss (AMTL), or the loss of teeth during life, can occur as a result of a variety of factors, including dental caries, pulp-exposure from heavy tooth wear, or periodontal disease (occurring when inflammation of the gums, gingivitis, spreads to the underlying bone). Gingivitis can result when deposits of calculus on the teeth aggravate the gums. Once the tooth has been lost, the empty socket is filled in with bone (Hillson 1996, Roberts and Manchester 2005).

Almost half of the adult population with tooth positions (20/46, 43.5%) was affected by AMTL. With increasing age, AMTL was more prevalent, as expected. A total 28.6% of young middle adult males were affected by AMTL, while females of this age group showed no evidence for AMTL. All male skeletons with observable tooth sockets from the old middle adult, old middle adult/mature adult and mature adult age ranges exhibited AMTL (100% in all age groups). A slower increase from 50% in the old middle adult age range was observed in the female group (OMA/MA: 66.7%; MA: 100%).

There was also an increase in the proportion of tooth positions with age, which were affected by AMTL.

This was a general trend in all groups. While the male young middle adults had AMTL in seven of 292 sockets (2.4%), none of the females in this age group were affected. The proportion of AMTL in the old middle adult age range stayed roughly the same in both sexes (male 5% and female 7.7%), there was a notable increase in the male old middle adults/mature adults (22.7% as opposed to a steady 7.5% in the females). Around half of the tooth sockets in the mature adults of both sexes were affected by AMTL, which was expected. None of the non-adults exhibited any AMTL other than the natural shedding of deciduous teeth.

The crude prevalence of AMTL at Baldock (73.7%, Keefe *et al* 2015) was much higher than at Bainesse and the overall proportion of ante-mortem teeth lost (15.6% *ibid*) was almost twice as high as at Bainesse (8.5%). A similar prevalence was recorded at Horncastle, where 15.9% of teeth were affected (Caffell and Holst 2007).

Several of the conditions that predispose to AMTL were observed in this population, including periodontal disease (see Section 4.2), tooth decay (see Section 4.3), abscesses (see Section 4.4) and trauma (see Section 4.7). As well as natural loss of teeth following one of these conditions, it is possible that some painful teeth were deliberately extracted.

4.6 DENTAL ENAMEL HYPOPLASIA

Dental enamel hypoplasia (DEH) is the presence of lines, grooves or pits on the surface of the tooth crown, and occurs as a result of defective formation of tooth enamel during growth (Hillson 1996). Essentially, they represent a period when the crown formation is halted, and they are caused by periods of severe stress, such as episodes of malnutrition or disease, during the first seven years of childhood. Involvement of the deciduous (milk) teeth can indicate pre-natal stress (Lewis 2007). Trauma can also cause DEH formation, usually in single teeth.

DEH was present in 38 adults with teeth present (51.4%) and in thirteen non-adults (39%) (Table 20). The latter group included permanent and deciduous teeth. In the adults, 19.4% of all observable teeth were affected by DEH, while 18.4% of non-adult teeth were affected. There was a noticeable difference between the prevalence of DEH between the sexes. While a higher number of females was affected by DEH (64.3%, males 54.5%), more teeth in males showed signs of DEH (21.3%, as opposed to 12.3% of female teeth).

Table 20 Prevalence of DEH in Teeth

Age Group	Male Teeth			Female Teeth			Unsexed/ Indet Teeth			Total Teeth		
	DEH	Total	%	DEH	Total	%	DEH	Total	%	DEH	Total	%
YA	7	32	21.9%	0	0	-	19	50	38.0%	26	82	31.7%
YMA	98	334	29.3%	15	136	11.0%	8	11	73%	121	481	25.2%
OMA	1	58	1.7%	5	43	11.6%	0	0	-	6	101	5.9%
OMA/MA	5	38	13.2%	5	42	11.9%	0	0	-	10	80	12.5%
MA	1	16	6.3%	5	15	33.3%	0	0	-	6	31	19.4%
A	0	47	0.0%	0	8	0.0%	34	217	15.7%	34	272	12.5%

u	0	0	-	0	0	-	0	1	0.0%	0	1	0.0%
Total	112	525	21.3%	30	244	12.3%	61	279	21.9%	203	1048	19.4%

Female teeth showed the highest prevalence of DEH in mature adulthood (33.3%, males 6.3%), while it was predominantly young middle adult males who had the highest prevalence of DEH (29.3%, females 11%). The prevalence of DEH in the teeth of females was approximately the same in young and old middle adulthood (11.6% and 11.9%). More fluctuation was present in the male prevalence; the young adults (21.9%) and young middle adults (29.3%) were most commonly affected by DEH; there was a dip in the old middle adults (1.7%), while the old middle adults/mature adults exhibited slightly higher rates of DEH (13.2%).

According to Roberts and Cox (2003, 140) the mean Roman DEH true prevalence was 9.1%. This was much lower than the prevalence recorded at Bainesse (19.3%), but the results from Bainesse were similar to the prevalence rates at such sites as Baldock (16.6%, Keefe *et al* 2015) and those at Horncastle (14.8%, Caffell and Holst 2007). The DEH prevalence at Western Road (8.4%, Caffell and Holst 2014a) was even lower than the Roman mean.

At Bainesse, the non-adult group had a total of 506 teeth and 93 of these were affected by DEH (18.4%). Most of the DEH was found on the permanent dentition, which is the norm (Table 21). The prevalence of DEH rises with age as more permanent teeth are present in older children. There were a few notable exceptions, however. For example, BN 181, a four to five year old juvenile had deep grooves in their deciduous dentition (Plate 17), indicative of stress *in utero*.

Table 21 Non-Adult teeth with DEH

Age Group	Deciduous and Permanent		
	DEH	Total	%
YJ	47	335	14.0%
OJ	9	45	20.0%
AO	33	109	30.3%
Non-Adult	4	17	23.5%
Total	93	506	18.4%



Plate 17 DEH Grooves on deciduous dentition, BN 181

The presence of DEH has been associated with a lower life-expectancy in adults, perhaps suggesting that these individuals continued to experience stress beyond childhood (Lewis 2007) this theory is

consistent with the peak incidence rate in male young and young middle adults at Bainesse, but does not correspond with the high prevalence of DEH in mature adult females.

It was noted that a large number of individuals had developed enamel hypoplasia on their molars, especially the first molars. This is unusual and may have been caused by later than usual development of childhood stress, during development of the first permanent molars.

DEH, heavy wear and calculus were observed in several dentitions recovered from the fill of BN 144 (12861). These are listed in Appendix B.

4.7 DENTAL ANOMALIES

4.7.1 Congenitally Absent and Impacted Teeth

Teeth can be absent from the erupted dentition due to a genuine failure of the tooth to develop (congenital absence), or because the tooth develops but fails to erupt (impaction). Full impaction means the tooth remains completely within the jaw, but teeth that erupt at an angle can be considered partially impacted. In well preserved archaeological skeletal remains it is usually impossible to tell without a radiograph whether a tooth has not erupted because it is impacted or because it is congenitally absent. Occasionally, it is possible to observe that a tooth is impacted if post-mortem damage exposes the impacted tooth. Since systematic radiographs were not taken of all the jaws from Bainesse, teeth that were absent from the erupted dentition were recorded as 'not present/ unerupted' unless there was definite evidence for impaction.

At Bainesse, fifteen adults (n=46, 32.6%) who had tooth positions present for observation had teeth that were not present/unerupted. This group included five males and six females, as well as four unsexed individuals. A total of 21 teeth were not present/ unerupted (2.6% of 816 observable tooth positions).

It was noted that the tooth most often recorded as not present/unerupted was the mandibular right third molar. The mandibular left third molar and the maxillary left third molar were recorded as not present/unerupted in equal numbers. One individual (BN 22, a young middle adult male) had an unerupted/not present maxillary left lateral incisor. This was the only occurrence of a tooth other than a third maxillary molar missing.

The high frequency of third molars that were not present/ unerupted is consistent with these teeth being the most likely to be impacted or congenitally absent, although it is the lower third molars that are more prone to impaction than the upper teeth (Hillson 1996, 113-114). Hillson (1996, 114) has noted that congenital absence of teeth may be inherited, and that absence of teeth may be associated with other dental anomalies, however; none were observed amongst the individuals with absent/ unerupted upper molars.

The overall prevalence of not present/ unerupted teeth was similar to that recorded at Baldock, where 2.1% of all tooth sockets were affected (Keefe *et al* 2015). At Western Road, only 1% of teeth were recorded not present/unerupted (Caffell and Holst 2014a). At Horncastle Caffell and Holst (2007) recorded 1.9% of all tooth positions as congenitally absent or unerupted.

4.7.2 Wear Use Facets

A young middle adult male, BN 154, had notable wear facet likely related to habitual use. As can be seen

on Plate 18, the teeth affected were the mandibular left first molar and second premolar. The teeth were heavily worn on the buccal side. In the case of the second premolar, the entire buccal rim of the crown had been removed by wear. This was almost certainly created by frequent and continuous use of the teeth. When the articulating portion of the maxilla was added, it became obvious that the wear continued in the maxillary dentition, although this was affected to a lesser extent. It was also noted that the enamel on the buccal side of the teeth was frequently chipped, perhaps suggesting activity-related trauma.



Plate 18 Activity-related wear facets of BN 154

4.7.3 Supernumerary Molar Cusps

Slightly abnormal molars were recorded in two individuals. All of these teeth had a multitude of accessory occlusal cusps present, which distinguished them from a normal molar. BN 102 was a younger juvenile of approximately three years of age and both first molars had additional cusps (Plate 19). BN 209 was a young middle adult female whose maxillary right third molar showed extra cusps. This was unilateral and similar in morphology to the appearance of the first molars of BN 102.



Plate 19 Multicusped maxillary first molars of BN 102

4.9 DENTAL CONCLUSIONS

Most adults and non-adults at Bainesse had teeth. The presence of loose teeth outnumbered the presence of tooth positions. Deposits of mineralised plaque (calculus) were common at Bainesse, although prevalence of affected teeth was slightly lower than that observed in some contemporary population, yet higher than the average for the period. Non-adults were also affected, but mostly in the permanent dentition. Adult females had a higher prevalence of calculus compared to males. Periodontal disease of was present in most adults who had surviving jaws.

While incidence of caries was similar to the calculated average of the period, the frequency of abscesses was slightly lower. Ante-mortem tooth loss was less prevalent than the Roman mean. These three conditions are inter-related (with cavities leading to the development of abscesses and both potentially leading to the loss of teeth during life) and tend to become more common with age, which was also true for Bainesse.

The prevalence of dental stress lesions (DEH) that develop during the first seven years of childhood was considerably higher than the Roman British mean, although it was similar to that observed at the comparative sites. It should be noted that an unusually large number of molars were marked by such stress lesions, which should perhaps be investigated further.

Several individuals had unerupted or absent teeth and one individual was noted to have an interesting wear-use facet, which was likely activity-related. Two individuals had supernumerary cusps on their molars.

5.0 FUNERARY ARCHAEOLOGY

5.1 THE INHUMATION BURIALS

The burials in Field 163 at Bainesse are considered to be part of a larger cemetery, which appears to extend at least 90m further east. The cemetery covered the eastern aspect of the excavated area; structural remains, which were separated from the burial area by large, sub-rectangular enclosure ditches running northwest to southeast and southwest to northeast, occupied the western part (Teasdale *et al* 2016). The cemetery appears to respect the demarcation that the north-south running ditch provides, but some graves are cut into an earlier southwest to northeast running ditch. The northern demarcation of the cemetery seems to be provided by the southwest-northeast running Brough ditch (a ditch running parallel to Brough Beck).

Radiocarbon dating of 30 skeletons suggests that there was a continued use of the cemetery from the mid first to at least the mid-sixth century AD. This would indicate that this part of the cemetery was in use in the Roman to early post-Roman period.

A total of 129 individuals were recovered and identified from a total of 256 possible graves. A further seventeen cremation burials and nine additional cremated bone samples were analysed for this report.

Of the 129 inhumations, 42 were likely coffin burials (32.56%). However, it needs to be highlighted that identification of coffins was usually determined by the presence of coffin nails and/or fastenings in the grave, which might not have survived in all cases (Table 22). Notably, a large number of non-adults were buried in coffins - over half of the individuals in this group (66.67% of non-adults, or 17.05% of the whole population). Fewer females were buried in coffins (14.29%) compared to males (26.09%), but there were equal numbers of females and males buried in cists (one individual each). A further six individuals appeared to have been interred in graves with stone lining, but these were not considered actual cist burials.

Table 22 Summary of coffin/cist burials

Burial	Males		Females		Unsexed/Ind		Non-Adult		Total	
	n	%	n	%	n	%	n	%	n	%
Coffin	6	26.09%	2	14.29%	12	20.34%	22	66.67%	42	32.56%
Cist	1	4.35%	1	7.14%	0	0.00%	0	0.00%	2	1.55%
No of individuals	23	100.00%	14	100.00%	59	100.00%	33	100.00%	129	100.00%

At Western Road, 36.1% of the total 83 burials were buried in coffins. The proportion of non-adults with coffins (55.0%, 11/20) was much higher than the proportion of adults (30.2%, 19/63), similar to Bainesse. A slightly higher proportion of females at Western Road had coffins (29.4%, 5/17) compared to males (23.5%, 8/34; Caffell and Holst 2016, 156), which was the opposite at Bainesse. At Driffield Terrace, 19.7% of skeletons were interred in coffins (Caffell and Holst 2012).

A summary of the orientation, burial position, arm position, and dating of each skeleton and the presence of grave goods within each grave is provided in Table 23 below.

Table 23 Summary of funerary results

BN	Age	Sex	Orientation (head first)	Position	Arm Position	Burial type	Finds	Date
6	OMA/MA	M	N-S	Extended, supine, head facing East	Arms alongside torso, hands over os coxae	Inhumation	Hobnails	24-212 AD
7	YMA	M	NW-SE	Extended, supine, right leg straight, left leg slightly flexed at knee and leaning to left side	Right hand folded over left hip, left hand underneath left hip	Inhumation, coffin	Coffin nails, hobnails	131-330 AD
8	A	U	S-N?	Likely extended	-	Inhumation	Hobnails	Roman
10	A	U	SW-NE	Extended, supine, head titled to left side	Arms along torso, hands appear to be crossed over left pelvis/abdomen	Inhumation, coffin	Coffin nails, hobnails	Roman
12	A	U	NE-SW?	-	-	Inhumation	-	Roman
15	YA	M	E-W	Extended, supine, slightly turned to right side, facing north, right side of body higher than left, legs slightly flexed, crossed at ankles	Hands clasped over abdomen, arms alongside torso	Inhumation	-	238-388 AD
16	MA	F	SW-NE	Extended, supine, torso turned onto left side, neck craned backwards, facing West, head on left shoulder	Right arm on top of torso, both arms bent 90 degrees at elbow, left arm below torso, left hand in front of body, pressed against side of grave cut	Inhumation	CuA anklet around right lower leg	132-332 AD
17	YMA	M	SW-NE	Extended, supine, head facing north, resting on left shoulder	Right arm next to torso, lower arm over abdomen, hand over left hip, left arm alongside body, hand below right on left hip	Inhumation, coffin	Hobnails, pot	84-242 AD
18	A	U	NE-SW	Extended supine, slightly turned to left side, legs slightly flexed at knees	Unclear	Inhumation	-	Roman
19	OJUV	-	Likely SW-NE only teeth fragments	Unclear	Unclear	Inhumation	-	Roman
22	YMA	M	SE-NW	Supine extended, slightly on left side, head inclined looking towards left hand	Arms on sides, right arm aligned with torso, left arm angled slightly away from torso	Inhumation	Hobnails, Fe frag	31-217 AD
23a	A	U	Likely SW-NE, skull frags at SW	Unclear	Unclear	Inhumation	-	Roman

			end of grave					
23b	A	U	Likely NE-SW	Unclear	Unclear	Inhumation	-	Roman
24	YA	U	Unclear	Unclear	Unclear	Inhumation	-	Roman
26	A	M	Likely NW-SE	Likely extended, skull resting on left side	Right hand possible under skull	Inhumation, coffin	Coffin nails, hobnails	Roman
27	A	U	NE-SW	Likely extended	Right arm along torso	Inhumation	-	Roman
28	A	U	Likely W-E, skull frags at W end of grave	Unclear	Unclear	Inhumation	-	Roman
31	A	U	Likely NW-SE, skull frags at NW end of grave	Unclear	Unclear	Inhumation	-	Roman
34	A	U	Likely NE-SW, skull frags at NE end of grave	Likely extended	Unclear	Inhumation	-	Roman
35	A	U	ENE-WSW	Likely extended	Unclear	Inhumation	Hobnails, CuA possible bracelet	Roman
36	A	U	Likely SW-NE, teeth at SW end of grave	Unclear	Unclear	Inhumation	Samian drinking cup	Roman
41	A	U	NW-SE	Unclear	Unclear	Inhumation	-	Roman
44	A	U	WSW-ENE	Extended supine	Unclear	Inhumation, coffin	Coffin nails, complete pot, hobnails, CuA fragments	Roman
46	U	U	Unclear	Unclear	Unclear	Inhumation	-	Roman
50	A	U	Unclear	Unclear	Unclear	Inhumation	-	Roman
51	A	U	Unclear	Unclear	Unclear	Inhumation	-	Roman
55	U	U	Likely N-S, teeth at N end of grave	Unclear	Unclear	Inhumation, coffin	Coffin nails	Roman
56	A	U	Likely NNW-SSE	Unclear, flex?	Unclear	Inhumation	Hobnails, Fe nail	Roman
57	YMA	M	NNW-SSE	Extended supine, slightly on left side	Left arm bent at elbow, left hand over left clavicle, right arm bent 90 degrees at elbow, right hand resting against grave cut	Inhumation	-	262-534 AD
59	A	U	Likely NNW-SSE, teeth at NNW end of grave	Unclear	Unclear	Inhumation	-	Roman
60	OJUV	-	SSE-NNW, teeth at SSE end of	Unclear, likely extended	Unclear	Inhumation, coffin	Coffin nails	Roman

			grave					
61	A	U	NNW-SSE	Extended supine, head slumped on chest, upper torso resting against grave cut	Hands clasped on top of abdomen	Inhumation	Hobnails	Roman
62	A	M	N-S	Extended supine, head turned to right	Right arm folded onto torso	Inhumation	-	Roman
64a	Non-Adult	-	Unclear	Unclear	Unclear	May relate to BN 64b: Inhumation, Coffin, possibly stone lined	May relate to BN 64b: Coffin nails/fittings, smashed remains of two vessels, hobnails	Roman
64b	A	U	Unclear	Unclear	Unclear	See 64a	See 64a	Roman
67	A	U	S-N	Unclear, likely extended	Unclear	Inhumation	-	Roman
68	A	U	NNW-SSE	Extended, head turned to right	Unclear	Inhumation	Nail from fill	Roman
69	YA	U	Likely SW-NE, teeth at SW end of grave	Unclear	Unclear	Inhumation	-	Roman
71	A	U	WSW-ENE	Likely extended, head turned to right at WSW end of grave	Unclear	Inhumation, coffin	Coffin nails	Roman
72	A	U	Unclear, possibly WSW-ENE	Unclear	Unclear	Inhumation	-	Roman
73	YMA	F	NNW-SSE	Torso on right side facing right	Right arm in front of torso, lower arm bent back towards body	Inhumation	-	Roman
77	ADO	-	NE-SW	Supine, slightly on right side, both legs flexed at knees and spread, face turned up and right	Left hand behind pelvis, right hand on ribcage	Inhumation	Hobnails	31-217 AD
78	YMA	F	WSW-ENE	Extended supine	Right hand over stomach, left hand over abdomen	Inhumation	-	239-389 AD
81 from sample 12556ab	OJUV	-	Unclear	Unclear	Unclear	Inhumation, coffin	Coffin nails, hobnails, pot	Roman
82	ADO	-	Likely NW-SE, teeth at NW end of grave	Unclear	Unclear	Inhumation, possibly coffin	Coffin nails, glass or Au bead CuA fragment	Roman
86	YMA	M	W-E	Extended supine, head inclined forward, chin resting on chest	Arms bent at elbows, lower arms crossed over stomach/chest, hands folded	Inhumation	Hobnails	5-209 AD

87	MA	M	WSW, ENE	Flexed on right side, torso supine, head resting on chest	Hands clasped over mid-pelvis/abdomen	Inhumation	-	86-315
88	Non-Adult	-	Likely SSE-NNW, teeth at SSE end of grave	Unclear	Unclear	Inhumation, coffin	Coffin nails	Roman
89 (from fill 12956)	Non-Adult	-	Unclear	Unclear	Unclear	Inhumation	-	Roman
92a	A	U	N-S, heap of bones at N end of grave	Unclear	Unclear	Inhumation, possibly secondary	May relate to: 92b Fe nail	Roman
92b	A	U	"	"	"	Disturbed/disarticulated inhumation in same grave as 92a	"	Roman
93	A	U	Likely NW-SE, skull frags at NW end of grave	Unclear	Unclear	Inhumation	-	Roman
96a	YA	U	Likely SW-NE, teeth at SW end of grave	Unclear	Unclear	Inhumation	-	Roman
99	YMA	M	NW-SE	Extended supine	Lower arms crossed over chest, left hand at right shoulder, right hand on sternum, right arm above left	Coffin inhumation, stone lined (cist like)	Coffin nails	Roman
102	YJUV	-	S-N	Likely extended	Unclear	Inhumation, coffin	Coffin nails	Roman
103	Non-Adult	-	Unclear	Unclear	Unclear	Inhumation	Glass beads and Cu Frag	Roman
104	YA	U	WSW-ENE	Likely extended, skull turned to left, grave truncated	Unclear	Inhumation, coffin	Coffin nails	Roman
106	A	U	Likely NE-SW, feet at SW end of grave	Unclear	Unclear	Inhumation, coffin	Coffin nails, hobnails	Roman
107	A	U	Likely NW-SE, skull at NW end of grave	Unclear	Unclear	Inhumation	-	Roman
108	YJUV	-	Likely SE-NW, teeth at SE end of grave	Unclear	Unclear	Inhumation, coffin, stone lined?	Nails	Roman
115a from	A	U	Unclear	Unclear	Unclear	Inhumation, disturbed?	-	Roman

sample 12405AA								
119	YMA	F	W-E	Extended supine	Right arm bent over chest	Inhumation	Hobnails, bracelet right arm, anklet right leg, anklet left leg	86-314 AD
120	YMA	M	NW-SE	Extended supine	Arms bent 90 degrees at elbows, lower arms across stomach, hands folded mid-stomach	Inhumation	Hobnails	245-394 AD
121	YJUV	-	Likely NE-SW, teeth at NE end of grave	Unclear	Unclear	Inhumation	-	Roman
123	OMA	M	ENE-WSW	Flexed, torso prone, head facing down, legs flexed and twisted to left side	Arms below torso, left hand under chest below chin, right hand under chest	Inhumation	-	244-391 AD
124	ADO	-	W-E	Extended supine, head facing right, chin on right shoulder	Right arm along torso, right hand next to right pelvis, left hand over pelvis	Inhumation	Nail on chest	251-403 AD
125	A	U	SSE-NNW	Extended supine	Upper arms along torso, right lower arm and hand on abdomen, left arm bent 90 degrees at elbow over stomach	Inhumation	Hobnails	Roman
130	A	U	S-N	Likely extended, head inclined forwards onto chest	Right arm bent 90 degrees at elbow hand on left chest, left arm bent 90 degrees at elbow to left side, no left hand	Inhumation	Cu bracelet on right humerus	Roman
133	YJUV	-	ENE-WSW	Likely extended, head turned to left	Unclear	Inhumation, coffin	Coffin nails	Roman
135b	YMA	IND	S-N	Flexed, lying on right side, right leg bent at knee, left leg above	Unclear	Inhumation	-	263-534 AD; was dated as BN 135a
135c from Sample 12642AA+AB	OJUV	-	Unclear	Unclear	Unclear	Inhumation, disturbed?	-	Roman
137	A	U	Likely NW-SE	Unclear	Unclear	Inhumation	-	Roman
139	A	U	Likely NE-SW, teeth at NE end of grave	Unclear	Unclear	Inhumation	-	Roman
140	YMA	M	W-E	Extended supine	Upper arms along torso, elbows bent at 90 degrees, lower arms folded over stomach right over	Inhumation, coffin	Coffin nails	228-388 AD

					left			
142	A	U	Likely W-E, tooth frags at W end of grave	Unclear	Unclear	Inhumation	-	Roman
143	A	U	Unclear	Unclear, likely extended	Unclear	Inhumation	-	Roman
144	YMA	F	W-E	Extended supine, left leg slightly flexed at knee and bent to left side	Hands clasped over pelvis	Inhumation	-	244-391 AD
149a	U	U	Unclear	Unclear	Unclear	Inhumation, possible coffin	Two Cu bracelets, hobnails	Roman
153	YJUV	-	Likely W-E, skull at W end of grave	Unclear	Unclear	Inhumation	-	Roman
154	YMA	M	SW-NE	Slightly flexed, on left side	Right arm bent at elbow, right hand in front of face	Inhumation	-	Roman
155	A	U	Unclear	Unclear	Unclear	Inhumation, disturbed?	-	Roman
156	YMA	M	SW-NE	Extended supine	Upper arms slightly away from body, bent at elbows, lower arms resting on stomach, hands clasped	Inhumation	-	Roman
158	A	F	NNW-SSE	Extended supine	Right arm bent at elbow, lower arm across chest, hand over sternum	Inhumation	-	89-322 AD
160	A	U	Likely NW-SE, teeth at NW end of grave	Unclear	Unclear	Inhumation, coffin	nails	Roman
162	Non- Adult	-	Likely NNW-SSE, teeth at NNW end of grave	Unclear	Unclear	Inhumation, coffin	Coffin nails	Roman
165b	YA	U	Likely NW-SE, teeth at NW end of grave	Unclear	Unclear	Inhumation, coffin	Nails	Roman
173	YMA	M	NW-SE	Extended supine	Arms across stomach	Inhumation	-	Roman
175	OMA/MA	F	SW-NE	Extended supine, chin resting on left shoulder	Upper arms along torso bent 90 degrees at elbows, hands resting on stomach	Inhumation	Nail, Fe object	Roman
177 from Sample 12976	YJUV	-	Unclear	Unclear	Unclear	Disturbed, coffin	Two vessels recorded, nails	Roman
178a	OMA/MA	F	NNW-SSE	Extended supine, leans towards right, head turned	Hands clasped over right pelvis	Inhumation	-	Roman

				to face right side				
178b	A	U	Unclear	Unclear	Unclear	Disturbed	-	Roman
181	YJUV	-	Likely NW-SE	Likely extended	Unclear	Inhumation, coffin	Coffin nails, hobnails, 2 pots	Roman
182	A	U	Unclear	Unclear	Unclear	Disturbed?	-	Roman
183	U	U	NNW-SSE or vice versa	Unclear	Unclear	Inhumation, coffin	Glass frags, coffin nails, hobnails	Roman
184a	YJUV	-	Likely SW-NE	Likely extended	Unclear	Inhumation, coffin	Coffin nails	Roman
185	YMA	M	NNE-SSW	Flexed, on right side, knees drawn towards upper body	Unclear	Inhumation	-	Roman
186	MA	F	WSW-ENE	Extended supine	Arms along body	Inhumation, coffin	Coffin nails	Roman
187	A	U	W-E	Supine, slightly flexed, left knee bent	Left lower arm across chest	Inhumation	-	429-630 AD
193	Non-Adult	-	Likely SW-NE, teeth at SW end of grave	Unclear	Unclear	Inhumation, coffin	Coffin nails	Roman
194a	YJUV	-	NW-SE	Extended supine	Unclear	Inhumation, coffin	Coffin nails, Fe buckle, Fe belt stud, Fe belt clasp, pot counter, hobnails	Roman
197a	OMA/MA	M	NW-SE	Slightly flexed, on right side, torso supine, knees bent slightly, head looking right	Right arm extended along torso, left upper arm along torso, left lower arm across abdomen	Inhumation	Coffin nail	256-424 AD
197b	A	U	Unclear	Unclear	Unclear	Inhumation, disturbed	-	Roman
198	YMA	M	SE-NW	Torso supine, slightly on left side	Right arm slightly bent with hand at right hip, left upper arm along torso, left lower arm away from body	Inhumation	Fe ring (possible cloak pin), coffin nail	142-380 AD
199	YJUV	-	Likely N-S	Unclear	Unclear	Inhumation, coffin	Coffin nails, whole pot below lower legs	Roman
201	YJUV	-	N-S	Extended supine, slightly flexed on right side with knees flexed slightly	Unclear	Inhumation, coffin	Whole pot right side of head	Roman
202	A	U	NE-SW	Extended supine	Left hand over pelvis, right hand on left chest	Inhumation, coffin, stone lined	Quern frag, coffin nails, hobnails, ?Fe buckle	Insufficient carbon
205	YJUV	-	N-S	Likely extended supine	Unclear	Inhumation, coffin	Coffin nails, pot	Roman
206	U	U	Unclear	Unclear	Unclear	Inhumation, coffin? Disturbed	nails	Roman
208	OMA	M	W-E	On left side	Right arm extended above head,	Inhumation, coffin?	Coffin nails, hobnails,	261-533 AD

					left arm in front of body?		whetstone	
209	YMA	F	ESE-WNW	Extended supine, head turned to right	Upper arms along torso, bent at elbow, hands clasped on chest under chin	Inhumation, coffin, stone lined	Coffin timber, coffin nails, CuA stud	405-549 AD
213	OMA	F	SW-NE	Extended supine, slightly on left side	Lower arms crossed over abdomen right over left	Inhumation	-	145-385 AD
215	Non-Adult	-	Likely NW-SE, teeth at NW end of grave	Unclear	Unclear	Inhumation, coffin	Coffin nails, coffin fittings, pot sherds	Roman
216	A	U	Likely NW-SE, teeth at NW end of grave	Likely extended	Unclear	Inhumation	Hobnails	Roman
219	YJUV	-	Likely NNW-SSE, skull at NNW end of grave	Unclear	Unclear	Inhumation, coffin	Coffin nails, hobnails, 2 pots	Roman
222	I	-	Likely E-W	Likely extended supine	Unclear	Inhumation, coffin	Coffin nails, metal bar	Roman
229a	F/NEO	-	Unclear	Unclear	Unclear	Inhumation, disturbed?	-	Roman
229b	ADO	-	NW-SE	Extended supine	Upper arms along torso	Inhumation, coffin	Coffin nails, hobnails, 3 pots	Roman
231	YJUV	-	E-W	Supine, slightly flexed on left side	Right upper arm on right side	Inhumation, grave covered with large stones	-	Roman
234	MA	M	WNW-ESE	Prone, slightly flexed to right	Lower right arm bent under pelvis, lower left arm bent towards skull	Inhumation	-	260-532 AD
235	YJUV	-	NE-SW	Extended supine, slightly turned onto left side, head turned to left	Right arm bent at elbow, right hand below chin, left arm bent at elbow away from torso	Inhumation	Two Cu bracelets, Cu disc, jet/glass beads necklace	87-317 AD
237a likely same as 238	OMA/MA	F	Unclear	Unclear	Unclear	Inhumation, disturbed	-	412-557 AD
237b	YMA	F	NNW-SSE	Extended prone, face turned to right	Right arm straight along torso, left arm bent at elbow, left hand under pelvis	Inhumation, cist	-	263-534 AD
238 likely same as 237a	A	U	Likely NW-SE	Likely extended	Unclear	Inhumation	-	Roman
239	OMA	F	NNW-SSE	Extended supine, upper body slightly bent to left side	Arms bent 90 degrees at elbows	Inhumation	2 pots, hobnails	244-391 AD
240	YJUV	-	Likely E-W	Unclear	Unclear	Inhumation, coffin	Coffin nails, bird bones, 2 pots	Roman

242	A	U	Likely S-N, teeth at S end of grave	Unclear	Unclear	Inhumation	-	Roman
244	YMA	M	Unclear	Unclear	Unclear	Inhumation, disturbed, bottom of grave stone lined	-	257-423 AD
254	YA	U	Unclear	Unclear	Unclear	Inhumation, disturbed	-	Roman
255	A	U	Unclear	Unclear	Unclear	Inhumation, disturbed?	-	Roman

Key: Non-adult age categories: f (foetus, <38weeks *in utero*), p (perinate, c. birth), n (neonate, 0-1 months), i (infant, 1-12 months), yjuv (young juvenile, 1-5 years), ojuv (older juvenile, 6-11 years), j (juvenile, 1-12y), ado (adolescent 12-17y)

Adult age categories: ya (young adult, 18-25 years), yma (young middle adult, 26-35 years), oma (old middle adult, 36-45 years), ma (mature adult, 46+ years), a (adult, 18+ years)

Sex: m – male; f – female; U - unsexed

Dating of the skeletons was based on radiocarbon dates for 30 individuals and in the remainder of the cemetery relied on stratigraphy, accompanying grave goods or artefacts from the grave backfills. Almost all of the burials fell into the Romano date range, but some burials dated to the early post-Roman period (for example BN 187, BN 237a/238 and BN 209, which dated to the mid fourth to late sixth century).

A total of 37 burials (of the total 256 recorded burials, 14.45%) contained either pots or jewellery/fine metal objects - or both - as grave goods.

5.2 BURIAL DISTRIBUTION

The ditches to the west and the north of the cemetery demarcating the burial area and were largely respected by the graves, however, many burials truncated and intercut one other. The burials closest to the approximately north-south running ditch appeared to be mostly aligned north-south (or vice versa), but in many cases this was not clear. It is possible to say, however, that the burials seem to be either arranged parallel (N-S/S-N) or perpendicular (W-E/E-W) to this ditch. While there may have been a few clusters of graves, this was difficult to ascertain due to the frequency of intercutting.

It is possible that a small cluster of graves could be identified closest to the entrance opening of the enclosure ditch, and a few meters further north, where a couple of lines of west-east (or vice versa) burials appeared to be located. To the northeast of these, two lines of north-south (or vice versa) burials were running in a slightly curved line from the north to the south. Another possible grave cluster was also visible to the northwest of the circular ring ditch in the south-eastern corner of the cemetery.

It is unlikely that grave markers were present for the entire duration of use of the cemetery, based on the fact that some intercutting of graves was seemingly random. However, some burials may have purposefully been cut, to allow for the insertion of a later burial (for example BN 15 and 16; BN 86 and 87; BN 77 and 78; and perhaps BN 237b and 238/237a).

If the radiocarbon dating is considered with regards to the spatial arrangement of the cemetery, it shows that the very early graves (i.e. BN 6, BN 22, BN 77 and BN 86; mid first to early second century) were located at the northern extent of the cemetery. The most recent graves (i.e. BN 187, BN 237a/238 and BN 209; mid fourth to late sixth century) were found in the southern extent. Most of the graves of the period in between were dispersed in the centre of the cemetery, with a few outliers to the north and south.

5.3 ORIENTATION

It was possible to observe that a majority of individuals at Bainesse for whom burial orientation could be determined were buried northwest (head) to southeast (feet). Nineteen of the 129 skeletons (14.73%) were interred this way and no other orientation was used to such a great extent (Table 24). This was likely the case because this alignment followed the main ditch running northwest-southeast. However, 8.53% of individuals were buried west (head) to east (feet), which is a typical Christian orientation. Southwest (head) to northeast (feet) was also a relatively common orientation with as nine individuals

(6.97%) buried this way. Burial in the opposite orientation, northeast (head) to southwest (feet) was almost as frequent with 6.20%. A total of 4.65% of skeletons were interred with the head to the north and the feet to the south, while the opposite orientation was less common (3.10%). Only five individuals (3.88%) were buried east (head) to west (feet). Unfortunately, for a large number of individuals it was not possible to be certain in which orientation they were buried, because for some of these, only bone or dentition fragments were present.

Table 24 Summary of burial orientation

Position	Males		Females		Unsexed/Ind		Non-Adult		Total	
	n	%	n	%	n	%	n	%	n	%
NE-SW	2	1.55%	0	0.00%	4	3.10%	2	1.55%	8	6.20%
NW-SE	8	6.20%	3	2.33%	4	3.10%	4	3.10%	19	14.73%
SE-NW	2	1.55%	0	0.00%	1	0.78%	0	0.00%	3	2.33%
SW-NE	3	2.33%	5	3.88%	1	0.78%	0	0.00%	9	6.98%
E-W	1	0.78%	1	0.78%	1	0.78%	2	1.55%	5	3.88%
W-E	4	3.10%	2	1.55%	4	3.10%	1	0.78%	11	8.53%
N-S	2	1.55%	2	1.55%	0	0.00%	2	1.55%	6	4.65%
S-N	0	0.00%	0	0.00%	3	2.33%	1	0.78%	4	3.10%
Unclear	1	0.78%	1	0.78%	41	31.78%	21	16.28%	64	49.61%
Total	23	17.83%	14	10.85%	59	45.74%	33	25.58%	129	100.00%

When sex of the individuals was taken into account, it was noted that males were most likely to be buried in a northwest to southeast direction (6.20%, 34.78% of males) and this was also the case for non-adults (3.10%). Females, however, were more likely to be interred in a southwest to northeast orientation (3.88%, 35.71% of females).

The direction of burial orientation varies considerably between different cemeteries in Roman Britain (Clarke 1979, 352). At Horncastle, the majority of skeletons were oriented in a north to south direction (Caffell and Holst 2007) and at Baldock, the most common direction of orientation was with the head to the northeast and the feet to the southwest, for both males and females, and for non-adults (Keefe et al 2015). At Western Road, the majority of skeletons were aligned northwest (head) to southeast (feet), but considerable variation in grave alignment was noted (Caffell and Holst 2016). It is possible that a west-east orientation may have been more widely adopted in the later Roman period (Rahtz, *et al* 2000). O'Brien (1999, 5) has observed that burial orientation at many of the smaller cemeteries favoured a north-south (or inverted) alignment, whereas burials in the larger organised cemeteries near urban or military centres were more likely to have a west-east alignment.

5.4 POSITION

At Bainesse, most individuals for whom it was possible to determine the burial position lay in extended supine positions (31.01%; Table 25). It was unfortunately impossible to draw conclusions on the position of 60.47% (78/129) of the individuals on site, because the skeletons were incomplete or in poor condition. In some cases, the intercutting of graves made it difficult to determine how individuals had

been interred. The second most common burial position was flexed and lying on the right side (2.33%). Two individuals each were found prone and extended, flexed and on the left side, and extended on the right (1.55% each). One individual was interred in a supine position, with legs flexed and spread (0.78%, BN 77), and one was extended and turned onto the left side (0.78%).

Table 25 Summary of burial position

Position	Males		Females		Unsexed/Ind		Non-Adult		Total	
	n	%	n	%	n	%	n	%	n	%
Supine extended	13	10.08%	11	8.53%	9	6.98%	7	5.43%	40	31.01%
Prone extended	1	0.78%	1	0.78%	0	0.00%	0	0.00%	2	1.55%
Flexed on left side	2	1.55%	0	0.00%	0	0.00%	0	0.00%	2	1.55%
Flexed on right side	2	1.55%	0	0.00%	1	0.78%	0	0.00%	3	2.33%
Extended on left side	1	0.78%	0	0.00%	0	0.00%	0	0.00%	1	0.78%
Extended on right side	1	0.78%	1	0.78%	0	0.00%	0	0.00%	2	1.55%
Supine flexed	0	0.00%	0	0.00%	0	0.00%	1	0.78%	1	0.78%
Unknown	3	2.33%	1	0.78%	49	37.98%	25	19.38%	78	60.47%
Total	23	17.83%	14	10.85%	59	45.74%	33	25.58%	129	100.00%

There was no noticeable difference between the sexes in terms of burial position and most adults were buried supine and extended (78.57% of females, 56.52% of males). This was also true for non-adults, although for many of these the exact position was unclear. Only adults were buried in a prone position, placed flexed on their right side or extended on their right side. However, an adolescent (BN 77) was buried supine, with the legs flexed and spread. It should be noted that males were more frequently interred in flexed positions (on left 1.55%, on right 1.55%) compared to females, who were seemingly not buried in flexed positions at all. An old middle adult male, BN 208, appeared to lie on his left side, but his right arm was extended above his head as if 'thrown into the grave'. This unusually interred male was buried with a whetstone.

At other Roman cemeteries, extended supine positions were also most common. At Horncastle, for example, 93.9% of skeletons were buried in an extended supine position, while two individuals were buried in a prone position (6.1%; Caffell and Holst 2007). At Baldock, the majority of burials (70.2%) also lay in extended supine positions. A small number of individuals were lying in a flexed position on their left (3.5%) or right sides (3.5%), and four individuals (7.0%) were interred facing down, or prone (Keefe *et al* 2015). At Western Road, 65% of adults and 65% of non-adults were interred in supine extended positions (Caffell and Holst 2016). At this site, non-adults could also be buried prone, which was not the case at Bainesse. Most often, the burial ritual at Bainesse corresponds with that frequently observed during the mid Roman period. The majority of burials during this period tend to lie on their backs, with extended legs and the arms in a variety of relatively orderly positions.

According to Philpott (1991), prone burials were more common in rural or small town cemeteries, particularly in the fourth century, although earlier prone burials do exist. Prone burial may be used to signify 'outcast' status and these burials were often located at the periphery of an ordered cemetery. This

did not appear to be the case at Bainesse, where prone burials were interspersed amongst supine burials.

5.5 GRAVE GOODS

Grave goods were present in 31 (24.03%) of the 129 graves, containing individuals analysed for this report. This included whole and partial pottery vessels, copper alloy objects, jewellery, beads, glass fragments, a pot counter, querns, bird bones and a whetstone. These grave goods appear to have been placed within the grave or were worn by the individuals. Some of the burials contained more than one grave good.

When it was considered which age group the individuals with grave goods belonged to, it was found that 48.39% of all burials including these items were non-adults (15/31; Table 26) and while almost as many grave goods were buried with adults (45.16%, 14/31), proportionality needs to be emphasised here. The non-adult group at Bainesse only consisted of 33 individuals and that almost half of these were interred with grave goods (45.45%). In comparison, only a quarter of adult graves contained grave goods (15.38%, 14/91).

Table 26 Summary of individuals with grave goods (age groups)

Age	With grave goods	
	n	%
Non-Adults	15	48.39%
Adults	14	45.16%
Unknown	2	6.45%
Total	31	

A total of fifteen individuals were buried with pottery vessels (11.63% of analysed skeletons). Non-adults were the most frequent recipients of pottery vessels. A total of eleven non-adults (33.33%) were buried with either one or several pottery vessels, many more than were interred with males or females (4.35%, 1/23 and 7.14%, 1/14 respectively).

Beads were only recovered with non-adults - only three of the 129 individuals received beads (2.33%, or 9.09% of non-adults). Fine metal objects like bracelets, anklets, rings, brooches or pins, belt buckles or studs were recovered most frequently with adult females (28.57%; 4/14) and non-adults (12.12% of non-adults). Only 8.70% of males (2/23) were interred with fine metal objects (Table 27).

Table 27 Distribution of grave goods (and hobnails)

Position	Males		Females		Unsexed/Ind		Non-Adult		Total	
	n	%	n	%	n	%	n	%	n	%
Hobnails	7	30.43%	2	14.29%	10	16.95%	7	21.21%	26	20.16%
Pot	1	4.35%	1	7.14%	2	3.39%	11	33.33%	15	11.63%
Jewellery	2	8.70%	4	28.57%	5	8.47%	4	12.12%	15	11.63%
Beads	0	0.00%	0	0.00%	0	0.00%	3	9.09%	3	2.33%

Misc	1	4.35%	0	0.00%	2	3.39%	2	6.06%	5	3.88%
N individuals	23	100.00%	14	100.00%	59	100.00%	33	100.00%	129	100.00%

At Western Road, animal bones were the most common grave goods and were present in approximately a third of all burials, followed by pottery vessels, which were, just like at Bainesse, particularly common in non-adult graves (Caffell and Holst 2016, 159). Bangles were also frequently found with non-adults (*ibid*).

A total of 26 individuals (20.16% of analysed skeletons) at Bainesse appear to have worn shoes or boots when they were buried, based on the presence of hobnails in the grave, most often in the area around the feet. Males were most frequently accompanied by boots (30.43%), while only 14.29% of females were recovered with hobnails in the grave. However, a large number of non-adults appeared to have been buried with shoes (21.21% of non-adults).

At Western Road, hobnails occurred in 22.9% of the total number of graves, indicating that nearly a quarter of the individuals were buried with shoes. Hobnails were apparently more frequent with non-adults compared to adults, and among the adults were more prevalent among females (Caffell and Holst 2016), unlike Bainesse. Two individuals with hobnails (22.2%) were present at Newarke Street, both of whom were female (Keefe and Holst 2013, 39). Quensel-von-Kalben (2000, 218-219) examined ten cemeteries, eight of which contained burials with a prevalence of hobnails ranging from 1% to 33%. The highest frequency of hobnailed shoes in burials was identified in late Roman urban cemeteries (*ibid*). It is thought that the dead were provided with or wore their shoes so that they were equipped for their journey into the underworld (Wardle 2000, 29).

5.6 THE CREMATION BURIALS

A total of seventeen cremation burials were excavated at Bainesse, and a further nine contexts rendered substantial amounts, or large fragments of cremated bone. The cremation burials were largely confined to the southern aspect of the cemetery and a cluster appears to concentrate around a ring ditch in the southern part of the cemetery. Only BN 257 and 258 were located further north, approximately in the centre of the cemetery, near an entranceway in the enclosure ditch. Six of the cremation burials were contained in urns, although in the case of some of the burials this was only indicated by the presence of pottery sherds (i.e. BN 262, BN 273, possibly in BN 263).

In comparison, at Waterdale in Doncaster, five of 49 cremation burials were urned (Caffell and Holst 2012b), and none of the 41 cremation burials at Driffeld Terrace in York were urned (Caffell and Holst 2012a). This was also the case at Healam Bridge, North Yorkshire, where none of the nine cremation burials were interred in urns (Keefe and Holst 2012). At Baldock, only seven cremation burials of 60 were unurned (Keefe *et al* 2015).

Four cremation burials were cut into the fills of inhumation burials, indicating that they post-dated these. BN 259 and 260 were cut into the fill of grave BN 202 and BN 261 was cut into the possible grave BN 225, and the latter two were urned. The cremation burial BN 270 was unurned and cut into BN 233. None of

these burials have yet been dated (BN 225 and BN 233 did not contain enough bone) as BN 202 was the only sample sent for radiocarbon dating which yielded insufficient carbon. At Driffield Terrace, some of the cremation burials have been found to post-date inhumations (Caffell and Holst 2012a). One of these inhumations dates to the last phase of cemetery use, to the late fourth century AD, indicating that the practice of cremation burial continued into the latest phase of Roman burial in York.

It has been suggested by many that the funerary ritual of cremating the body was largely replaced by inhumation in the later second century (Ottaway 2004, Hope 1999, Jones 1984). Although this is largely the case, several cremation burials have now been found in the north of England that date to the later part of the Roman period, mostly in the vicinity of Roman forts, such as at Brougham, Cumbria (Cool 2004; McKinley 2004c, 283), Petty Knowes, Northumberland (Charlton and Mitcheson 1984), and Lanchester, (Turner 1990).

Cremation burial BN 263 truncated the large ring ditch in the south-eastern corner of the cemetery. To the southwest of this, BN 273 was located in the centre of a penannular gully and BN 274 truncated the northern extent of this gully.

Ten of the 26 cremation burials contained probable adults, while five included non-adults. The age of the remains in the other eleven cremation burials could not be determined.

At Bainesse, most of the cremation burials (94.12%, 16/17 definite cremation burials) contained inclusions or artefacts of some description. BN 260 contained a small portion of cremated animal bone. This was also present in BN 257, although in this case it was a substantial amount (59.5g). Approximately 20g of cremated animal bone were recovered from burial BN 264. Ferrous metal objects were included in fourteen of the cremation burials (82.35%, 14/17), flint fragments in two (11.76%) and nails in five (29.41%). BN 272 contained a copper alloy brooch and a further copper alloy object, as well as glass, amber and chert. A copper alloy coin was found with BN 269 (likely a non-adult), which appeared to have been tied around the urn. A copper alloy object was also recovered with BN 263 (also a likely non-adult), although it is not clear what exactly this item was. For comparison, 60% of the cremation burials at Baldock also contained grave goods/inclusions of some description (Keefe *et al* 2015) and several of the Driffield Terrace cremation burials contained grave goods (Caffell and Holst 2016).

The presence of nails and ferrous metals may indicate that the individuals were cremated in a container, or it may reflect that the cremated remains were interred in a wooden receptacle. No evidence of a pyre site was present in the excavated area. However, the presence of cremated bone fragments in the backfill of some graves (Appendix B) indicated that some of the graves disturbed earlier cremation burials or that residual material from a pyre was perhaps filled back into the graves.

Given the low weights of most of the cremation burials, it is likely that only a representative sample was collected from the pyre and this was buried as token deposits, which was the norm in Roman cremation burials. It cannot be determined archaeologically where the rest of the bone was deposited and it has been suggested that the remainder has been buried or scattered elsewhere (Burleigh and Fitzpatrick-Matthews 2010, 236) in a similar manner as is often practiced in Britain today.

5.7 CONCLUSION

In conclusion, the Roman cemetery at Bainesse was in use spanning at least the period from the mid first to the sixth century, based on the radiocarbon dates taken from 30 individuals interred in the excavated area. The cemetery was demarcated by ditches to the west and north and most burials appeared to be oriented either perpendicular or parallel to the western demarcation ditch. Although the cemetery itself appeared rather disorganised, with a multitude of intercutting graves, a few burial clusters may have been present. The radiocarbon dating contributed to the spatial analysis of the cemetery, indicating that the very early graves were located in the north of the cemetery while the more recent ones were located in the south. It is likely that the western, northern and southern limits of the cemetery were excavated, but that burial continued to the east of the excavated area.

The orientations and positions of the individuals interred at Bainesse were varied, but a majority was found to have been buried extended and supine, and most were oriented northwest (head) to southeast (feet), keeping in line with the western demarcation ditch. Some skeletons were flexed, however, and one adolescent was buried supine with legs flexed and spread. Two adults were buried prone. A majority of non-adults was interred in coffins compared to adults, while at least two adults were buried in cists.

Grave goods were relatively present in a quarter of the analysed burials. Notably, non-adults were proportionally much more frequently interred with pottery vessels than adults and only non-adults were buried with beads. Females were most likely to be buried with jewellery. A large number of individuals, including non-adults, appear have had some form of footwear with them, based on the presence of hobnails.

Seventeen cremation burials and nine further contexts containing cremated human bone were analysed and contained at least ten adults and five non-adults. Only six of the cremation burials were urned, which was similar to cemeteries at Healam Bridge, Waterdale and Newbridge Quarry (Caffell and Holst 2014b), where the majority of the cremation burials were unurned. Four of the cremation burials truncated the fills of inhumations, suggesting that they were post-dating some of the inhumations. Almost all cremation burials contained inclusions or grave goods, and two of the non-adult cremation burials contained copper alloy items.

6.0 DISCUSSION AND SUMMARY

The full extent of the Roman cemetery at Bainesse has been excavated to the north, south and west, but continues further to the east of the area of excavation. A total of 129 of the excavated 256 inhumation graves produced bone or teeth for analysis and 26 cremation burials were excavated as well as a quantity of burnt and unburnt disarticulated human bone.

The cemetery is bordered by ditches to the north and west and does not appear to be organised in an orderly manner, with large numbers of burials intercutting and being aligned in different orientations. It

is possible that grave markers were not present or not in use during the entire period of use of the cemetery. AMS dating of thirty of the 129 skeletons demonstrated that the cemetery was in use from the mid first to the sixth century AD. Radiocarbon dating also revealed that the earliest burials were located in the northern end of the cemetery, while the latest graves were located in the southern part of the cemetery.

Most of the graves were aligned either parallel or perpendicular to the eastern side of the sub-rectangular enclosure, with most individuals oriented northwest-southeast (head first). A third of the individuals analysed were buried in coffins, if the recovery of coffin nails from the grave fill is taken as an indication of the presence of coffins. Crucially, this seemed to be the case especially for non-adults, with almost two thirds of the non-adults interred in coffins. Two individuals were buried in cists and a small number of graves appeared to be stone-lined.

Most individuals at this site were buried in supine and extended positions, although a small number of individuals were also buried flexed and on their right or left side. Two adults, one male and one female, were buried prone. An adolescent, BN 77, was buried supine with the legs flexed and spread. A second inhumation was also in an unusual position; BN 208, an old middle adult male, looked as if he may have been thrown into the grave, lying on his left side with his right arm extended above his head.

In terms of grave goods, the non-adult group was most frequently accompanied with pottery vessels and beads, the latter were not interred with adults and almost half of the graves with grave goods were those of non-adults. Females were proportionally more frequently buried with jewellery at Bainesse. At Roman Baldock, Keefe *et al* (2015) observed the same pattern and the general trend at the time was for objects of personal adornment to be associated with females and children's burials to be furnished more richly than those of adults (Griffin *et al* 2011, Philpott 1991, 233). It should be taken into account that there may be a bias regarding patterns emerging from this analysis because the cemetery was not completely excavated.

The osteological analysis of the individuals recovered from Field 163 at Bainesse has been able to provide a glimpse into the lives of the population buried there. Overall, 129 individuals could be identified from a potential 256 burials. Most of the skeletons were incomplete and only a small number were more than 80% complete. Fragmentation was also poor and the surface preservation of the bone was moderate to poor, with few individuals considered to be in a good condition. This inhibited the retrieval of information from the skeletons.

Most of the individuals buried at Bainesse were adults (91), while 33 were non-adults. For five individuals, no age could be determined. The largest group were young middle adults (26-35 years), followed by young adults (18-25 years), while older middle adults or mature adults older than 36, individuals between 36-45 years and those over 46 (mature adults) were not well represented, suggesting early adulthood mortality. However, it must be noted that it was not possible to determine a more closely defined age for 50 general adults, some of whom may have been older adults.

In Roman cemeteries, males frequently outnumber females and this is also true for Bainesse, although the possible bias caused by poor preservation needs to be considered here. The 33 non-adults were

represented by one foetus/neonate, one infant, sixteen younger juveniles, four older juveniles and four adolescents. The age of seven non-adults could not be defined more specifically due to poor preservation. Children, particularly infants and neonates, are usually under-represented in the archaeological record despite the fact that mortality must have been high (Lewis 2007) and children under two years are not often found buried in Roman cemeteries prior to the fourth century AD (Watts 1989).

Two individuals were considered to be of African ancestry based on morphological traits in the skull, and one further individual was of potentially mixed ancestry. Bone samples belonging to both of these, BN 6 and BN 7, were radiocarbon-dated and it should be highlighted here that BN 6 dated from the mid first to early second century, while BN 7 dated to the mid second to the mid third century.

Males and females appear to have been slightly shorter than the average for the period, although all individuals fell within the stature range for the Roman period.

A few minor congenital conditions were present in the individuals at Bainesse. This included transitional vertebrae, which were observed in males, and one individual with an extra sacral vertebra. A small number of individuals displayed cleft neural arches in their vertebrae, and two females were affected by *coxa vara*, a variation in the angle of the femoral neck.

Traumatic injuries were observed in several adult individuals at Bainesse. While one female was recorded to have sustained a rib fracture, another adult had a fracture to the mid/distal shaft of his left tibia and fibula. Both bones had been displaced and although the injury had healed well, there was associated soft tissue damage and fusion of the ankle. Another adult had a potential fracture of a distal foot phalanx, and a young middle adult female had a broken third metacarpal (central palm bone). Three males had fractures through the neural arch of the fifth lumbar vertebra (*spondylolysis*). These fractures have been associated with stress placed on the lower spine during sporting activities, although a congenital weakness in the spine has also been implicated (Roberts and Manchester 2005, 106).

Infectious disease was common at Bainesse and was observed in spite of poor surface preservation, with a high prevalence rate of sinusitis. This could suggest people were exposed to smoky or polluted atmospheres, perhaps in working environments or living conditions of their houses (Roberts and Cox 2003). Rib lesions indicating potential respiratory tract infections were also observed, although it is likely some evidence for inflammation had been lost due to taphonomic processes. Periosteal reactions were present in the only foetus/neonate found on site, possibly indicative of brain inflammation or birth trauma. Additionally, hypertrophic pulmonary osteoarthropathy was suspected in two adult individuals. This could have been caused by chronic lung infection and manifested itself in widespread inflammatory lesions throughout the skeleton.

Joint disease was common at Bainesse and was frequently observed in the spines of the adult population, affecting slightly more females than males. Degenerative joint changes and osteoarthritis were more common in females than males and the joints most often affected were the shoulder, elbow and the hip. Differences were recorded between the sexes and it was noted that females were more likely to develop joint changes in the elbow, while males had joint changes more frequently in the ankle. Knees were

frequently affected by osteoarthritis. The spine was heavily affected by joint changes, with degeneration of both the vertebral bodies (primarily at the points of the spine where there is most stress) and the facets between the vertebrae. Generally, more females were affected by degenerative changes in the spine. Males were more likely to be affected in the thoracic and lumbar regions of the spine (central back), while females showed joint changes in the lumbar and sacral spine (central and lower back). The higher frequency of Schmorl's nodes (indicative of spinal stress) in the female spines caused by damage to the vertebral discs as axial pressure (Hilton *et al* 1976) may further attest to this.

Childhood stress was observed in various forms in the population. Almost all individuals who had orbits present for observation had *cribra orbitalia* in slight form, with males being more frequently affected than females. These lesions can be taken as general indicator of childhood stress in the individuals affected. It is possible that males suffered more childhood stress than females or were better at surviving the stressful episodes. Three quarters of observable non-adult orbits featured some stage of the condition. Dental enamel hypoplasia (enamel defects) were frequently present in teeth and more prevalent than the Roman mean. Males exhibited these defects more frequently than females, and the prevalence in males was much higher in the younger age groups, suggesting that males have survived episodes of childhood stress, but died early due to a compromised immune system. Female prevalence for enamel hypoplasia was relatively constant throughout the age ranges, with a spike in the mature adult group, which is unusual. It should be noted that an unusually large number of molars were marked by such stress lesions, which normally affect the anterior teeth.

One young juvenile suffered from possible scurvy, while two non-adults showed evidence for bowing of the bones that could be indicative of rickets. An adult also had evidence for possible residual rickets, suggesting that the diet was not always adequate.

While incidence of caries was similar to the mean for the period, while the frequency of abscesses was slightly lower than the Roman average. Ante-mortem tooth loss was present at lower rates than at other sites. These three conditions are all inter-related (with cavities leading to the development of abscesses and both potentially leading to the loss of teeth during life), and tend to become more common with age. It is likely that the large proportion of young adults, as compared to more mature individuals, has meant that fewer of these conditions were observed, since these dental diseases also increased in frequency at Bainesse. Caries was more frequently observed in females, which is often the case. This may indicate that females had a more sugar-rich diet than males or were more prone to snacking. Two individuals had granulomas/exostoses in the sinuses, which may have been caused by dental bacteria.

Evidence for periodontal disease, which is also an indicator for poor oral hygiene, was observed in almost all individuals who had the relevant bones present, and the highest frequencies were recorded in more advanced age groups. Females were more commonly affected by periodontal disease than males.

Overall, seventeen distinct cremation burials were excavated at Bainesse, and a further nine contexts rendered substantial amounts, or large fragments, of cremated bone. The cremation burials were largely confined to the southern end of the cemetery and a cluster appears to concentrate around a possible barrow ring ditch. Only BN 257 and 258 were located further north, approximately in the centre of the

cemetery, across from an entranceway in the enclosure ditch.

Six of the cremation burials were contained in urns, although in the case of some of the burials this was only indicated by the presence of pottery sherds (i.e. BN 262, BN 273, unclear in BN 263). This was similar to other Yorkshire cremation burials, such as Healam Bridge, Waterdale and Newbridge Quarry (Caffell and Holst 2014b), where the majority of the cremation burials were unurned. Ten of the 26 burials containing cremated human bone contained probable adults (38.46%), while five appeared to include non-adults (19.23%). The age of the remains in eleven remaining burials could not be determined (42.31%). Almost all cremation burials contained inclusions or artefacts such as coins, copper alloy objects, amber, ferrous metals, flint fragments, nails and animal bone. It appeared as if the trend to adorn especially non-adult burials continued in the cremation burials, as two of the three cremation burials containing copper alloy objects contained probable non-adults.

7.0 FUTURE RECOMMENDATIONS

It is suggested that further analysis may be undertaken on the remains, especially regarding mobility. The presence of two individuals of probable African ancestry at the site, and the location so close to Dere Street could suggest that Bainesse was characterised by migration of people from various parts of the Roman Empire. As such, undertaking strontium and oxygen isotope of the remains may add further information on migration and may also aid in understanding more about the funerary rituals practiced in the cemetery, which may be dictated by different cultural customs.

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APPENDIX A: OSTEOLOGICAL AND PALAEOPATHOLOGICAL CATALOGUE

Skeleton Number	SK 13342/ BN 6
Preservation	4
Completeness	75% - skull frags, vertebral frags, rib frags, scapulae frags, humeri frags, ulnae shaft frags, radii shaft frags, femoral shaft frags and distal ends, acetabuli frags, tibia frags, shaft and distal tibia frags, L talus frag, R calcaneus frag
Age	Old Middle Adult/Mature Adult; 36+
Sex	Probable Male
Stature	-
Non-Metric Traits	<i>Posterior Condylar Canal Open (bilateral); Accessory Lesser Palatine Foramen (left)</i>
Pathology	Slight eburnation on right distal femoral medial epicondyle – OA Slight cribra orbitalia in right orbit. DDD in available vertebrae. DJC in scapulae, femora, right tibia Nasal guttering - possible African ancestry.
Dental Health	13 tooth positions present, 17 teeth present, 1/17 teeth with DEH, 10/17 teeth affected by flecks to medium calculus, 3/17 teeth with caries, 2 teeth lost ante-mortem Large abscess at sockets of maxillary left second and third molars, medium abscess at maxillary left second premolar, small abscess at maxillary right canine and mandibular left first molar.

	Right Dentition								Left Dentition							
Present	-	P	P	-	P	P	P	AM	P	P	P	-	-	-	-	-
Calculus	-	-	-	-	-	Fd	SIHb	-	Fm	Ml	Ml	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	6	8	-	6	6	6	-	6	6	6	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	NP	AM	P	P	P	P	-	-	-	-	P	P	P	P	P	NP
Calculus	-	-	-	-	Fd	Sd	-	-	-	-	-	Sa	Fmd	Sl	-	-
DEH	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	Sb	-	-	-	-	-	-	-	-	Lo	Sb	-
Wear	-	-	8	6	4	5	-	-	-	-	5	4	6	7	6	-

Skeleton Number	SK 13337/ BN 7
Preservation	3
Completeness	80% - skull, partial cervical spine, clavicle frags, scapulae frags, humeri, radii, ulnae, hands, lumbar vertebrae frags, os coxae frags, sacrum frags, femora, R patella, tibiae, fibulae frags, feet

Age	Young Middle Adult; 26-35															
Sex	Male															
Stature	164 +/- 3.94cm															
Non-Metric Traits	<i>Ossicle at Lambda; Ossicle in Lambdoid (bilateral); Mastoid Foramen Extrasutural (bilateral); Precondylar Tubercle; Accessory Supraorbital Foramen (right); Exostosis in Trochanteric Fossa (bilateral)</i>															
Pathology	Hypervascularity on supraorbital ridges, orbital rims and on ectocranial surface of cranium (midline). Eburnation on left proximal femur (femoral head) – OA Bilateral cribra orbitalia. Bilateral sinusitis. Nasal guttering - possible African ancestry.															
Dental Health	32 tooth positions present, 32 teeth present, 16/32 teeth with DEH, 3/32 teeth affected by flecks of calculus. Frequent chipping on molars and premolars.															
	Right Dentition								Left Dentition							
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	L	L	L	L	L	L	L	L	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	3	4	3	4	4	4	4	4	4	4	2	3	4	3	2
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	Fd	-	-	-	-	-	-	-	-	-	-	-	-	-	Fl	Fl
DEH	-	-	-	-	L	L	L	L	L	L	L	L	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	3	4	2	2	3	3	4	4	3	3	3	2	4	3	2

Skeleton Number	SK 13281/ BN 8															
Preservation	4															
Completeness	5% - R proximal humerus frag, L rib frags, L ulna frags, partial L hand															
Age	Adult; 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	No tooth positions present, 14 teeth present, 5/14 teeth with DEH, 5/14 teeth affected by flecks to slight calculus															
	Right Dentition								Left Dentition							

Present	-	P	-	P	P	-	-	-	-	-	-	-	-	-	P	P
Calculus	-	-	-	-	Fmd	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	L	-	-	-	-	-	-	-	-	-	-	G	G
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	2	-	3	3	-	-	-	-	-	-	-	-	-	3	3
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	P	P	P	P	-	-	P	P	-	-	-	P	P	P	-
Calculus	-	Fbd	Sd	Fmd	-	-	-	-	-	-	-	-	-	-	Fa	-
DEH	-	-	-	-	-	-	-	L	-	-	-	-	L	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	2	1	3	3	-	-	4	4	-	-	-	3	3	3	-

Skeleton Number	SK 13265/ BN 10															
Preservation	4															
Completeness	35% - mandible frags, cranium frags, humeri shaft frags, ulnae shaft frags, radii frags, femora frags, tibiae shaft frags, R distal fibula, feet frags															
Age	Adult; 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	5 tooth positions present, 11 teeth present, 10 teeth loose, 5/11 teeth with calculus, 2 teeth lost post-mortem, 2 teeth lost ante-mortem															
	Right Dentition								Left Dentition							
Present	P	P	-	-	-	P	P	P	-	P	P	-	-	-	-	-
Calculus	-	Sb	-	-	-	-	-	Fb	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	4	-	-	-	5	4	5	-	4	4	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	AM	AM	-	-	-	PM	PM	-	-	P	-	P	P	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	Fa	-	Fa	Mo	-	-
Wear	2	-	-	-	-	-	-	-	-	-	4	-	3	3	-	-

Skeleton Number	SK 12292/ BN 12															
Preservation	5+															
Completeness	<5% - only dentition															
Age	Adult; 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	No tooth positions present, 2 teeth present, 1/2 teeth with calculus															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	P	P	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	Hb	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	3	3	-	-	-

Skeleton Number	SK 13168/ BN 15
Preservation	3
Completeness	95% - mostly complete
Age	Young Adult; 18-25
Sex	Male
Stature	-
Non-Metric Traits	<i>Ossicle in Lambdoid (bilateral); Parietal Foramen (bilateral); Accessory Supraorbital Foramen (right); Double Inferior Talar Facet (left)</i>
Pathology	<p>On the distal right radius, there is a small patch of woven bone present on the anterior surface above the distal epiphysis. The medial-most extent of the line is located c. 9.2mm superior to the joint surface, while the lateral-most extent is at 19.5mm above joint surface – including the lateral extension of the distal radius. The woven bone may have originated around the palmar radiocarpal ligament due to an inflammation of the ligamentous tissue.</p> <p>At least six of the more central ribs have slight woven bone present on the visceral surfaces. This includes two right ribs and four left ribs. The woven bone is most obvious towards the sternal end of the ribs. On one right rib fragment, there is a line of woven bone following the inferior margin of the rib, measuring approximately 4.6mm s-i. This rib is unfortunately</p>

		<p>broken and incomplete, which does not allow for evaluation of the true extent of the woven bone. It appears as if the cortical bone on the visceral surface is layered instead of one, thick table of cortex. Four left ribs in total have woven bone on the visceral aspect of the vertebral end of the shaft/head. With consideration of the new bone deposition on distal radius this could suggest a diagnosis of hypertrophic pulmonary osteoarthropathy.</p> <p>Both tibiae have transitional new bone formation. The right tibia exhibits areas covered by lamellar bone, which is very recent and almost still resembles woven bone. This was in the first stages of healing, but had not become fully developed lamellar bone yet. These irregular patches are present on the lateral surface of the entire shaft where they do not cover the entire surface. This may partially be due to taphonomic processes. On the medial surface, the lamellar striae are more recent between the mid and distal end of the shaft. On the posterior surface, there is a patch of the same non-integrated irregular lamellar bone (albeit more advanced healing stage) on the distal shaft.</p> <p>The left tibia exhibits further lamellar/woven-bone along the entire medial surface of the shaft and in patches on the lateral side – eroded.</p> <p>The lamellar new bone on the posterior aspect slopes in supero-medial direction inferiorly in lateral direction.</p> <p>Both distal fibulae are affected by lamellar woven bone in an area of at least 74mm of the distal shaft. On both bones, the interosseous membrane attachment area is affected with heavy, irregular lamellar bone which looks to be a little denser than anywhere else. Just below the line of the peroneus longus on the lateral side of the fibulae, there is further lamellar bone present, which appears to cover the entire distal shaft (in patches due to erosion).</p> <p>There is slight cribra orbitalia present in the left orbit.</p> <p>This individual has a cranial border shift of the lumbar-thoracic border, including a lumbarised T12.</p> <p>Schmorl's nodes are present on the bodies of T9-T11, in slight form.</p> <p>Hypervascularity extends across midline of ectocranial surface of skull.</p>															
Dental Health		32 tooth positions present, 32 teeth present, 32/32 teeth affected by flecks to heavy calculus, 9/32 teeth with DEH															
		Right Dentition								Left Dentition							
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Calculus	Fd	Flb	SbFl	Sbm	Sl	Sb	Sb	Sblm	Sbm	Sbl	Sbm	Fmd	Fbd	Fbdm	Fml	Fld	
DEH	P	G	-	-	-	-	-	L	L	-	-	-	-	-	G	P	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	2	2	3	2	2	2	1	3	3	1	2	2	2	3	2	2	
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Calculus	Fdl	Hl	Fa	Sa	Sml	Ma	Ma	Ma	Ma	Ma	Ma	Fl	MI	MI	Sl	Fa	
DEH	P	G	-	-	-	-	-	-	-	-	-	-	-	-	-	P	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	1	2	3	2	2	2	3	3	3	3	3	2	2	4	3	2	

Skeleton Number	SK 13192/ BN 16																
Preservation	3																
Completeness	90% - mostly complete, L hand partial																
Age	Mature Adult; 46+																
Sex	Female																
Stature	161.5 +/- 4.45cm																
Non-Metric Traits	<i>Parietal Foramen (bilateral); Exostosis in Trochanteric Fossa (right)</i>																
Pathology	<p>Coxa vara of both proximal femora. This appears to be in combination with slightly exaggerated medial bowing of the proximal right shaft. The left shaft is fragmented and bowing cannot be observed. Both femoral heads also appear flattened on the superior surface of the head where osteophytes have built up to almost create a bridge over the femoral neck to the greater trochanter. This is especially visible on the right side, where this extension of bone almost looks like plaque formation. Bulging bone formation is observable on the left superior aspect of the femoral neck. Both superior femoral heads are porotic with trabecular bone exposed. On the inferior aspects there are central osteophytes which cause contour changes of the femoral head. The porotic bone is mirrored in the acetabuli of the pelvis, which are equally as degraded. The most porotic area is located inferiorly of the anterior iliac crest (on the superior demiface of the lunate). This area measures 33.7mm a-p and 18.1mm m-l (on the right side), and 32mm a-p and 14mm m-l on the left. It is almost necrotic in appearance and macroporosity is present.</p> <p>This individual has osteoarthritis in the left proximal humerus and proximal radii, right proximal and distal femur, right patella, right proximal and distal tibia, as well as both tali and cuboids.</p> <p>Advanced DJC with porotic lesions in the central concave surfaces of the radial heads. These have an irregular margin. In the right radius it is roughly circular in shape and measures c 6.5 mm in diameter. In the left radius it is irregular in shape and has been damaged pm. In the lower thoracic and upper lumbar vertebrae there is osteophyte formation on the right anterior aspect of the bodies. Broadening of the body in this direction.</p> <p>Schmorl's nodes are present on most bodies of the thoracic and upper lumbar spine.</p> <p>Eburnation was observed on several right rib heads, on the joint surfaces with the transverse processes. These appear to belong to the central area of the spine. Other ribs show degeneration in the articular surfaces. Eburnation on three right rib heads. Porosity on almost all present rib heads and facets – OA. Severe degeneration of the auricular area in the sacrum, especially at the iliac tuberosity, which is extremely porotic and irregular in both sides.</p> <p>Slight cribra orbitalia in both orbits.</p> <p>S5 is bifid.</p> <p>Porotic hyperostosis is present in the ectocranial surface of the skull – midline.</p> <p>Vascular cribra orbitalia (stage 1) in both orbits.</p>																
Dental Health	25 tooth positions present, 10 teeth present, 0 teeth loose, 7/10 teeth affected by slight to medium calculus, 5/10 teeth affected by caries, 4/10 teeth with DEH, 3 teeth lost post-mortem, 12 teeth lost ante-mortem, 3 teeth not present, 1 tooth impacted																
	Right Dentition								Left Dentition								
Present	-	-	-	AM	AM	IMP	PM	PM	P	PM	-	AM	AM	AM	AM	NP	
Calculus	-	-	-	-	-	-	-	-	Mb	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	L,P	-	-	L	-	-	-	-	-	-	-	

Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	1	-	-	5	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	NP	P	P	P	P	P	AM	AM	AM	AM	P	P	P	AM	AM	NP
Calculus	-	Sl	Ma	Mlb	Sa	Ma	-	-	-	-	-	-	Ma	-	-	-
DEH	-	-	-	-	L	L	-	-	-	-	-	-	-	-	-	-
Caries	-	Lo	Ld	Sd	Sd	-	-	-	-	-	-	Lo	-	-	-	-
Wear	-	4	4	4	4	4	-	-	-	-	6	8	6	-	-	-

Skeleton Number	SK 13260/ BN 17
Preservation	4
Completeness	90% - mostly complete, R patella missing
Age	Young Middle Adult; 26-35
Sex	Male
Stature	161.37 +/- 3.27cm
Non-Metric Traits	<i>Ossicle in Lambdoid (bilateral); Parietal Foramen (bilateral); Mastoid Foramen Extrasutural (right), Precondylar Tubercle; Accessory Supraorbital Foramen (left); Double Atlas Facet (bilateral); Absent Anterior Calcaneal Facet (right), Os Trigonum (left)</i>
Pathology	<p>Hypervascularity on the supraorbital ridges and rims. There is also hypervascularity on the central aspects of both zygomatic bones. Orange-peel appearance of ectocranial surfaces of the parietals and the frontal bone. On the zygomatic bones, the affected area measures c 10.5mm in diameter.</p> <p>On both clavicles, there are bone excavations at the costoclavicular ligament attachment site on the inferior medial surface.</p> <p>The sternum has completely fused to the manubrium</p> <p>Cranial shift of lumbar-thoracic border with lumbarisation of T12.</p> <p>Spondylolysis in L5 (or L6 considering there is a cranial border shift). The inferior portion of the neural arch is completely separated from the body. Unfortunately, this inferior portion is missing, and only the superior apophyseal facets are present. The points of separation, immediately inferior of the superior facets, are covered with dense, rugged but smooth bone.</p> <p>On the superior body of L2, there is a small, nail-sized circular hole (1mm diameter) in the superior surface, in close proximity to a Schmorl's node. The same circular hole is present on the vertebral body below (L3), in the same location. On L2, on the inferior surface of the body, there is a lesion inside the body, possibly destructive. This is visible through a small, irregularly shaped, sharp edged hole.</p> <p>Lamellar bone is present on the medial side of the right tibia. On the posterior side of the proximal shaft this bone extends 25mm max a-p and on the distal shaft, it is c 10mm wide. Some less noticeable striae are present on the lateral aspect of the shaft. On the left tibia, the cortical bone is eroded, but deep striae are visible here as well.</p> <p>The sacrum of this individual is bifid in the neural arches of S1 and S2</p> <p>DJC in spine, clavicles, distal humeri, radii, femora, tibiae</p> <p>Bone excavations are present on the anterior proximal right humerus at the attachment site of latissimus dorsi.</p>

	<p>One right distal foot phalanx is deformed. This may have been due to a fracture, but this remains unconfirmed. The distal end of the phalanx leans to the right and the proximal end is recognisable in terms of the articular facet, but there is a bulbous protrusion of dense bone on the left lateral aspect. The inferior aspect is irregular.</p> <p>Stage 1 cribra orbitalia in both orbits.</p> <p>Slight sinusitis in both sinuses.</p>															
Dental Health	<p>32 tooth positions present, 32 teeth present, 26/32 teeth affected by flecks to slight calculus, 1/32 teeth affected by caries, 24/32 teeth with DEH</p> <p>Slight periodontal disease</p>															
	Right Dentition								Left Dentition							
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	Fd	Fbdl	-	-	-	-	Fl	Fmd	Fmd	Sl	Sl	Fmd	Fmd	-	Fmd	-
DEH	G,L	G,L	L	-	G	G	G	L	L	L	L	L	-	L	G	G
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	4	5	3	3	4	3	4	4	3	4	3	4	5	4	1
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	Fl	Fmd	Fmd	Fmd	Fmd	Fmd	Fmdl	Fdm	Fmdl	Fmd	Fmd	Fmd	Fmd	Fd	Sl	Fa
DEH	-	-	L	-	L	L	L	L	L	L	L	L	-	L	-	-
Caries	-	-	Ld	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	4	5	3	3	3	3	4	4	3	3	3	3	5	4	1

Skeleton Number	SK 13175/ BN 18
Preservation	3
Completeness	20% - mandible, partial skull, cervical spine frags, prox R humerus, prox R femur, distal half of tibiae, fibulae mostly complete, partial L foot
Age	Adult; 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	<i>Mastoid Foramen Extrasutural (bilateral); Double Condylar Facet (left); Bridging of Supraorbital Notch (left); Double Atlas Facets (bilateral); Posterior Atlas Bridging (bilateral)</i>
Pathology	<p>Osteochondritis dissecans on right distal tibial epiphysis. The oval lesion measures 8.82mm a-p and c 5mm m-l in width.</p> <p>DJC left talus.</p> <p>On the right medial surface of the distal fibula, there is slight ossification of the interosseous ligament at the distal end. Possible myositis ossificans traumatica.</p> <p>Cribra orbitalia in the left orbit.</p>
Dental Health	5 tooth positions present, 17 teeth present, 13 teeth loose, 15/17 teeth affected by flecks to medium calculus, 3/17 teeth affected by caries, 2/17 teeth with DEH, 1 tooth not present, 1 tooth present as root only

	Right Dentition								Left Dentition							
Present	P	-	-	P	P	P	P	-	-	-	P	P	P	-	-	-
Calculus	Sd	-	-	-	Sb	Fd	-	-	-	-	Sb	Fa	Fa	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	Mm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	6	-	-	5	5	5	5	-	-	-	5	6	5	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	NP	P	P	B	-	P	-	P	-	P	P	P	P	P	-	-
Calculus	-	Ma	Ma	-	-	Ma	-	Fm	-	Fm	Fl	Fb	Fb	Fa	-	-
DEH	-	-	-	-	-	-	-	L	-	L	-	-	-	-	-	-
Caries	-	-	Sm	-	-	-	-	-	-	-	-	Sd	-	-	-	-
Wear	-	4	7	-	-	5	-	5	-	4	5	6	6	6	-	-

Skeleton Number	SK 12525/ BN 19															
Preservation	4															
Completeness	<5% - mandible frag															
Age	Older Juvenile; 9-11															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	0 tooth positions present, 25 permanent teeth present, 2 deciduous teeth present, all teeth loose, 12/25 permanent teeth affected by flecks to heavy calculus, 2/2 deciduous teeth affected by flecks to heavy calculus, 6/25 permanent teeth with DEH															
	Right Dentition								Left Dentition							
Present	-	P	P	P	-	P	P	P	P	P	P	P	P	-	-	-
Calculus	-	-	-	-	-	-	Fd	Fdb	-	-	Sa	Sb	-	-	-	-
DEH	-	G	-	-	-	L	-	L	L	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	1	2	1	-	1	1	2	2	2	1	1	1	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	P	P	P	P	P	P	P	P	P	P	P	P	P	P	-
Calculus	-	-	HbSa	Sl	Fl	-	Fb	-	Fa	-	Fa	-	Fl	Fa	-	-
DEH	-	-	-	-	-	-	-	-	-	L	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	1	2	1	1	1	2	2	2	2	1	1	1	2	1	-

	Deciduous Right Dentition					Deciduous Left Dentition				
Present	P	-	-	-	-	-	-	-	-	-
Calculus	Fa	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	2	-	-	-	-	-	-	-	-	-
Maxilla	e	d	c	b	a	a	b	c	d	e
Mandible	e	d	c	b	a	a	b	c	d	e
Present	-	-	-	-	-	-	-	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	HI Sa
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	2

Skeleton Number	SK 13275/ BN 22
Preservation	2
Completeness	90% - mostly complete, partial ribs, partial feet
Age	Young Middle Adult; 26-35
Sex	Male
Stature	165.9 +/- 3.27cm
Non-Metric Traits	<i>Ossicle in Lambdoid (bilateral); Mastoid Foramen Extrasutural (left); Accessory Lesser Palatine Foramen (bilateral), Transverse Foramen Bipartite (right); Septal Aperture (right),</i>
Pathology	<p>Spondylolysis of the neural arch of L5. This is present in the form of the separation the right posterior arch. There are two places of separation – one at the right lamina, just inferior of the superior apophyseal facet, and the other just left of the spinous process. The separation at the right side does not touch, while the one to the left has moulded the shape to fit together. While the left arch is convex in shape, the separated part with the spinous process is concave. The atlas of this individual has a cleft neural arch with a space of 1.6mm between the left and right arches.</p> <p>Entheseal changes present at the attachment sites of the costoclavicular ligament bilaterally.</p> <p>Schmorl's nodes in very subtle form on T9 and T11.</p> <p>Hypervascularity on ectocranial surface of skull. This extends from the mid frontal bone over both parietals. Hypervascularity is also present on the supraorbital ridge and rims.</p> <p>Stage 1 and 2 cribra orbitalia present in the right and left orbits respectively.</p> <p>Bifid S4 and S5.</p>
Dental Health	<p>31 tooth positions present, 28 teeth present, 0 teeth loose, 19/28 teeth affected by flecks to heavy calculus, 5/28 teeth affected by caries, 4/28 teeth with DEH, 1 tooth not present</p> <p>The left maxillary lateral incisor is impacted or congenitally absent.</p> <p>This individual has an externally draining peri-apical abscess at the socket of the left</p>

		maxillary third molar. The right mandibular first molar has been lost ante-mortem and there may have been a second, but healed abscess present.														
	Right Dentition								Left Dentition							
Present	P	PM	P	P	P	P	P	P	P	NP	P	P	P	P	P	AM
Calculus	-	-	Hb	Fb	Fb	Sbm	-	-	Fb	-	Fm	-	-	Fb	-	-
DEH	-	-	-	-	-	L	-	-	-	-	L	-	-	-	-	-
Caries	-	Ld	Sd	-	-	-	-	-	-	-	-	-	-	Md	Mm	-
Wear	1	-	2	1	1	2	2	4	3	-	2	2	2	3	3	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	AM	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	Fa	Sl	-	Sbl	Fa	Sblm	Sa	Sml	Smlb	Slb	Fmd	Fm	-	-	-	Fld
DEH	-	-	-	-	-	L	-	-	-	-	L	-	-	-	-	-
Caries	-	-	-	Md	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	2	-	2	2	2	2	3	3	2	3	1	2	3	3	1

Skeleton Number	SK 13197 /BN 23a - May be same individual as BN 23b															
Preservation	4															
Completeness	<5% - R mandible, cranium frags															
Age	Adult; 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	0 tooth positions present, 2 teeth present, all teeth loose, 1/2 teeth with flecks of calculus, 1/2 teeth affected by caries															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	Fd	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	Sd	-	-	-	-	-	-	-	-	-	-

Wear	-	-	-	-	5	6	-	-	-	-	-	-	-	-	-	-
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Skeleton Number	SK 13203 /BN 23b - May be same individual as BN 23a
Preservation	4
Completeness	<5% - partial L lower leg
Age	Adult; 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 13147 / BN 24															
Preservation	5+															
Completeness	<5% - only dentition															
Age	Young Adult; 18-25															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	0 tooth positions present, 5 teeth present, all teeth loose, 5/5 teeth with DEH															
	Right Dentition								Left Dentition							
Present	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	P	P	-	-	-	-	-	-	P	-	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	L	L	-	-	-	-	-	-	L	-	L	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	2	2	-	-	-	-	-	-	1	-	2	-

Skeleton Number	SK 13157/ BN 26
Preservation	4
Completeness	<5% - partial skull, partial L scapula

Age	Adult; 18+															
Sex	Probable Male															
Stature	-															
Non-Metric Traits	-															
Pathology	Hypervascularity observable on the supraorbital ridge.															
Dental Health	4 tooth positions present, 28 teeth present, 24 teeth loose, 3/28 teeth affected by flecks to slight calculus, 1/28 teeth affected by caries															
	Right Dentition								Left Dentition							
Present	P	P	-	-	P	-	P	P	P	P	P	P	P	P	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	Sm	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	4	-	-	5	-	4	5	4	4	4	5	5	6	4	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	Fm	-	-	-	-	-	Fmd	-	-	Fm	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	4	4	5	4	4	4	3	4	4	3	4	4	4	6	5	4

Skeleton Number	SK 13216/ BN 27															
Preservation	3															
Completeness	<5% - L mandible, rib frags, R scapula frags, prox R humerus															
Age	Adult; 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	1 tooth position present, no teeth present															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AM/NP
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number	SK 13213/ BN 28
Preservation	4
Completeness	5% - skull frags
Age	Adult; 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	Slight (stage 1) cribra orbitalia in left orbit.
Dental Health	Four unidentifiable enamel fragments present.

Skeleton Number	SK 13029/ BN 31
Preservation	4
Completeness	<5% - occipital frags, rib frags, long bone frag
Age	Adult; 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 12845/ BN 34
Preservation	5+
Completeness	<5% - L? femoral shaft frag
Age	Adult; 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	No teeth present.

Skeleton Number	SK 12544/ BN 35
Preservation	3

Completeness	<5% - prox R femur shaft frags															
Age	Adult; 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	47 unidentifiable enamel fragments present, 2 teeth present, no tooth positions															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	P	P	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-

Skeleton Number	SK 12535/ BN 36															
Preservation	5+															
Completeness	<5% (1%) - only dentition															
Age	Adult; 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	2 teeth present															
	Right Dentition								Left Dentition							
Present	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Present	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number		SK 12737/ BN 41														
Preservation		4														
Completeness		<5% - R radius shaft frags, R ulna shaft frags														
Age		Adult; 18+														
Sex		Unsexed														
Stature		-														
Non-Metric Traits		-														
Pathology		-														
Dental Health		3 teeth present, no tooth positions.														
	Right Dentition								Left Dentition							
Present	P	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number		SK 12771/ BN 44														
Preservation		3														
Completeness		10% - cranial frags, os coxa frags, L tibia shaft frags, fibulae shaft frags, L foot														
Age		Adult; 18+														
Sex		Unsexed														
Stature		-														
Non-Metric Traits		-														
Pathology		-														
Dental Health		5 teeth present, no tooth positions														

	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	P	-	P	P	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	4	-	4	4	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	-	P	P	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	3	5	-	-

Skeleton Number	SK 13000/ BN 46
Preservation	5+
Completeness	<5% (1%) - only dentition
Age	Undetermined
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	15 unidentifiable enamel fragments present, DEH on 1 fragment

Skeleton Number	SK 12675/ BN 50	
Preservation	5+	
Completeness	<5% - only dentition	
Age	Adult; 18+	
Sex	Unsexed	
Stature	-	
Non-Metric Traits	-	
Pathology	-	
Dental Health	2 teeth present. One unidentifiable tooth cusp present with DEH.	
	Right Dentition	Left Dentition
Present	- - - - - - - -	- - - - - - - -
Calculus	- - - - - - - -	- - - - - - - -
DEH	- - - - - - - -	- - - - - - - -
Caries	- - - - - - - -	- - - - - - - -

Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	P	P	-	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number	SK 12592/ BN 51															
Preservation	4															
Completeness	<5% - occipital frags															
Age	Adult; 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	Hypervascularity on ectocranial occipital fragment															
Dental Health	14 teeth present, no tooth positions, 2/14 teeth with DEH															
	Right Dentition								Left Dentition							
Present	P	P	P	-	P	-	-	-	-	-	-	-	P	P	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	L	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	2	2	-	2	-	-	-	-	-	-	-	1	4	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	P	P	P	P	-	-	-	-	-	-	P	P	P	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	1	2	2	2	-	-	-	-	-	-	2	3	2	3	-

Skeleton Number	SK 12782 / BN 55															
Preservation	5+															
Completeness	<5% (<1%) - 2 unidentified bone frags															
Age	Undetermined															
Sex	Unsexed															
Stature	-															

Non-Metric Traits		-														
Pathology		-														
Dental Health		1 tooth present, no tooth positions.														
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number	SK 12517/ BN 56
Preservation	5
Completeness	<5% - femoral shaft frags, pelvic frags
Age	Adult; 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	1 tooth present, no tooth positions.

Skeleton Number	SK 12693/ BN 57
Preservation	5
Completeness	60% - cranial frags, L mandible, partial cervical spine, thoracic frags, rib frags, scapulae frags, R humeral head, L humeral shaft, ulnae shaft frags, radii shaft frags, partial hands, femora, partial pelvis, R patella, tibiae, fibulae shaft frags, calcanei, R talus
Age	Young Middle Adult; 26-35
Sex	Probable Male
Stature	-
Non-Metric Traits	<i>Mastoid Foramen Extrasutural (left); Double Atlas Facet (bilateral)</i>
Pathology	Lamellar striae on medial mid-shafts on both tibiae. DJC tibiae. Enthesal changes on proximal left humerus.

Dental Health		29 teeth present, 20 tooth positions present, 1 tooth lost post-mortem, 22/29 teeth with flecks to slight calculus, 2/29 teeth with caries, 9 loose teeth															
	Right Dentition								Left Dentition								
Present	P	P	P	P	P	P	P	-	-	P	P	P	P	P	P	P	
Calculus	Fd	Fb	-	Fb	-	Fb	-	-	-	-	-	Fb	Fb	Fmdb	-	-	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Caries	-	Sm	Sd	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	2	2	4	3	3	4	4	-	-	3	3	3	3	4	2	2	
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present	P	P	P	P	P	P	P	P	P	PM	P	P	P	P	P	P	
Calculus	Fmd	Fmd	Fmdl	Fa	Fmd	Fa	Fmd	Fmd	Fmd	-	Fa	Smdl	Sdml	Fdml	Fdml	Fdml	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	2	2	4	3	3	4	5	5	5	-	4	3	3	4	3	2	

Skeleton Number		SK 12688/ BN 59															
Preservation		4															
Completeness		<5% - one distal intermediate phalanx															
Age		Adult; 18+															
Sex		Unsexed															
Stature		-															
Non-Metric Traits		-															
Pathology		-															
Dental Health		3 teeth present, 12 unidentifiable enamel chips present, no tooth positions.															
	Right Dentition								Left Dentition								
Present	-	-	-	-	-	P	-	-	P	-	-	-	-	-	-	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	4	-	-	4	-	-	-	-	-	4	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Skeleton Number	SK 12632/ BN 60															
Preservation	5+															
Completeness	<5% (1%) - only dentition															
Age	Older Juvenile; 5-10 years															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	4 permanent teeth present, 1 deciduous tooth present, no tooth positions, 1/4 permanent teeth with DEH															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	P	P	P	-	-	P	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	L	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	1	1	1	-	-	1	-	-
	Deciduous Right Dentition								Deciduous Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	e	d	c	b	a	a	b	c	a	b	c	d	e	d	e	e
Mandible	e	d	c	b	a	a	b	c	a	b	c	d	e	d	e	e
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
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Skeleton Number	SK 12655/ BN 61															
Preservation	4															
Completeness	30% - cranial frags, anterior mandible, partial cervical spine, L + R clavicle frags, scapulae frags, rib frags, humeri shaft frags, ulnae shaft frags, radii shaft frags, R femur shaft frags, pelvic frags, L tibia shaft frags, fibulae mid-shaft frags, partial R foot															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	<i>Sutural Mastoid Foramen (left)</i>															
Pathology	DJC in C4.															
Dental Health	4 teeth present, 10 tooth positions, 1 tooth lost post-mortem, 5 teeth lost ante-mortem, 1/4 teeth with flecks of calculus.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	AM	AM	PM	P	-	-	-	-	-	P	B	AM	AM	AM	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	FI	-	-	-	-	-
Wear	-	-	-	-	5	-	-	-	-	-	5	-	-	-	-	2

Skeleton Number	SK 12678/ BN 62															
Preservation	4															
Completeness	15% - skull frags, partial cervical spine frags, L scapula frags, R rib frags, R humeral shaft frags, R ulna shaft frags, R radius shaft frags, femora shaft frags, tibiae shaft frags, fibulae shaft frags															
Age	Adult, 18+															
Sex	Probable Male															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	15 teeth present, 20 tooth positions, 2 teeth lost post-mortem, 2 teeth lost ante-mortem,															

		3/15 teeth with caries, 4 teeth loose, 4 teeth present with root only due to pm damage.															
	Right Dentition								Left Dentition								
Present	-	P	-	-	B	-	P	P	P	P	B	B	P	-	-	-	
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Caries	-	Sbd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	-	3	-	-	-	-	4	5	5	5	-	-	6	-	-	-	
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present	PM	AM	AM	P	P	P	P	P	P	P	-	P	B	P	PM	-	
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	Md	-	Md	-	-	
Wear	-	-	-	5	4	4	3	5	5	5	-	4	-	6	-	-	

Skeleton Number	SK 12826/ BN 64a - The teeth recovered from the single bag marked SK 12826 indicate that at least 2 individuals were present in this grave. Adult dentition recorded separately as BN 64b.															
Preservation	5+															
Completeness	<5% - only dentition															
Age	Non-Adult															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	5 permanent teeth erupting/unerupted, 1 deciduous tooth present, no tooth positions, 4 permanent teeth loose, 1 deciduous tooth loose															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	U	-	-	-	U	-	U	U	-	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wear	-	-	1	-	-	-	1	-	1	1	-	-	-	1	-	-
	Deciduous Right Dentition								Deciduous Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Maxilla	e	d	c	b	a	a	b	c	d	e	a	b	c	d	e	
Mandible	e	d	c	b	a	a	b	c	d	e	a	b	c	d	e	
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number	SK 12826/ BN 64b																
Preservation	5+																
Completeness	<5% - only dentition																
Age	Adult, 18+																
Sex	Unsexed																
Stature	-																
Non-Metric Traits	-																
Pathology	-																
Dental Health	4 teeth present, no tooth positions, 4 teeth loose.																
	Right Dentition								Left Dentition								
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present	-	P	-	-	-	-	-	-	-	-	-	-	-	P	P	-	
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-

Skeleton Number		SK 12661/ BN 67														
Preservation		4														
Completeness		5% - partial L foot, dentition														
Age		Adult, 18+														
Sex		Unsexed														
Stature		-														
Non-Metric Traits		-														
Pathology		DJC left foot.														
Dental Health		3 teeth present, no tooth positions, 3/3 teeth with flecks of calculus, 1/3 teeth with DEH														
	Right Dentition								Left Dentition							
Present	P	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	Fa	Fmdl	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	Fa	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number		SK 12541/ BN 68															
Preservation		5+															
Completeness		<5% - six long bone frags (possibly R prox humerus)															
Age		Adult, 18+															
Sex		Unsexed															
Stature		-															
Non-Metric Traits		-															
Pathology		-															
Dental Health		1 tooth present, no tooth positions, 1/1 teeth with flecks of calculus															
	Right Dentition								Left Dentition								
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fo

DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number	SK 12511/ BN 69															
Preservation	5+															
Completeness	<5% - only dentition															
Age	Young Adult; 18-25															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	9 teeth present, no tooth positions, 3/9 teeth with flecks to slight calculus, 7/9 teeth with DEH, 30 small unidentifiable enamel fragments (DEH visible on most)															
	Right Dentition								Left Dentition							
Present	P	P	-	P	-	-	-	-	-	-	-	P	P	P	-	P
Calculus	-	-	-	Fd	-	-	-	-	-	-	-	Fd	-	-	-	-
DEH	G	G	-	G	-	-	-	-	-	-	-	G	G	L	-	G
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	0	1	-	1	-	-	-	-	-	-	-	1	2	2	-	1
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	P	P	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	Sd	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number	SK 12599/ BN 71															
Preservation	3															
Completeness	<5% - cranial frags															

Age	Adult, 18+																
Sex	Unsexed																
Stature	-																
Non-Metric Traits	-																
Pathology	-																
Dental Health	26 teeth present, no tooth positions, 26 teeth loose, 3/26 teeth with flecks of calculus, 1/26 teeth with DEH.																
	Right Dentition								Left Dentition								
Present	-	P	P	P	P	P	-	P	P	P	-	P	P	P	P	-	
Calculus	-	Fdm	Fd	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	-	2	4	3	3	3	-	4	3	2	-	2	2	4	2	-	
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present	P	P	P	P	P	P	P	P	P	-	-	P	P	P	P	P	
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fl	-	
DEH	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	2	3	4	2	2	3	3	4	4	-	-	3	3	4	3	2	

Skeleton Number	SK 12578/ BN 72
Preservation	5
Completeness	<5% (<1%) - only dentition
Age	Adult, 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	1 unidentifiable molar fragment present, which is heavily worn. 14 small unidentifiable enamel fragments present

Skeleton Number	SK 12624/ BN 73
Preservation	3
Completeness	15% - cranial frags, cervical spine frags, thoracic spine frags, rib frags, partial R scapula, R humerus
Age	Young Middle Adult; 26-35
Sex	Probable Female
Stature	-

Non-Metric Traits		-															
Pathology		-															
Dental Health		17 teeth present, no tooth positions, 17 teeth loose, 2/17 teeth with flecks of calculus, 2/17 teeth with DEH															
	Right Dentition								Left Dentition								
Present	-	P	P	P	P	P	-	-	-	-	P	-	P	-	P	-	
Calculus	-	Fmd	Fb	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	-	3	5	3	3	2	-	-	-	-	2	-	4	-	3	-	
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present	-	-	P	P	P	P	-	-	P	P	P	P	P	-	-	-	
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	-	-	-	-	G	-	-	-	-	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	-	-	4	2	3	3	-	-	3	3	3	3	3	-	-	-	

Skeleton Number		SK 13027/ BN 77															
Preservation		3															
Completeness		85% - mostly complete, cranial frags missing, no sternum, partial hands, partial feet															
Age		Adolescent; 14-16															
Sex		-															
Stature		-															
Non-Metric Traits		<i>Mastoid Foramen Extrasutural (left); Posterior Condylar Canal Open (left); Accessory Lesser Palatine Foramen (right); Absent Zygomaticofacial Foramen(right), Bridging of Supraorbital Notch (right); Septal Aperture (left)</i>															
Pathology		<p>The posterior arches of at least S3-S5 are widely bifid, with a gap of 12.1mm at S3. It is likely that S1 and S2 are also bifid, although there is pm damage present which makes observation not possible.</p> <p>The right clavicle is more robust than left. Enthesal changes at the attachment site of the pectoralis major.</p> <p>Cranial shift of lumbar-thoracic border. This manifests itself with 11 thoracic vertebrae and 6 lumbar vertebrae. T12 is lumbarised and T11 appears as T12.</p> <p>Lamellar striae on both femoral shafts, especially midshaft. Stage 2 cribra orbitalia in both orbits.</p> <p>Slight sinusitis in both sinuses.</p>															
Dental Health		28 teeth present, 28 tooth positions, 5/28 teeth with flecks to medium calculus, 3/28 teeth with DEH, 3/28 teeth unerupted															
	Right Dentition								Left Dentition								
Present	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	-

Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	G	-	L	-	-	G	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	2	3	2	2	1	1	1	2	1	1	2	2	2	1	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U
Calculus	-	-	-	-	-	Sm	Mbl	Mbl	Mbl	Mbl	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	2	3	2	2	2	2	3	3	2	2	2	2	3	2	1

Skeleton Number	SK 12573/ BN 78															
Preservation	3															
Completeness	70% - partial skull, spine frags, rib frags, R lateral clavicle, distal half R humerus, prox half R ulna, L ulna frags, partial radii, partial hands, femora, partial pelvis, sacrum, R patella, prox lower legs															
Age	Young Middle Adult; 26-35															
Sex	Probable Female															
Stature	-															
Non-Metric Traits	-															
Pathology	<p>Well healed fracture of left third metacarpal. The break has occurred at the proximal mid-shaft. It appears to be oblique, with the break running from the plantar mid-shaft to the dorsal proximal third of the metacarpal shaft. There may have been some comminution along the fracture border. The distal half of the bone is leaning laterally. It has healed very well and only a slight ridge of dense cortical bone was noted along the fracture line.</p> <p>There is a possible fracture of the posterior neural arch of the sacrum, between the third and fourth sacral vertebrae. This affects exclusively the posterior spine which is not fused between these vertebrae. The inferior edge of S3's spinous process appears irregular and almost spikey. These irregular but smooth spikes are also present on the superior edge of S4's posterior arch, especially on the left side. The right side is more obviously unfused. An alternative diagnosis would be that the posterior arches of the S3+S4 have never fused and this may be congenital.</p> <p>DJC proximal femora.</p> <p>Slight Schmorl's nodes present on two lumbar vertebrae.</p>															
Dental Health	29 teeth present, 17 tooth positions, 12 teeth loose, 2 teeth lost post-mortem, 28/29 teeth with flecks to slight calculus, 1/29 teeth affected by caries, 4/29 teeth with DEH AM chip on occlusal surface of buccal/occlusal surface of RP ¹															
	Right Dentition								Left Dentition							
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	-	P
Calculus	Sa	Sa	Sa	Sb	Sl	Sb	Fd	Sdmb	Fmd	Fbd	-	Fb	Fb	Fa	-	Fa
DEH	-	G	-	-	-	P	-	-	-	-	P	-	-	-	-	-

Caries	-	-	-	-	-	-	-	-	-	-	-	Sm	-	-	-	-
Wear	5	5	6	4	4	4	4	4	4	4	4	4	4	6	-	4
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	PM	PM	P	P	P	P	P	P	P
Calculus	Fa	Fmd	Fmdb	Sa	Sa	Fa	Fmbd	-	-	Fa	Fl	Fmdl	Smd	Sld	Sa	Fl
DEH	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	4	5	6	3	3	4	5	-	-	4	5	3	3	6	5	4

Skeleton Number	From sample # 12556 AB/ BN 81															
Preservation	5+															
Completeness	<5% - only dentition															
Age	Older Juvenile; 6-12															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	4 permanent teeth present, no tooth positions, 4 teeth loose, 1 fragment of unidentifiable molar crown															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	P	-	-	-	-	-	-	-	P	P	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	-	-	-	-	-	1	1	-	-	-	-

Skeleton Number	SK 12794/ BN 82															
Preservation	5															
Completeness	<5% (1%) - mandible frag															
Age	Adolescent; 13-17															

Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	24 teeth present, no tooth positions, 2/24 teeth with flecks to slight calculus, 18/24 teeth with DEH															
	Right Dentition								Left Dentition							
Present	P	P	P	P	P	P	-	B	-	-	-	P	P	P	P	P
Calculus	-	-	Sb	-	-	-	-	-	-	-	-	-	-	-	Fa	-
DEH	G	L	L	-	-	L	-	-	-	-	-	-	-	L	L	G
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	0	3	3	1	1	2	-	-	-	-	-	1	1	3	3	0
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	P	P	P	-	P	P	P	B	-	P	P	P	-	P	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	G	G	L	-	L	L	L	L	-	L	L	-	-	G	G
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	2	2	1	-	2	3	3	-	-	2	1	1	-	2	1

Skeleton Number	SK 12748/ BN 86
Preservation	3
Completeness	90% - mostly complete, skull frags missing, clavicles missing, partial scapulae, prox humeri missing, partial thoracic spine missing, R radius missing, partial hands, partial pelvis, partial feet
Age	Young Middle Adult; 26-35
Sex	Probable Male
Stature	167.3 +/- 3.27
Non-Metric Traits	<i>Double Condylar Facet (bilateral); Precondylar Tubercle; Double Anterior Condylar Facet (right); Double Atlas Facet (bilateral); Acetabular Crease (left); Exostosis in Trochanteric Fossa (bilateral); Double Anterior Calcaneal Facet (left); Double inferior Talar Facet (left); Os Trigonum (bilateral)</i>
Pathology	<p>Muscle excavation on medial aspect of proximal left humerus.</p> <p>Enthesal changes on right and left femora on posterior proximal shaft, at Achilles tendon on calcanei.</p> <p>Lamellar striae on anterior surface of distal femoral shafts bilaterally. Also on tibiae bilaterally, on proximal medial surface of shaft.</p> <p>Transitional new bone (woven to lamellar) on dorsal surface of left second, third and fifth metatarsal. Dense islands of new bone on dorsal surface of left intermediate cuneiform. Plane joint surface with medial cuneiform shows degeneration, also joint surface with second metatarsal. Lipped rim on dorsal aspect of medial cuneiform on joint facet with</p>

	intermediate cuneiform. DJC in femora, tibiae, left foot. Lamellar bone on proximal-lateral aspects of both fibulae. Cribra orbitalia in left orbit.															
Dental Health	26 teeth present, 16 tooth positions, 11 teeth loose, 1 tooth lost post-mortem, 7/26 teeth with flecks to medium calculus, 4/26 teeth with DEH, 3/26 teeth with caries. Two unidentifiable roots without crown due to caries.															
	Right Dentition								Left Dentition							
Present	-	P	-	P	-	P	P	P	P	P	-	P	P	AM	P	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	Fb	-	-	-	Fbl
DEH	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-
Caries	-	Md	-	-	-	-	-	-	-	-	-	-	-	-	Sd	Lm
Wear	-	3	-	3	-	4	3	4	4	3	-	3	3	-	3	3
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	PM	P	P	P	P	P	P	P	P	P	P
Calculus	MI	MI	MI	-	-	-	-	-	-	-	-	-	Fl	-	Fl	-
DEH	-	-	-	-	-	-	-	-	-	-	L	L	L	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	3	4	2	2	-	4	4	4	4	3	2	3	4	2	2

Skeleton Number	SK 12748/ BN 87
Preservation	3
Completeness	85% - mostly complete, partial scapulae, partial hands, partial pelvis, partial feet
Age	Mature Adult; 46+
Sex	Probable Male
Stature	-
Non-Metric Traits	<i>Parietal Foramen (right); Mastoid Foramen Extrasutural (right); Maxillary Torus (right); Absent Anterior Calcaneal Facet (right)</i>
Pathology	Exostosis in left sinus – could also be granuloma. Hollow, cordoned off sinus from soft tissue inside. Circular patch of finely porous and woven bone in floor of left sinus. Porous bone on posterior aspect of left maxilla, above left third molar. Asymmetry in mandible due to severe AMTL in left side. Loss of bone causes bone to be slighter on left side. Schmorl's nodes on T9, L3, L4, L5. Eburnation on proximal right humerus, proximal right and left femora, and distal left femur. DJC in spine, right clavicle, proximal humeri, distal radii, proximal ulnae, femora, tibiae, feet, hands. Marginal osteophytes at postero-inferior rims of both acetabuli. Healed distal midshaft fracture of left tibia and mid/distal shaft fracture of fibula. Related

	myositis ossificans traumatica at postero-distal aspect of fracture site. Left calcaneus and talus fused at medial calcaneal-talar articulation, where dense nodules of bone indicate separation ante-mortem. Both medial anterior talar facet and articulating anterior calcaneal facet are absent in left side, both replaced by nodules of dense bone. Cribra orbitalia (Stage 2) present bilaterally.															
Dental Health	14 teeth present, 28 tooth positions, 2 teeth loose, 2 teeth lost post-mortem, 16 teeth lost ante-mortem, 3/14 teeth with flecks to medium calculus, 4/14 teeth with caries, 1/14 teeth with DEH Four externally draining abscesses present in maxilla.															
	Right Dentition								Left Dentition							
Present	P	PM	AM	AM	AM	P	AM	AM	PM	AM	AM	AM	AM	AM	AM	AM
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	Lm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	4	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	AM	AM	AM	P	AM	P	P	P	P	P	P	P	P	P	P	P
Calculus	-	-	-	-	-	-	-	-	-	-	Fb	-	-	-	Ml	Fl
DEH	-	-	-	-	-	-	-	-	-	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	M	-	-	-	Md	Lm
Wear	-	-	-	8	-	8	8	8	8	8	5	5	8	8	4	4

Skeleton Number	SK 12955/ BN 88															
Preservation	4															
Completeness	<5% (1%) – ten cranial frags															
Age	Non-Adult															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	4 teeth present, no tooth positions, 4 teeth loose, 4/4 teeth with DEH															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	U	-	-	-	-	U	-	-	-	U	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	-	-	-	-	L	-	-	-	G	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-

Skeleton Number	No SK # / BN 89
Preservation	5+
Completeness	<5% - only dentition
Age	Non-Adult; 4+
Sex	-
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	2 central maxillary incisor fragments and one molar fragment present - no wear on molar fragment. No tooth positions present, all fragments loose

Skeleton Number	SK 12454/ BN 92a															
Preservation	4															
Completeness	15% - cranial frags, L mandible, L distal humerus															
Age	Adult; 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	<i>Parietal Foramen (right)</i>															
Pathology	Enthesal changes at nuchal crest.															
Dental Health	6 teeth present, 7 tooth positions, 5 loose teeth, 2 teeth lost post-mortem, 4 teeth lost ante-mortem, 2/6 teeth with flecks to slight calculus															
	Right Dentition								Left Dentition							
Present	-	-	-	P	P	-	-	-	-	-	-	P	P	-	-	-
Calculus	-	-	-	Sl	-	-	-	-	-	-	-	-	Fl	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	5	5	-	-	-	-	-	-	5	5	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	P	-	-	-	PM	P	PM	AM	AM	AM	AM
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	6	-	-	-	-	6	-	-	-	-	-

Skeleton Number	SK 12464/ BN 92b
Preservation	3
Completeness	20% - partial R pelvis, partial R leg, L prox tibia
Age	Adult, 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	Lamellar striae on shaft of both femora.
Dental Health	-

Skeleton Number	SK 12877 / BN 93															
Preservation	4															
Completeness	<5% - cranial frags, L mandible, cervical spine frags															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	3 teeth present, no tooth positions, 2/3 teeth with flecks of calculus															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	B	P	-	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	Fdm	Sd	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	4	-	6	-

Skeleton Number	SK 12481/ BN 96a
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Preservation	5+															
Completeness	<5% - only dentition															
Age	Young Adult; 18-25															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	9 teeth present, no tooth positions, 9 teeth loose, 2/9 teeth with flecks of calculus A peg tooth was found. It measured 5.3mm in diameter and had a large and a small cusp. Unclear where located however, as no tooth positions were observable.															
	Right Dentition								Left Dentition							
Present	P	P	-	-	-	-	-	-	-	-	-	-	-	P	P	-
Calculus	Fdm	Sl	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	2	-	-	-	-	-	-	-	-	-	-	-	4	2	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	P	P	P	P	-	-	-	-	-	-	-	-	-	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	1	2	3	3	-	-	-	-	-	-	-	-	-	1	-

Skeleton Number	SK 12980/ BN 99
Preservation	5
Completeness	60% - skull mostly complete, spine frags, L + R clavicle shafts, scapulae frags, humeri shafts, ulnae shafts, radii shafts, femora, pelvis frags, sacrum frags, tibiae, fibulae shafts, R foot, partial L foot
Age	Young Middle Adult; 26-35
Sex	Probable Male
Stature	-
Non-Metric Traits	<i>Ossicle in Lambdoid (right); Parietal Foramen (bilateral); Precondylar Tubercle; Open Foramen Spinosum (bilateral); Absent Zygomaticofacial Foramen (bilateral); Anterior Ethmoid Foramen Extrasutural (bilateral); Hypotrochanteric Fossa (bilateral)</i>
Pathology	Lamellar bone is present on the lateral surfaces of both tibiae (mid-shaft). Sinusitis in the left sinus. DJC right navicular. Slight cribra orbitalia present in both orbits (Stage 2). Hypervascularised orbital ridges and rims (rims appear more like lamellar bone).

Dental Health			32 teeth present, 23 tooth positions, 9 teeth loose, 4/32 teeth with flecks of calculus, 25/32 teeth with DEH Small chip on the anterior occlusal surface of the right lateral maxillary incisor (may be pm), small chips on occlusal surface of left mandibular central incisor														
	Right Dentition								Left Dentition								
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	-	-	Fb	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	L	L	L	L	L	L	-	L	L	-	L	L	L	L	L	L	L
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	3	4	2	2	3	2	4	3	2	2	2	2	4	3	2	
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Calculus	-	-	-	Fd	-	-	-	-	-	-	-	-	-	Fb	Fl	-	
DEH	-	-	L	-	L	L	L	L	L	L	L	L	L	L	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	2	3	4	2	2	3	2	4	4	3	3	3	2	4	3	2	

Skeleton Number			SK 12936/ BN 102														
Preservation			4														
Completeness			10% - cranial frags, femora shaft frags, tibiae shaft frags, R fibula mid-shaft, 35 small vertebral frags														
Age			Younger Juvenile; c 3														
Sex			-														
Stature			-														
Non-Metric Traits			-														
Pathology			-														
Dental Health			16 deciduous teeth present, 14 permanent teeth erupting, no tooth positions, 2/16 deciduous teeth with flecks of calculus Supernumerary cusp on buccal side of maxillary first molars with enamel defects in cusp tips.														
	Right Dentition								Left Dentition								
Present	-	-	U	-	U	U	U	U	U	U	-	-	-	U	-	-	
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	-	-	1	-	1	1	1	1	1	1	-	-	-	1	-	-	
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	

Present	-	-	U	-	-	-	-	U	U	-	U	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	-	-	1	1	-	1	-	-	1	-	-
	Deciduous Right Dentition								Deciduous Left Dentition							
Present	P	P	P	P	-			P	P	-	-			P		
Calculus	-	-	-	-	-			-	-	-	-	-	-	-		
DEH	-	-	-	-	-			-	-	-	-	-	-	-		
Caries	-	-	-	-	-			-	-	-	-	-	-	-		
Wear	1	1	1	2	-			2	2	-	-			1		
Maxilla	e	d	c	b	a			a	b	c	d	e				
Mandible	e	d	c	b	a			a	b	c	d	e				
Present	P	P	P	P	P			P	P	-	P	P				
Calculus	-	Fdb	-	Fb	-			-	-	-	-	-				
DEH	-	-	-	-	-			-	-	-	-	-				
Caries	-	-	-	-	-			-	-	-	-	-				
Wear	1	1	1	1	2			2	1	-	1	1				

Skeleton Number	SK 12900/ BN 103															
Preservation	5+															
Completeness	<5% (1%) - only dentition															
Age	Non-adult															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	1 tooth present, no tooth positions, 1 loose tooth															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	U	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-

Skeleton Number	SK 13009/ BN 104															
Preservation	4															
Completeness	5% - cranial frags, R scapula frag															
Age	Young Adult; 18-25															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	13 teeth present, no tooth positions, 13 teeth loose, 3/13 teeth with calculus															
	Right Dentition								Left Dentition							
Present	P	P	P	P	-	-	-	-	-	-	P	P	-	-	-	-
Calculus	Fbd	-	Fl	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	3	4	3	-	-	-	-	-	-	3	3	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	P	P	-	-	-	-	-	P	P	P	-	P	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fld
Wear	-	-	-	3	3	-	-	-	-	-	3	3	3	-	3	2

Skeleton Number	SK 12886/ BN 106															
Preservation	3															
Completeness	< 5% - L ulna mid-shaft, partial feet															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology																

Dental Health	-
Skeleton Number	SK 12895/ BN 107
Preservation	4
Completeness	< 5% - cranial frags, thoracic spine frags
Age	Adult, 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 12831/ BN 108									
Preservation	5+									
Completeness	< 5% - only dentition									
Age	Younger Juvenile; 3-7									
Sex	-									
Stature	-									
Non-Metric Traits	-									
Pathology	-									
Dental Health	8 deciduous teeth present, no tooth positions, 8 loose teeth									
	Deciduous Right Dentition					Deciduous Left Dentition				
Present	-	-	-	P	-	-	-	-	P	P
Calculus	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	2	-	-	-	-	1	1
Maxilla	e	d	c	b	a	a	b	c	d	e
Mandible	e	d	c	b	a	a	b	c	d	e
Present	P	P	P	-	-	-	-	-	P	P
Calculus	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	1	1	1	-	-	-	-	-	1	1

Skeleton Number	From sample 12405 AA / BN 115a															
Preservation	5+															
Completeness	< 5% - only dentition															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	6 teeth present, no tooth positions, 6 loose teeth, 2/6 teeth with flecks of calculus, 3/6 teeth with DEH															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	P	-	-	-	P	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	L	-	-	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	3	-	-	-	4	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	P	-	-	P	P	-	-	-	-	-	-	P	-	-	-
Calculus	-	-	-	-	Fm	Fm	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	5	-	-	4	4	-	-	-	-	-	-	4	-	-	-

Skeleton Number	SK 12665/ BN 119															
Preservation	5															
Completeness	35% - partial skull, cervical spine frags, lower thoracic and lumbar spine frags, rib frags, R distal humerus, R prox ulna, R prox radius shaft, L femur, partial L pelvis, R distal femur, L prox tibia, fibulae prox shafts															
Age	Young Middle Adult; 26-35															
Sex	Female															
Stature	-															
Non-Metric Traits	<i>Sutural Mastoid Foramen (right); Bridging of Suraorbital Notch (right)</i>															
Pathology	Slight lamellar striae on left femoral midshaft and fragments of distal posterior shaft.															
Dental Health	25 teeth present, 15 tooth positions, 10 teeth loose, 2 teeth lost ante-mortem, 3/15 teeth with flecks of calculus, 1/15 teeth with DEH, 7/15 teeth with caries. Abscess at socket of maxillary right first molar.															
	Right Dentition								Left Dentition							
Present	P	P	AM	P	P	P	-	P	P	P	P	P	P	-	P	-

Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fm	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	Sm	Sd	-	Sm	Sm	-	-	-	-	-	-	-	-	-	Md	-
Wear	3	3	-	3	4	4	-	5	5	5	3	3	3	-	3	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	P	P	-	P	P	-	AM	P	P
Calculus	Fl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fb
DEH	-	-	-	-	-	-	-	-	-	-	-	L	-	-	-	-
Caries	Sb	-	Lo	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	3	3	8	3	3	3	3	4	4	-	4	3	-	-	3	3

Skeleton Number	SK 12622/ BN 120															
Preservation	5															
Completeness	50% - partial skull, most of R arm, partial L arm, most of legs, partial pelvis, some thoracic and lumbar frags															
Age	Young Middle Adult; 26-35															
Sex	Male															
Stature	-															
Non-Metric Traits	<i>Mastoid Foramen Extrasutural (left); Lateral Tibial Squatting Facet (bilateral)</i>															
Pathology	Hypervascularity on ectocranial skull fragments.															
Dental Health	9 teeth present, 1 tooth position, 8 teeth loose, 3/9 teeth with caries.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	P	-	-	P	-	-	-	-	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	5	-	-	5	-	-	-	-	-	-	2
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	-	P	P	P	-	-	-	-	-	P	-	P	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	Lb	-	-	Sd	-	-	-	-	-	-	-	-	Lm	-	-	-
Wear	3	-	4	4	5	-	-	-	-	-	5	-	5	-	-	-

Skeleton Number	SK 12696/ BN 121															
Preservation	5+															

Completeness	< 5% - only dentition									
Age	Younger Juvenile; 1-6									
Sex	-									
Stature	-									
Non-Metric Traits	-									
Pathology	-									
Dental Health	2 deciduous teeth present, no tooth positions, 2 loose teeth									
	Deciduous Right Dentition					Deciduous Left Dentition				
Present	-	-	-	-	P	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	1	-	-	-	-	-
Maxilla	e	d	c	b	a	a	b	c	d	e
Mandible	e	d	c	b	a	a	b	c	d	e
Present	-	-	-	-	-	-	-	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	1

Skeleton Number	SK 12871/ BN 123
Preservation	2
Completeness	95% - mostly complete
Age	Old Middle Adult; 36-45
Sex	Male
Stature	161.8 +/- 3.27cm
Non-Metric Traits	<i>Ossicle in Lambdoid (bilateral); Parietal Foramen (right); Mastoid Foramen Extrasutural (right); Precondylar Tubercle; Double Anterior Condylar Canal (right); Lateral Tibial Squatting Facet (bilateral); Double Inferior Talar Facets (bilateral)</i>
Pathology	Severe porosity in manubriosternal joint, bilaterally - DJC . Schmorl's nodes on T8 and T10, slight DDD in most vertebrae. Six sacral vertebrae present, completely fused. Partial fusion of left sacroiliac joint. Eburnation present on left mandibular condyle, proximal and distal left femur, distal right femur and right patella - OA. Porotic changes in lunate on plane joint surface with triquetral and vice versa. This was

	found bilaterally – Non-osseous union of carpals or DJC. Cribra Orbitalia bilaterally (Stage 2-3).															
Dental Health	28 teeth present, 32 tooth positions, 2 teeth lost post-mortem, 2 teeth lost ante-mortem, 15/28 teeth with flecks to slight calculus. Woven bone on external maxilla proximally of left first molar socket. Small apical abscess at maxillary left lateral incisor socket with external drainage (small hole).															
	Right Dentition								Left Dentition							
Present	P	P	P	PM	P	P	AM	AM	P	P	P	PM	P	P	P	P
Calculus	-	-	Fm	-	Fb	-	-	-	-	-	Fb	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	7	7	8	-	7	7	-	-	8	8	6	-	7	8	7	7
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	Sdl	Sbl	Sl	Sba	Fa	Fbl	-	-	-	-	Fbl	Fa	Fa	Fl	Fmd	Fa
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	4	4	5	3	3	4	4	5	5	4	4	3	3	6	5	4

Skeleton Number	SK 12561/ BN 124
Preservation	2
Completeness	95% - mostly complete, L shoulder girdle missing
Age	Adolescent; 14-16
Sex	-
Stature	-
Non-Metric Traits	<i>Ossicle at Lambda, Ossicle in Lambdoid (bilateral); Metopic Suture; Mastoid Foramen Extrasutural (right); Posterior Condylar Canal Open (left); Accessory Supraorbital Foramen (right)</i>
Pathology	Woven bone around left lingula of mandible. Lamellar bone on articular eminence of the temporal bone bilaterally. Two left rib ends (sternal) are subject to increased porosity. Likely growth related. Lamellar striae on medial aspect of tibiae. Lamellar bone on proximolateral aspect of femoral shafts. Slight lamellar bone on anterior mid-shaft of right ulna.
Dental Health	28 teeth present, 20 tooth positions, 24/28 teeth with flecks of calculus, 8/28 teeth with DEH, 3 teeth unerupted, 1 tooth not present, 12 teeth loose. Slight periodontal disease in mandible.
	Right Dentition
	Left Dentition

Present	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	NP
Calculus	-	-	-	Fb	Fb	Fb	Fa	Fm	Fa	Fa	Fm	Fb	Fb	Fblo	-	-
DEH	-	-	-	-	-	P	-	P	L	-	P	-	-	-	L	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	2	3	1	1	2	2	3	3	2	2	1	1	2	1	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U
Calculus	-	Fld	Flm	-	Fmo	Fa	Fa	Fa	Fa	Fa	Fml	Fl	Fl	Fl	Fl	-
DEH	-	-	-	L	-	-	-	-	-	-	-	L	L	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	1	2	1	1	2	2	3	3	2	3	1	1	2	1	1

Skeleton Number	SK 12595/ BN 125															
Preservation	4															
Completeness	15% - anterior and R mandible, cranial frags, frags of C2, two lumbar vert., L scapula frags, most of R lower arm, most of L arm, no hands															
Age	Adult; 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	<i>Double Condylar Facet (right)</i>															
Pathology	Superior margin of proximal right ulna is lipped – DJC. Osteophytes around some apophyseal facets of lumbar vertebrae and on occipital condyles – slight DJC.															
Dental Health	10 teeth present, 9 tooth positions, 9 loose teeth, 6 teeth lost post-mortem, 1 tooth lost ante-mortem, 5/10 teeth affected by flecks to slight calculus, 2/10 teeth with caries, 1 tooth not present.															
	Right Dentition								Left Dentition							
Present	P	P	-	P	P	-	-	-	-	-	-	-	-	P	P	P
Calculus	Sl	-	-	-	-	-	-	-	-	-	-	-	-	Fb	Fb	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	Sb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lb
Wear	2	6	-	4	4	-	-	-	-	-	-	-	-	6	6	2
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	NP	PM	AM	P	PM	PM	PM	PM	PM	PM	-	P	P	-	-	-
Calculus	-	-	-	Fb	-	-	-	-	-	-	-	Fl	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wear	-	-	-	5	-	-	-	-	-	-	-	5	5	-	-	-
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Skeleton Number	SK 12978/ BN 130															
Preservation	5															
Completeness	15% - cranial frags, anterior and R mandible, partial maxilla, pelvis frags, R clavicle frags, frags of R humerus, ulna and radius shafts, rib frags															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	Lamellar bone is present on the inferior anterior right mandibular rim. This measures 11.9mm m-l and 9.4 mm s-i.															
Dental Health	23 teeth present, 31 tooth positions, 7 teeth lost post-mortem, 1/23 teeth with flecks of calculus, 7/23 teeth with DEH, 1 tooth not present															
	Right Dentition								Left Dentition							
Present	P	P	P	P	P	P	P	PM	PM	PM	P	P	P	P	P	P
Calculus	Fl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	L	L	-	-	-	-	-	L	L	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	3	5	5	5	3	3	-	-	-	3	2	3	6	3	3
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	NP	P	P	P	P	PM	P	PM	PM	PM	P	P	P	P	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	G	-	-	-	-	-	-	G	G	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	5	5	4	3	-	4	-	-	-	4	3	3	4	4	-

Skeleton Number	SK 12646/ BN 133															
Preservation	3															
Completeness	35% - most of skull, most of legs															
Age	Younger Juvenile; 2-4															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	Slight woven bone is present around the right maxilla (superior of socket for Rm ¹⁺²). This patchy and measures approximately 13.7mm m-l and 4.2mm s-i. Porous new bone is also visible on the inferior surface of the right orbit. This shows increased vascularisation and is covered by almost lamellar -like woven bone. This is located at the anterior margin and has irregular margins. It measures max 9.9mm m-l and max 10mm a-p.															

	Stage 2 cribra orbitalia in right orbit.															
Dental Health	14 deciduous teeth present, 13 deciduous tooth positions, 4 deciduous teeth loose, 5 permanent teeth unerupted, 2 permanent teeth loose															
	Right Dentition								Left Dentition							
Present	-	-	U	-	-	-	-	-	U	U	-	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	-	-	-	1	1	-	-	-	1	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
	Deciduous Right Dentition								Deciduous Left Dentition							
Present	P	P	P	P	P				P	P	P	P	P			
Calculus	-	-	-	-	-				-	-	-	-	-	-		
DEH	-	-	-	-	-				-	-	-	-	-	-		
Caries	-	-	-	-	-				-	-	-	-	-	-		
Wear	3	2	3	3	3				3	2	2	1	1			
Maxilla	e	d	c	b	a				a	b	c	d	e			
Mandible	e	d	c	b	a				a	b	c	d	e			
Present	P	P	P	-	-				-	-	-	P	-			
Calculus	-	-	-	-	-				-	-	-	-	-			
DEH	-	-	-	-	-				-	-	-	-	-			
Caries	-	-	-	-	-				-	-	-	-	-			
Wear	3	3	2	-	-				-	-	-	3	-			

Skeleton Number	SK 12641/ BN 135b – Is same individuals as BN 136 - The archaeologists have retrospectively added the mandible, which was excavated as separate skeleton (12650/ BN 135a) to this skeleton (12641/ BN 135b). It was also possible to match most teeth recovered from SK 12636/ BN 136 with this mandible, suggesting that these belong to the same individual. There was, however, at least one set of extra teeth present in the sample from the fill of BN 135 (12642 AA+AB). These were from a non-adult and have been recorded as BN 135 c.
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Preservation	3															
Completeness	40% - mandible frags, prox R clavicle, rib frags, thoracic spine frags, femora frags, tibiae shaft frags, prox tibiae, L fibula shaft frags, tali, L calcaneus, L metatarsals															
Age	Young Middle Adult; 26-35															
Sex	Indeterminate															
Stature	-															
Non-Metric Traits	-															
Pathology	Lamellar striae on left and right tibial shaft fragments. DJC in thoracic spine.															
Dental Health	11 teeth present, 12 tooth positions present, 5 teeth loose, 5/11 teeth with flecks of calculus, 8/11 teeth with DEH, 6 teeth lost post-mortem															
	Right Dentition								Left Dentition							
Present	P	P	-	-	-	-	-	-	-	-	-	-	-	-	P	P
Calculus	Fd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fd
DEH	G	L	-	-	-	-	-	-	-	-	-	-	-	-	L	G
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	3	4	-	-	-	-	-	-	-	-	-	-	-	-	4	3
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	-	-	P	P	P	PM	PM	PM	PM	PM	PM	P	P	P	-
Calculus	-	-	-	-	-	Fa	-	-	-	-	-	-	Fl	-	Fl	-
DEH	-	-	-	L	G	L	-	-	-	-	-	-	-	-	L	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	3	-	-	4	4	4	-	-	-	-	-	-	4	5	4	-

Skeleton Number	NO SK # / BN 135c															
Preservation	5+															
Completeness	< 5% (1%) - only dentition															
Age	Older Juvenile; 6+															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	8 permanent teeth unerupted/erupting, 1 deciduous tooth present, no tooth positions, 8 permanent teeth loose, 2/8 teeth with DEH															
	Right Dentition								Left Dentition							
Present	-	-	-	U	U	U	U	U	U	U	-	-	U	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	-	-	L	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wear	-	-	-	1	1	1	1	1	1	1	-	-	1	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Deciduous Right Dentition								Deciduous Left Dentition							
Present	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-
Maxilla	e	d	c	b	a	a	b	c	d	e						
Mandible	e	d	c	b	a	a	b	c	d	e						
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number	SK 12723/ BN 137
Preservation	4
Completeness	< 5% - femoral mid-shaft frags, tibial mid-shaft frags
Age	Adult, 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 12753/ BN 139
Preservation	5+
Completeness	< 5% (1%) - only dentition

Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	13 teeth present, no tooth positions, 13 teeth loose, 5/13 teeth affected by calculus, 3/13 teeth with DEH.															
	Right Dentition								Left Dentition							
Present	-	P	-	P	P	-	-	-	-	-	-	P	-	-	P	-
Calculus	-	-	-	Fb	FM	-	-	-	-	-	-	Fb	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	2	-	2	2	-	-	-	-	-	-	2	-	-	2	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	-	-	P	P	P	-	-	B	-	-	P	P	-	-	P
Calculus	-	-	-	-	Fa	-	-	-	Fb	-	-	-	-	-	-	-
DEH	-	-	-	L	L	L	-	-	-	-	-	P	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	-	-	2	2	2	-	-	-	-	-	2	2	-	-	1

Skeleton Number	SK 12996/ BN 140
Preservation	3
Completeness	90% - mostly complete, maxilla incomplete, R patella missing
Age	Young Middle Adult; 26-35
Sex	Male
Stature	160.7 +/- 3.27cm
Non-Metric Traits	<i>Ossicle in Lambdoid (left); Parietal Foramen (left); Mastoid Foramen Extrasutural (left); Precondylar Tubercle; Double Anterior Condylar Canal (left); Bridging of Supraorbital Notch (bilateral); Exostosis in Trochanteric Fossa (bilateral); Third Trochanter (right); Lateral Tibial Squatting Facet (left)</i>
Pathology	<p>This individual has an exostosis in the left sinus. This is irregularly shaped, but generally smooth on the surface. The exostosis is hollow and has a circular opening towards the socket of the left first maxillary molar, where the root of the tooth was likely located. It appears that this exostosis encased soft tissue of some kind, possibly cordoning off the inside from the sinus. Possibly a granuloma? It measures 9.2mm m-l, 12.7mm a-p, and 11.4 mm s-i.</p> <p>In the right maxilla, there is a small hole present in the floor of the sinus chamber. It measures c 1.5mm in diameter. The edges are smooth and it is immediately superior of the socket for the right first maxillary molar. No inflammatory bone changes, possibly developmental.</p>

<p>On the anterior aspect of the right fibula, there is a distinct patch of brownish grey woven new bone. It has not yet integrated into the cortical bone. It is located at the attachment site for the interosseous membrane with the tibia.</p> <p>On the right tibia, the attachment site for the interosseous ligament has also been affected by woven bone. The distal lateral and the lateral half of the posterior side are all affected in a roughly triangular shape. A small patch of woven bone on a left posterior distal tibial fragment suggests that the left ankle was also affected – if not to the same extent.</p> <p>Eburnation is present on the superior aspect of the left femoral head – OA.</p> <p>On the left calcaneus, there is a distinct patch of woven bone on the medial aspect of the bone, below the subtentacular tali, at the sustentacular sulcus. The area affected spans 28mm along the sulcus, and 14.9mm s-i. The sulcus holds the flexor hallucis longus, which plantar flexes the big toe – periosteal reaction.</p> <p>Small traces of woven bone also present on the right calcaneus, but much less compared to right.</p> <p>A rib fragment shows signs of woven bone. This is a very fine, plaque-like kind of new bone and grey-greenish in colour. This is located on the visceral surface, but due to limited size, it is not possible to determine if left or right side. Central fragment. Extent: 28.7 mm longitudinally, 10mm of inner rib surface s-i.</p> <p>The palatal surface of the maxilla appears to have been inflamed, with sharp ridges and spikes of bone protrude – especially along the lateral sides of the palate. There are signs of slight pitting and/ or vascularisation present. – inflammation?</p> <p>Schmorl's nodes present on eight thoracic vertebral bodies and three lumbar vertebrae.</p> <p>DJC in spine C1 – C3, proximal left femur, right glenoid.</p> <p>Bilateral stage 2 cribra orbitalia.</p> <p>S4 and S5 are bifid.</p> <p>This individual has an exceedingly square palate. There was no distinct nasal guttering present, but it was considered that this individual was of African origin.</p>																
Dental Health																
29 teeth present, 32 tooth positions, no teeth loose, 1 tooth lost post-mortem, 2 teeth lost ante-mortem, 19/29 teeth with flecks to medium calculus, 10/29 teeth with DEH, 2/29 teeth affected by caries.																
Externally draining peri-apical abscess at socket of right maxillary first premolar.																
	Right Dentition								Left Dentition							
Present	P	P	AM	P	P	P	P	P	P	P	P	P	P	PM	P	P
Calculus	-	-	-	-	-	Sb	Fb	Sb	Sb	Fb	Mb	Sm	-	-	-	-
DEH	G	G	-	-	-	-	-	-	-	-	-	-	-	-	G	G
Caries	-	-	-	Sd	-	-	-	-	-	-	-	-	-	-	Sm	-
Wear	1	2	-	2	-	3	3	4	4	3	3	2	2	-	3	2
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	AM	P	P
Calculus	Sl	Ml	Ml	Ml	Fl	Sl	Sl	Slb	Slmd	Smd	-	Sl	Fd	-	-	-
DEH	-	-	-	-	-	L	L	L	L	L	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	2	5	2	2	3	4	5	5	4	3	2	2	-	3	2

Skeleton Number	SK 12880/ BN 142															
Preservation	3															
Completeness	5% - L clavicle shaft, few rib frags, humerus prox shaft frag, thoracic spine frags, ulna mid-shaft frags, radius mid-shaft frags															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	3 teeth present, no tooth positions, 3 teeth loose.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number	SK 12852/ BN 143															
Preservation	3															
Completeness	< 5% - R C1, femoral mid-shafts, unidentified tibiae frags															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	-															

Skeleton Number	SK 12860/ BN 144															
Preservation	4															
Completeness	60% - cranial frags, R mandible, cervical spine frags, upper thoracic spine frags, rib frags,															

	partial scapulae, most of hands, femora, partial pelvis, R patella, L prox tibia, L prox fibula There were two mandibles and one maxilla with this skeleton. The maxilla fragments and one mandible were separated and are considered not to belong to this individual and were treated as disarticulated. The right arm of this individual was not present in the box, but was recorded as present in the field.															
Age	Young Middle Adult; 26-35															
Sex	Probable Female															
Stature	161.05 +/- 3.72 cm															
Non-Metric Traits	<i>Ossicle at Lambda; Mastoid Foramen Extrasutural (right); Double Atlas Facet (left); Hypotrochanteric Fossa (bilateral); Vastus Fossa (right)</i>															
Pathology	On the left clavicle, there is bone excavation on the medial end of the clavicular shaft (inferior aspect; rhomboid fossa). C2 has a developmental misalignment of the left inferior apophyseal facet. While the facet itself remains flat, it is angled more laterally than the opposite side. This individual has mild coxa vara of the proximal femora. Additionally, both femoral heads appear to be slightly flattened on the superior aspect of the head. The individual had exceedingly irregular auricular surfaces. It is possible that this indicates the presence of sacroiliitis. On the lateral aspect of the left tibia, there is well integrated lamellar bone. Hypervascularity is present ectocranially on the superior half of the occipital and the posterior halves of the parietal bones around the lambda.															
Dental Health	8 teeth present, 6 tooth positions, 2 teeth loose, 1/8 teeth with flecks of calculus. Slight periodontal disease.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	-	-	-	-	-	-	-	-	P	P	P
Calculus	-	-	-	Fmd	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	3	6	6	4	4	-	-	-	-	-	-	-	-	6	4	2

Skeleton Number	SK 12539/ BN 149a
Preservation	5+
Completeness	< 5% (1%) – ulnae shaft frags, radii shaft frags
Age	Undetermined

Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 13201/ BN 153
Preservation	4
Completeness	10% - skull frags, R mandible frags, humerus frags, rib frags, L scapula frag
Age	Younger Juvenile; 4-6
Sex	-
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	21 permanent teeth present, 15 deciduous teeth present, no tooth positions, 2/15 deciduous teeth affected by flecks of calculus, 11/21 permanent teeth with DEH. Permanent mandibular left second premolar has two lingual cusps.

	Right Dentition								Left Dentition							
Present	-	U	P	U	U	U	U	U	U	U	U	U	U	P	U	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	L	L	L	L	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	U	U	U	U	U	-	-	-	P	U	U	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	L	L	L	L	L	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	1	1	1	1	1	-	-	-	1	1	1	-
	Deciduous Right Dentition					Deciduous Left Dentition										
Present	P	P	P	P	P	-	P	P	P	P						
Calculus	Fb	-	-	-	-	-	-	-	-	Fb						
DEH	-	-	-	-	-	-	-	-	-	-						
Caries	-	-	-	-	-	-	-	-	-	-						
Wear	3	4	4	4	5	-	4	3	4	2						
Maxilla	e	d	c	b	a	a	b	c	d	e						

Mandible	e	d	c	b	a	a	b	c	d	e
Present	-	P	P	-	-	-	P	P	P	P
Calculus	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	-	3	3	-	-	-	3	3	4	3

Skeleton Number	SK 12580/ BN 154															
Preservation	3															
Completeness	25% - skull frags, cervical spine frags, L scapula frags, humeral shaft frags, R ulna shaft frags, R radius shaft frags, most of R fingers, partial pelvis, partial sacrum, L prox femur frags, R femur shaft frags															
Age	Young Middle Adult; 26-35															
Sex	Probable Male															
Stature	-															
Non-Metric Traits	<i>Accessory Infraorbital Foramen (left)</i>															
Pathology	Hypervascularity on ectocranial surface of cranial fragments and supraorbital rims and ridges. DJC in C2. Cribralia orbitalia bilaterally (Stage 1).															
Dental Health	21 teeth present, 18 tooth positions, 1 tooth lost post-mortem, 14/21 teeth affected by flecks to heavy calculus, 4/21 teeth with caries, 2 loose teeth. Work-related use facet on left mandibular and maxillary second premolars and first molars. Slight periodontal disease.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	P	P	P	P	P	P	P	P	P	-	-	-
Calculus	-	-	-	-	-	Fb	Sb	-	Fb	Fb	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	3	4	4	4	5	5	5	5	6	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	-	P	-	-	P	PM	P	P	P	P	P	P	P	P
Calculus	Hol	Hl	-	-	-	-	Fmdb	-	-	Fl	Fb	Fbl	Fl	Ml	Hl	Hl
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	Sb	-	-	-	-	-	-	-	-	-	-	-	Sb	Lb	Mb
Wear	5	5	-	3	-	-	5	-	6	5	5	6	7	7	2	3

Skeleton Number	SK 12627/ BN 155
Preservation	5+
Completeness	<5% (1%) - only dentition
Age	Adult, 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	26 undiagnostic enamel fragments with wear.

Skeleton Number	SK 12606/ BN 156															
Preservation	4															
Completeness	40% - skull frags, cervical spine frags, R humerus shaft frags, radii and ulnae shaft frags, femoral shaft frags, R tibia shaft, R fibula shaft frags, L fibula, R talus, R calcaneus, L calcaneus frag															
Age	Young Middle Adult; 26-35															
Sex	Probable Male															
Stature	-															
Non-Metric Traits	<i>Precondylar Tubercle; Double Anterior Condylar Canal (left);</i>															
Pathology	Distinct lamellar striae on medial and posterior aspects of midshaft of left tibia. DJC in C2, in right femur, right fibula, feet. Enteseal changes on posterior calcanei.															
Dental Health	17 teeth present, 15 tooth positions, 2 teeth lost post-mortem, 9/17 teeth affected by flecks to slight calculus, 10/17 teeth with DEH, 3 loose teeth. Slight periodontal disease.															
	Right Dentition								Left Dentition							
Present	-	P	-	P	-	P	-	-	-	-	-	-	-	-	-	-
Calculus	-	Sb	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	L	-	L	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	4	-	5	-	5	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	PM	P	P	P	P	P	PM	P	P	P	P	P	P	P	P
Calculus	Sl	-	Sl	Fl	-	-	Fm	-	-	-	-	-	Fmd	Sl	Hl	Hl
DEH	-	-	L	-	L	L	L	-	-	L	L	L	L	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	5	-	6	5	5	5	5	-	6	5	5	4	5	6	5	2

Skeleton Number	SK 13170/ BN 158															
Preservation	3															
Completeness	60% - skull frags, mandible, cervical spine, rib frags, R clavicle shaft, R scapula frags, R humeral head, distal femora, most of lower legs A left humerus was found lying across both tibia, recorded as disarticulated.															
Age	Adult, 18+															
Sex	Probable Female															
Stature	-															
Non-Metric Traits	<i>Ossicle in Lambdoid (left); Mastoid Foramen Extrasutural (left); Posterior Condylar Canal Open (left)</i>															
Pathology	Hypervascularity on ectocranial surface of skull. Irregular depression in left mandibular condyle filled with new bone, slightly pitted; has become part of the surface. DJC cervical spine; DJC in right TMJ, femora, tibiae Lamellar striae on shafts of both tibiae. Cribra orbitalia in right orbit (stage 2).															
Dental Health	8 teeth present, 16 tooth positions, 5 teeth lost post-mortem, 3 teeth lost ante-mortem, 2/8 teeth affected by flecks of calculus, 4/8 teeth with caries. Notably irregular degrees of wear on teeth.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	AM	AM	P	P	P	PM	PM	PM	PM	PM	P	P	AM	P	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Sl	Sl
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	Sb	-	-	-	-	-	-	-	Md	-	SmdLb	Sm
Wear	2	-	-	8	5	5	-	-	-	-	-	6	6	-	5	3

Skeleton Number	SK 12449/ BN 160															
Preservation	4															
Completeness	< 5% - unidentified long bone frags															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															

Pathology	-															
Dental Health	12 teeth present, no tooth positions, 12 teeth loose, 2/12 teeth with DEH.															
	Right Dentition								Left Dentition							
Present	-	-	P	-	-	P	-	-	-	-	-	-	P	P	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	2	-	-	2	-	-	-	-	-	-	2	3	1	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	P	P	-	-	-	P	-	-	-	P	P	P	-	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	L	L	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	1	2	-	-	-	2	-	-	-	2	1	1	-	1	-

Skeleton Number	SK 12782/ BN 162															
Preservation	5+															
Completeness	< 5% - only dentition															
Age	Non-Adult; 4+															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	1 permanent tooth present, no tooth positions, 1 tooth loose															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-

Skeleton Number	SK 12722/ BN 165b – Is same individual as 165a															
Preservation	3															
Completeness	5% - cranial frags BN 165a only contains bone from sample 12711 AA (fill of grave BN 165b also). The sample residue contained teeth matching/ belonging to this individual (165b) – it is thus believed that the remains recovered belong to the same individual.															
Age	Young Adult; 18-25															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	22 teeth present, no tooth positions, 22 teeth loose, 4/22 teeth with flecks to medium calculus, 1/22 teeth affected by caries, 5/22 teeth with DEH															
	Right Dentition								Left Dentition							
Present	P	P	P	-	-	B	-	-	-	P	P	P	P	P	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	Fbo	Mb	Sb	-
DEH	-	-	-	-	-	L	-	-	-	L	L	-	-	-	-	-
Caries	-	-	Sm	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	1	4	-	-	-	-	-	-	1	2	1	2	1	1	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	-	-	P	P	P	-	-	P	P	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	Fd	-	-
DEH	-	-	-	-	-	L	-	-	-	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	2	4	2	2	3	-	-	2	2	1	-	-	1	1	1

Skeleton Number	SK 12800/ BN 173															
Preservation	3															
Completeness	20% - cranial frags, mandible, cervical spine, L humeral shaft, femoral shaft frags, patellae															
Age	Young Middle Adult; 26-35															
Sex	Probable Male															
Stature	-															
Non-Metric Traits	-															
Pathology	Fine lamellar striae on femoral shaft fragments. DJC in C5 – C7.															
Dental Health	16 teeth present, 14 tooth positions, 4 teeth lost post-mortem, 12/16 teeth affected by flecks to moderate calculus, 2/16 teeth with DEH, 6 loose teeth.															

	Right Dentition								Left Dentition							
Present	P	P	-	P	P	-	-	-	-	-	P	-	-	-	P	-
Calculus	-	Fbl	-	Fbl	Fbl	-	-	-	-	-	Fb	-	-	-	Fl	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	3	-	5	5	-	-	-	-	-	4	-	-	-	3	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	NP	P	P	P	P	P	PM	PM	PM	PM	P	P	P	P	P	NP
Calculus	-	Fl	Fl	Sl	-	Fl	-	-	-	-	Fl	MI	-	-	Fl	-
DEH	-	-	-	-	-	P	-	-	-	-	P	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	4	5	4	4	4	-	-	-	-	4	3	5	5	4	-

Skeleton Number	SK 13161/ BN 175															
Preservation	3															
Completeness	85% - R shoulder girdle missing, sacrum missing, feet and hands missing, L lower leg missing, sternum missing															
Age	Old Middle Adult/Mature Adult; 36+															
Sex	Probable Female															
Stature	-															
Non-Metric Traits	-															
Pathology	DDD with porosity and degeneration on available vertebral bodies. Eburnation in cervical spine (C3 + C4) and in left proximal ulna - OA. Slight sinusitis in right sinus (spicules of bone).															
Dental Health	18 teeth present, 30 tooth positions, 9 teeth lost post-mortem, 3 teeth lost ante-mortem, 15/18 teeth affected by flecks to slight calculus. DJC left mandibular condyle, proximal humeri, proximal ulnae, proximal femora. Slight periodontal disease. Wide spaces between maxillary canines and lateral incisors.															
	Right Dentition								Left Dentition							
Present	NP	PM	P	AM	AM	PM	PM	PM	PM	P	P	AM	PM	P	P	NP
Calculus	-	-	Fa	-	-	-	-	-	-	-	-	-	-	Fa	Fa	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	6	-	-	-	-	-	-	7	6	-	-	5	5	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	PM	PM	P	PM	P	P	P	P	P

Calculus	Sa	Sa	Sa	Sa	Sa	Sa	Fa	-	-	-	-	Sa	Sa	Sa	Sa	Sa
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	4	5	6	4	4	5	6	-	-	5	-	4	5	6	6	5

Skeleton Number	No Sk # / sample 12976 / BN 177 – Is same individual as BN 176															
Preservation	5+															
Completeness	< 5% (1%) – only dentition															
Age	Younger Juvenile; 4-6															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	11 deciduous teeth present, 16 permanent teeth present, no tooth positions, all teeth loose.															
	Right Dentition								Left Dentition							
Present	-	-	U	-	-	U	U	U	U	U	U	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	1	1	1	1	1	1	-	-	1	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	U	-	-	U	U	U	U	U	U	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	1	1	1	1	1	1	-	-	1	-	-
	Deciduous Right Dentition								Deciduous Left Dentition							
Present	P	P	P	-	-	-	-	-	-	-	P	P	P	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	1	1	-	-	-	-	-	-	-	1	1	1	-	-	-
Maxilla	e	d	c	b	a	a	b	c	a	b	c	d	e	a	b	c
Mandible	e	d	c	b	a	a	b	c	a	b	c	d	e	a	b	c

Present	P	P	P	-	-	-	-	-	P	P
Calculus	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	1	1	1	-	-	-	-	-	1	1

Skeleton Number	SK 13144/ BN 178a															
Preservation	5															
Completeness	20% - cranial frags, anterior and R mandible, C2, C3, humeral shaft frags, R ulna shaft frags, femora shaft frags, partial L pelvis, R tibia shaft frags															
Age	Old Middle Adult-Mature Adult; 36+															
Sex	Probable Female															
Stature	-															
Non-Metric Traits	<i>Sutural Mastoid Foramen (right)</i>															
Pathology	DJC in cervical vertebrae (C2-C4). Eburnation on C2, C3 and proximal right femur – OA. Lamellar bone on humeral shaft fragments, both femoral shafts and on a right tibial shaft fragments.															
Dental Health	20 teeth present, 12 tooth positions, 1 tooth lost ante-mortem, 11/20 teeth affected by flecks to medium calculus, 3/20 teeth with caries, 4/20 teeth with DEH, 1 tooth not present, 10 loose teeth. Moderate periodontal disease.															
	Right Dentition								Left Dentition							
Present	-	P	P	P	P	-	P	P	P	-	-	-	P	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	2	5	3	4	-	4	5	5	-	-	-	4	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	NP	AM	P	P	P	P	P	P	P	P	P	P	P	P	-	-
Calculus	-	-	-	Fbl	Fbl	Sbl	Fbl	Fbl	Fbl	Fbl	Fbl	Mbl	MI	MI	FI	-
DEH	-	-	-	-	-	L	-	-	-	L	L	L	-	-	-	-
Caries	-	-	Sd	-	-	-	-	-	-	-	-	-	Md	Mmd	-	-
Wear	-	-	5	4	4	5	5	6	6	5	5	3	3	4	-	-

Skeleton Number	SK 13150/ BN 178b															
Preservation	5															

Completeness	<10% - cranial frags, humeri shaft frags, R prox radius, R femur mid-shaft, tibiae mid-shaft frags															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	2 permanent teeth present, no tooth positions, 1/2 tooth with flecks of calculus, 2 loose teeth.															
	Right Dentition								Left Dentition							
Present	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	Fmd	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-

Skeleton Number	SK 12868 / BN 181															
Preservation	3															
Completeness	5% - cranial frags															
Age	Younger Juvenile; 4-5															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	<p>9 permanent teeth present, 13 deciduous teeth present, no tooth positions, 9 permanent teeth loose, 13 deciduous teeth loose, 4/9 permanent teeth with DEH, 3/13 deciduous teeth with DEH,</p> <p>The mandibular deciduous right canine is chipped on the mesial occlusal surface – although it may also be a wear facet due to its smoothness. There is a supernumerary right maxillary permanent canine. Although the crown was at first considered to be a mandibular canine, it is morphologically much more like a maxillary canine and was thus considered additional.</p>															
	Right Dentition								Left Dentition							
Present	-	-	-	-	U	U	U	U	U	U	U	-	-	U	-	-

Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	-	L	L	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	1	1	1	1	1	1	1	-	-	1	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	U	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Deciduous Right Dentition							Deciduous Left Dentition								
Present	-	P	P	P	P		P	P	P	-	-					
Calculus	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
DEH	-	-	G	-	-		-	-	G	-	-	-	-	-	-	-
Caries	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Wear	-	1	2	2	2		2	1	1	-	-	-	-	-	-	-
Maxilla	e	d	c	b	a		a	b	c	d	e					
Mandible	e	d	c	b	a		a	b	c	d	e					
Present	-	P	P	-	-		-	-	P	P	P					
Calculus	-	-	-	-	-		-	-	-	-	-					
DEH	-	-	-	-	-		-	-	-	-	-				G	
Caries	-	-	-	-	-		-	-	-	-	-				-	
Wear	-	1	2	-	-		-	-	1	2	2					

Skeleton Number	SK 12719 / BN 182
Preservation	4
Completeness	< 5% - L scapula frags, vertebral body frags
Age	Adult, 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 12716 / BN 183
Preservation	5
Completeness	< 5% (1%) - three long bone leg frags, metatarsal frag
Age	Undetermined
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 12495 / BN 184a
Preservation	3
Completeness	5% - femora shaft frags, tibiae mid-shafts
Age	Younger Juvenile; 1-6
Sex	-
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 12618/ BN 185																
Preservation	4																
Completeness	30% - skull mostly complete, cervical spine frags, lateral R clavicle, humeri shaft frags, ulnae shaft frags, radii shaft frags, femoral shafts, R tibia shaft, R fibula shaft frags																
Age	Young Middle Adult; 26-35																
Sex	Probable Male																
Stature	-																
Non-Metric Traits	<i>Mastoid Foramen Extrasutural (right); Accessory Infraorbital Foramen (right)</i>																
Pathology	Hypervascularity on supraorbital ridges and rims, lateral areas of frontal bone, central area and right zygomatic bone. Lamellar striae on fragments of both femora and tibiae. Cribra orbitalia bilaterally (stage 2).																
Dental Health	25 teeth present, 16 tooth positions, 2 teeth lost post-mortem, 2 teeth lost ante-mortem, 7/25 teeth affected by flecks to slight calculus, 5/25 teeth with caries, 5 loose teeth. Abscess at mandibular right first molar where tooth lost ante-mortem, and in mandibular left first molar socket. Slight periodontal disease.																
	Right Dentition									Left Dentition							
Present	-	-	-	P	P	P	P	-		P	P	P	P	P	-	-	-

Calculus	-	-	-	-	Fm	Fb	Sb	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	Lo	-	-	-	-
Wear	-	-	-	6	6	5	4	-	5	4	5	8	7	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	AM	P	P	P	P	P	AM	PM	P	P	P	PM	P	P
Calculus	-	-	-	-	-	-	Fb	-	-	-	Fbm	-	-	-	Fm	Fd
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	Sb	-	-	Sm	Sd	-	-	-	-	-	-	-	-	-	-	Sb
Wear	3	3	-	5	4	3	4	4	-	-	4	4	4	-	4	3

Skeleton Number	SK 12652/ BN 186															
Preservation	4															
Completeness	75% - skull almost complete, rib frags, lumbar arches, partial pelvis, femora, humeri, radii, ulnae, tibiae, fibulae shafts, feet, partial hands L and R perinatal ulnae recovered at feet – recorded as disarticulated															
Age	Mature Adult; 46+															
Sex	Female															
Stature	-															
Non-Metric Traits	<i>Mastoid Foramen Extrasutural (right); Mandibular Torus (bilateral); Exostosis in Trochanteric Fossa (left)</i>															
Pathology	DJC and eburnation in the lumbar spine and S1 – OA. Eburnation in the right distal femur the proximal right tibia, in the left ankle (superior calcaneal facet and inferior talar facet – OA). DJC in right hand, hip, left foot. Irregular bone and porosity on ischial tuberosity - Ischial Bursitis/Weaver's Bottom. Cribra orbitalia in right orbit (stage 2).															
Dental Health	5 teeth present, 5 tooth positions, 2 teeth lost ante-mortem, 2 teeth lost post-mortem, 1/5 teeth with flecks of calculus, 1/5 teeth with DEH, 4 loose teeth. Two mandibular tori on internal surface. One inferior of right second premolar/first molar, one inferior of left first premolar/second premolar/first molar.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8

Present	PM	AM	AM	PM	-	-	P	-	-	P	P	-	P	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fdb
DEH	-	-	-	-	-	-	-	-	-	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	4	-	-	4	5	-	5	-	-	4

Skeleton Number	SK 12557/ BN 187															
Preservation	3															
Completeness	80% - ribs missing, sternum missing, most vertebral bodies missing, sacrum missing, partial pelvis missing, R lower leg missing, part of hands missing															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	Grey fine woven bone on mid-posterior proximal and midshaft surface of left and right femur. Overlying more integrated lamellar striae.															
Dental Health	25 teeth present, 15 tooth positions, 5/25 teeth with flecks to slight calculus, 2/25 teeth with caries, 5/25 teeth with DEH, 12 loose teeth. Slight periodontal disease.															
	Right Dentition								Left Dentition							
Present	-	P	P	P	-	P	P	P	-	-	P	P	P	-	P	-
Calculus	-	Sb	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	-	-	-	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	4	6	5	-	4	4	4	-	-	4	4	4	-	4	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	-	P	P	P	P	P	P	P	P	P	P
Calculus	Sd	-	-	-	-	-	-	-	-	-	-	-	-	Fl	Fd	Fd
DEH	-	-	-	-	L	-	-	-	-	-	L	L	-	-	-	-
Caries	-	-	Lm	Sm	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	4	6	5	4	-	4	4	4	4	4	4	4	6	4	3

Skeleton Number	SK 12596/ BN 193															
Preservation	5+															
Completeness	<5% (1%) - only dentition															
Age	Non-Adult															
Sex	-															
Stature	-															

Non-Metric Traits			-													
Pathology			-													
Dental Health			1 permanent tooth present, no tooth positions. 10 additional undiagnostic molar enamel chips.													
	Right Dentition								Left Dentition							
Present	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Skeleton Number			SK 12427/ BN 194a													
Preservation			3													
Completeness			70% - lower arms missing, prox R humerus missing, partial pelvis missing, most vertebral bodies missing, feet missing													
Age			Younger Juvenile; 3-4													
Sex			-													
Stature			-													
Non-Metric Traits			-													
Pathology			<p>Pitting on the superior intracranial surface of the left greater wing of the sphenoid bone, laterally of foramen rotundum. Quite severe.</p> <p>Pitting also on right posterior maxilla and orbital aspect of the zygomatic bone. – Scurvy?</p> <p>Cribra orbitalia in right orbit (stage 1-2).</p> <p>Slight sinusitis in left sinus.</p>													
Dental Health			9 permanent teeth unerupted, 17 deciduous teeth present, 16 deciduous tooth positions, 1/17 deciduous teeth with caries, 2/9 permanent teeth with DEH, 12 loose teeth.													
	Right Dentition								Left Dentition							
Present	-	-	U	-	-	-	-	-	U	-	-	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	L	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	-	-	-	1	-	-	-	-	1	-	-

Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	U	-	-	-	-	U	U	U	U	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	-	-	1	1	1	1	-	-	1	-	-
	Deciduous Right Dentition								Deciduous Left Dentition							
Present	P	P	P	PM	P				P	P	PM	P	P			
Calculus	-	-	-	-	-				-	-	-	-	-	-		
DEH	-	-	-	-	-				-	-	-	-	-	-		
Caries	-	-	-	-	-				-	-	-	-	So	-		
Wear	1	2	1	-	2				2	2	-	2	2			
Maxilla	e	d	c	b	a				a	b	c	d	e			
Mandible	e	d	c	b	a				a	b	c	d	e			
Present	P	P	P	P	P				P	PM	P	P	P			
Calculus	-	-	-	-	-				-	-	-	-	-			
DEH	-	-	-	-	-				-	-	-	-	-			
Caries	-	-	-	-	-				-	-	-	-	-			
Wear	2	2	2	2	2				2	-	2	2	2			

Skeleton Number	SK 13146/ BN 197a
Preservation	3
Completeness	95% - mostly complete
Age	Old Middle Adult/Mature Adult; 36+
Sex	Male
Stature	171.17 +/- 4.05cm
Non-Metric Traits	<i>Mastoid Foramen Extrasutural (bilateral); Precondylar Tubercle; Double Anterior Condylar Canal (left); Exostosis in Trochanteric Fossa (bilateral)</i>
Pathology	Small nodule of bone present bilaterally on lateral aspects of mandibular neck (lateral extent of mandibular condyles). Likely developmental. Eburnation in apophyseal facets of C6, C7 and T1 - OA Porosity and exaggerated rugged surface on both medial clavicles and manubrioclavicular joint (including slight ossification of cartilage), same in manubriosternal joint surfaces, right and left glenoid, proximal humeri, proximal left radius, ulnae, femora, tibiae, feet - DJC Sternal end of left first rib is widened, irregular and porous - DJC

		<p>Partial fusion of right sacroiliac joint. Auricular surface in left side is irregular and does not appear normal – differential diagnosis is sacroiliitis and/or DISH, possibly related to other signs of DISH in spine.</p> <p>T4-T11 have paravertebral osteophytes of ‘candle-wax’ appearance along right anterolateral aspect of bodies. T7-T8 are completely fused but broken post-mortem, T5-T6 and T6-T7 fusing. Only T8-T9 still fused along right anterolateral aspect of bodies – DISH.</p> <p>Inferior apophyseal facets of T8 have fused to superior facets of T9 along rims – expression of DISH</p> <p>Individual is bone-former: Severe expression of enthesal changes and some ossification of cartilage. Observed in: acromiale, proximal humeri, distal humeri, proximal ulnae, radial notches, proximal metacarpals, iliac crests, greater and lesser trochanters, posterior shafts of femora, posterior distal femora above medial epicondyle, anterior aspect of patellae, tibial tuberosity, distal fibulae, posterior aspect of calcanei (Achilles), proximal fifth metatarsals.</p> <p>Macroporosity inside of right acetabulum along superior rim. Contour changes inside left acetabulum on superior lunate surface. Ossification of cartilage in centre of acetabulum – DJC. Cribra orbitalia (stage 1).</p> <p>Slight sinusitis.</p> <p>Possible rickets.</p>															
Dental Health		21 teeth present, 31 tooth positions, 8 teeth lost ante-mortem, 2 teeth lost post-mortem, 7/21 teeth with flecks to medium calculus, 4/21 teeth with DEH, 9/21 teeth with caries.															
	Right Dentition								Left Dentition								
Present	PM	AM	AM	P	PM	P	P	P	P	P	P	AM	AM	AM	P	NP	
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Sbd	-	
DEH	-	-	-	-	-	G	-	-	-	-	G	-	-	-	-	-	
Caries	-	-	-	-	-	Sdm	Sd	-	Ld	Mm	-	-	-	-	-	-	
Wear	-	-	-	6	-	6	6	6	6	6	6	-	-	-	5	-	
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present	P	P	P	P	P	P	P	AM	AM	P	P	P	P	P	P	AM	
Calculus	-	Sl	Ml	Ml	Flb	Fd	-	-	-	-	-	-	-	Mlb	-	-	
DEH	-	-	-	L	-	-	-	-	-	-	-	-	L	-	-	-	
Caries	Lb	Lb	-	-	-	-	-	-	-	Md	SmLd	Mm	-	-	-	-	
Wear	4	4	5	4	4	6	8	-	-	7	6	5	5	5	8	-	

Skeleton Number	SK 13173/ BN 197b - only legs; likely belong to upper body BN 198
Preservation	3
Completeness	20% - R leg, L lower leg, no feet
Age	Adult, 18+
Sex	Unsexed
Stature	-

Non-Metric Traits	<i>Exostosis in Trochanteric Fossa (right)</i>
Pathology	Lamellar striae on the lateral midshaft of the tibiae. Enthesial changes on proximal shaft of right femur.
Dental Health	-

Skeleton Number	SK 13152/ BN 198 - the legs excavated as BN 197b likely belong to the same individual
Preservation	3
Completeness	60% - legs missing, clavicles missing
Age	Young Middle Adult; 26-35
Sex	Probable Male
Stature	-
Non-Metric Traits	<i>Parietal Foramen (bilateral); Mastoid Foramen Extrasutural (left)</i>
Pathology	Hypervascularity on orbital ridges. Schmorl's nodes on T5, T7-L4. Cranial border shift of lumbar-thoracic border. Spondylolysis on L5 – inferior right lamina separated (unilaterally). DJC in right mandible, distal left humerus. Slight porosity inside acetabuli bilaterally. Located on superior half of lunate surface - DJC. Slight eburnation on right mandibular condyle and in left distal humerus. - OA Slight sinusitis in right sinus. Enthesial changes on both proximal anterior ulnae. Muscle excavation at site of <i>M.teres major</i> on anteromedial aspect of left humerus.
Dental Health	29 teeth present, 31 tooth positions, 2 teeth lost ante-mortem, 15/29 teeth with flecks to medium calculus, 3/29 teeth with DEH, 3/29 teeth with caries. Healed abscess site at socket of mandibular right central incisor. Slight periodontal disease.

	Right Dentition								Left Dentition							
Present	P	P	-	P	P	P	P	P	P	P	P	P	P	AM	P	P
Calculus	Fd	-	-	Fb	Fb	Fb	-	-	-	-	-	Sm	Sm	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	L	-	-	-	-	-
Caries	-	Md	-	Md	-	-	-	-	-	-	-	-	-	-	-	-
Wear	3	3	-	5	4	4	5	6	5	4	3	3	4	-	3	3
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	AM	P	P	P	P	P	P	P	P
Calculus	MI	SI	FI	Fmd	-	Fb	-	-	-	-	-	Fd	-	FI	SI	FI
DEH	-	-	-	-	-	L	-	-	-	-	L	-	-	-	-	-
Caries	-	-	Md	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	3	3	5	4	3	5	5	-	5	5	4	4	4	4	3	4

Skeleton Number	SK 13199/ BN 199															
Preservation	5															
Completeness	10% - cranial frags, cortical long bone frags															
Age	Younger Juvenile; 3-4															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	5 permanent teeth unerupted, 10 deciduous teeth present, no tooth positions, 1/5 permanent teeth with DEH.															
	Right Dentition								Left Dentition							
Present	-	-	U	-	-	U	U	U	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	L	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	1	1	1	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	U	-	-	-	-	-	-	-	U	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
	Deciduous Right Dentition								Deciduous Left Dentition							
Present	-	-	P	-	-	B	-	-	-	-	P	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	2	-	-	-	-	-	-	-	2	-	-	-	-	-
Maxilla	e	d	c	b	a	a	b	c	a	b	c	d	e	d	e	e
Mandible	e	d	c	b	a	a	b	c	a	b	c	d	e	d	e	e
Present	P	P	-	-	P	P	-	P	P	-	P	P	P	P	P	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	2	-	-	3	3	-	3	3	-	3	2	2	2	2	2

Skeleton Number	SK 12474/ BN 201															
Preservation	3															
Completeness	30% - cranial frags, R mandible, rib frags, L distal humerus, L ulna, L radius shaft, R femur, L femur frags, prox tibiae, L fibula shaft															
Age	Younger Juvenile; c. 3															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	Shaft of right femur with exaggerated anterior bowing and lateral torsion of the distal half of the shaft. Right tibia has exaggerated lip/bowing on lateral aspect of proximal diaphyseal end - rickets.															
Dental Health	16 permanent teeth unerupted, 16 deciduous teeth present, 3 deciduous tooth positions, 15/16 permanent teeth with DEH, 3/16 deciduous teeth with DEH, 5/16 teeth affected by calculus.															
	Right Dentition								Left Dentition							
Present	-	U	U	-	U	U	U	-	U	U	U	-	U	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	L	-	L	L	L	-	L	L	L	-	L	L	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	1	1	-	1	1	1	-	1	1	1	-	1	1	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	U	U	-	-	-	U	U	-	U	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	L	L	-	-	-	L	L	-	L	-	-	L	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	1	-	-	-	1	1	-	1	-	-	1	-	-
	Deciduous Right Dentition							Deciduous Left Dentition								
Present	P	P	P	P	-	-	-	-	P	P	P	P	-	-	-	-
Calculus	Sl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fl
DEH	-	-	G	-	-	-	-	-	-	G	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	3	2	3	-	-	-	-	3	2	2	2	1	-	-	-
Maxilla	e	d	c	b	a	-	-	a	b	c	d	e	-	-	-	-
Mandible	e	d	c	b	a	-	-	a	b	c	d	e	-	-	-	-
Present	P	P	P	-	-	-	-	P	P	P	P	P	-	-	-	-

Calculus	Fl	Fbl	-	-	-	-	-	-	-	Fld
DEH	-	-	-	-	-	-	-	G	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	2	2	2	-	-	3	2	2	2	1

Skeleton Number	SK 12698/ BN 202															
Preservation	5															
Completeness	30% - cranial frags, anterior mandible, R distal clavicle shaft, scapulae frags, humeri shafts, ulnae, radii shafts, femora shafts, tibiae shafts, fibulae shafts, tali frags, R calcaneus, metatarsal frags Bag included disarticulated adult remains which possibly belong to BN 195 or 203 - recorded as disarticulated.															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	Small endocranial lesion (pitted greyish new bone layer) along posterior half of sagittal suture.															
Dental Health	26 teeth present, no tooth positions, 2/26 teeth with DEH, 4/26 teeth affected by flecks to slight calculus, 26 loose teeth.															
	Right Dentition								Left Dentition							
Present	P	P	P	P	P	P	P	-	P	P	P	P	P	P	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	Fb	Sb	Fb	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	1	3	2	2	3	2	-	4	2	3	2	2	5	2	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	-	P	P	P	-	-	P	P	P	P	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fl	-
DEH	-	-	P	-	-	-	-	-	-	-	-	-	-	P	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	2	4	1	-	3	3	4	-	-	3	1	2	4	1	-

Skeleton Number	SK 12833/ BN 205 - likely is the same individual as BN 206, but recorded separately
Preservation	4
Completeness	<10% - skull frags, tibiae mid-shafts
Age	Younger Juvenile; c. 4

Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	Cribra orbitalia (stage 2) in left orbit.															
Dental Health	15 permanent teeth unerupted, 15 deciduous teeth present, 3 deciduous tooth positions, 13 deciduous teeth loose, 4/5 permanent teeth with DEH.															
	Right Dentition								Left Dentition							
Present	-	-	U	-	U	U	U	U	U	-	-	U	U	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	L	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	1	1	1	1	1	-	-	1	1	1	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	U	U	-	U	U	-	U	-	U	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	-	-	-	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	1	1	-	1	1	-	1	-	1	-	-	-
	Deciduous Right Dentition							Deciduous Left Dentition								
Present	P	P	P	P	P		P	P	P	P	P					
Calculus	-	-	-	-	-		-	-	-	-	-					
DEH	-	-	-	-	-		-	-	-	-	-					
Caries	-	-	-	-	-		-	-	-	-	-					
Wear	2	2	2	2	3		3	2	2	2	2					
Maxilla	e	d	c	b	a		a	b	c	d	e					
Mandible	e	d	c	b	a		a	b	c	d	e					
Present	P	P	-	P	-		-	P	P	-	-					
Calculus	-	-	-	-	-		-	-	-	-	-					
DEH	-	-	-	-	-		-	-	-	-	-					
Caries	-	-	-	-	-		-	-	-	-	-					
Wear	3	2	-	2	-		-	2	2	-	-					

Skeleton Number	SK 12856/ BN 206 – likely is the same individual as BN 205
Preservation	4
Completeness	<5% (1%) – cortical long bone frag

Age	Undetermined
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 13111/ BN 208
Preservation	2
Completeness	50% - legs missing, partial pelvis missing, sacrum missing, lumbar spine missing, L lower arm and hand missing, sternum missing
Age	Old Middle Adult; 36-45
Sex	Male
Stature	170.9 +/- 4.05cm
Non-Metric Traits	<i>Parietal Foramen (left); Mastoid Foramen Extrasutural (right); Posterior Condylar Canal Open (bilateral); Precondylar Tubercle; Double Anterior Condylar Canal (bilateral); Open Foramen Spinosum (left); Accessory Supraorbital Foramen (bilateral)</i>
Pathology	Hypervascularity on supraorbital ridges and ectocranial skull surface. Enthesal changes at costoclavicular ligament on right clavicle. Macroporosity on the right humeral head (one at attachment site for subscapularis and at supraspinatus attachment site). - Bone excavations Eburnation on head of right humerus - OA. Slight marginal osteophytes on most apophyseal facets and rib heads. DJC in humeri, radii, right ulna, right hand, in cervical and thoracic spine. Pitting and bony spikes on palate - inflammation. Lesion on superior margin of right acetabulum. Cribra orbitalia (stage2-3) in both orbits. Slight sinusitis.
Dental Health	30 teeth present, 28 tooth positions, 1 tooth lost ante-mortem, 1/30 teeth with DEH, 10/30 teeth affected by flecks to slight calculus, 3 loose teeth. Slight to medium periodontal disease.

	Right Dentition								Left Dentition							
Present	P	P	-	P	P	P	P	P	P	P	P	P	P	AM	P	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fb	Sbdl
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	4	6	-	6	6	6	6	6	6	6	6	6	7	-	6	4
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

Calculus	Fl	-	Sb	-	Fb	-	-	-	-	-	Fl	-	Fb	Fl	Fb	Fl
DEH	-	-	-	-	-	-	-	-	-	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	5	6	7	5	6	6	6	8	8	6	5	6	5	7	5	5

Skeleton Number	SK 13080/ BN 209															
Preservation	3															
Completeness	95% - mostly complete															
Age	Young Middle Adult; 26-35															
Sex	Female															
Stature	156.9 +/- 3.55cm															
Non-Metric Traits	<i>Ossicle in Lambdoid (bilateral); Parietal Foramen (bilateral); Ossicle at Pterion (left); Sutural Mastoid Foramen (bilateral); Posterior Condylar Canal Open (bilateral); Accessory Lesser Palatine Foramen (bilateral); Bridging of Supraorbital Notch (left); Anterior Ethmoid Foramen Extrasutural (bilateral); Double Inferior Talar Facet (left)</i>															
Pathology	<p>Slight eburnation on apophyseal facets of C2-C5 and T10-T12 - OA.</p> <p>Entheseal changes on superior anterolateral aspect of both clavicles, on both proximal ulnae (olecranon process) and on posterior aspect of proximal femora.</p> <p>Lamellar bone on distal left humerus on anterior aspect.</p> <p>Woven bone on the distal anterior shaft of the right radius.</p> <p>Manubrium and sternum have fused together, xyphoid process has started to ossify.</p> <p>Woven bone on visceral surface of 7th or 8th rib and 4th or 5th, several layers atop each other. Similar woven bone on other ribs likely have come off before analysis as marks remain on cortex - periosteal reaction.</p> <p>Woven bone on lateral aspect of proximal midshaft of right tibia. Lamellar bone on entire lateral aspect and complete midshaft.</p> <p>Woven bone on anterior crest of distal and mid-shaft of left tibia.</p> <p>Woven bone pattern may suggest hypertrophic pulmonary osteoarthropathy.</p> <p>DJC on all observable rib tubercles, in humeri, radii, femora, tibiae, right fibula.</p> <p>Six vertebrae in sacrum, S5+S6 are bifid.</p> <p>Cribralia orbitalia bilaterally (stage 1).</p> <p>Sinusitis in left sinus.</p>															
Dental Health	<p>28 teeth present, 32 tooth positions, 2 teeth lost post-mortem, 23/28 teeth affected by flecks to medium calculus, 9/28 teeth with caries, 2 teeth fragmentary.</p> <p>Slight to considerable periodontal disease.</p> <p>Small peri-apical abscess at right maxillary first molar.</p> <p>Third maxillary right molar has several extra cusps.</p>															
	Right Dentition								Left Dentition							
Present	P	P	B	PM	P	P	P	P	P	P	P	P	P	B	P	P
Calculus	Fd	Flb	-	-	-	-	Sb	Sb	Sb	Sd	Fm	-	Fb	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	Lb	Md	Lo	-	-	-	-	-	-	-	-	-	Md	Lo	MdLm	Mm

Wear	1	2	-	-	3	3	4	5	5	4	3	3	3	-	4	2
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	PM	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	-	Fdb	MI	MI	Slb	Slb	Slb	Slb	Slb	Slb	Slb	Slb	Sl	MI	Sl	Fdl
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Sb	Lb
Wear	-	3	4	4	3	3	5	5	5	5	3	3	4	4	4	2

Skeleton Number	SK 13340/ BN 213															
Preservation	4															
Completeness	90% - mostly complete															
Age	Old Middle Adult; 36-45															
Sex	Female															
Stature	153.2 +/- 3.66cm															
Non-Metric Traits	<i>Sutural Mastoid Foramen (bilateral); Precondylar Tubercle; Accessory Supraorbital Foramen (left); Exostosis in Trochanteric Fossa (bilateral); Lateral Tibial Squatting Facet (bilateral); Os Trigonum (left)</i>															
Pathology	<p>Enthesal changes at medial aspect of proximal radius, bilaterally. Slight ossification of interosseous membrane in left radius and on lateral rim of left ulna.</p> <p>Pronounced margin on inferior aspect of distal right first metacarpal. Mirrored in left side. – unknown cause.</p> <p>Sacroiliac joint surfaces are highly irregular with ossification at sacroiliac ligament – sacroiliitis</p> <p>Marginal osteophytes laterally of the superior apophyseal facets of S1.</p> <p>DJC in right hand, fibulae, tarsals.</p> <p>On both proximal femora, the intertrochanteric line is exceedingly pronounced by ossification.</p> <p>Enthesal changes on both posterior femoral shafts, on proximal posterior tibiae along the line of the <i>soleus</i> and at the tibial tuberosity.</p> <p>Lamellar striae on both femoral shafts.</p>															
Dental Health	<p>27 teeth present, 20 tooth positions, 1 tooth lost post-mortem, 25/27 teeth affected by flecks to medium calculus, 2/27 teeth with caries, 5/ 27 teeth with DEH, 6 loose teeth.</p> <p>Slight periodontal disease.</p> <p>Left third mandibular molar impacted half way/ erupting late.</p>															
	Right Dentition								Left Dentition							
Present	P	P	P	P	P	P	-	-	P	P	P	P	P	P	P	PM
Calculus	Sd	SIMb	SIMb	Fb	Fb	Fb	-	-	-	-	Sb	Sb	Sb	Sbl	Sb	-
DEH	-	-	-	-	-	-	-	-	L	-	L	L	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	Ld	Sd	-	-
Wear	3	5	7	6	6	5	-	-	6	5	5	5	6	7	5	-

Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	-	P	P	P	P	P	P	P	E
Calculus	Sa	Slb	Sl	Sl	Sl	Sl	MI	-	MI	Mlb	Mlb	MI	MI	Mlb	Mld	-
DEH	-	-	-	-	-	L	-	-	-	-	-	-	-	-	L	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	3	4	6	4	5	5	5	-	6	5	5	5	6	6	5	-

Skeleton Number		SK 13178 / BN 215														
Preservation		5+														
Completeness		< 5% - only dentition														
Age		Non-Adult; 4+														
Sex		-														
Stature		-														
Non-Metric Traits		-														
Pathology		-														
Dental Health		2 teeth present, no tooth positions, 2 teeth loose.														
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	P	P	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-

Skeleton Number		SK 12763 / BN 216														
Preservation		3														
Completeness		< 5% - R distal tibia frag														
Age		Adult, 18+														
Sex		Unsexed														
Stature		-														
Non-Metric Traits		-														

Pathology	-															
Dental Health	4 teeth present, no tooth positions, 2 teeth loose, 2/4 teeth affected by flecks of calculus.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	P	-	-	-	-	P	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	Fl	-	-	Fd
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	4	-	-	-	-	4	-	-	2
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-

Skeleton Number	SK 13194/ BN 219															
Preservation	5															
Completeness	5% - cranial frags, one unidentified long bone frag															
Age	Younger Juvenile, 3-4															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	10 permanent teeth unerupted, 6 deciduous teeth present, no tooth positions.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	U	-	U	U	U	-	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	1	-	1	1	1	-	-	-	1	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	U	U	U	-	U	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	1	1	1	-	1	-	-	-	-	-	-

	Deciduous Right Dentition					Deciduous Left Dentition				
Present	P	P	-	-	-	-	-	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	2	2	-	-	-	-	-	-	-	2
Maxilla	e	d	c	b	a	a	b	c	d	e
Mandible	e	d	c	b	a	a	b	c	d	e
Present	P	P	-	-	-	-	-	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	2	2	-	-	-	-	-	-	-	2

Skeleton Number	SK 13344 / BN 222
Preservation	5
Completeness	< 5% - R femur shaft, R tibia shaft, scapula frag
Age	Infant; 1-12 mths
Sex	-
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 13060/ BN 229a
Preservation	3
Completeness	20% - cranial frags, rib frags, L distal humerus, L distal radius, L ulna mid-shaft frag, L femur shaft, L tibia shaft, fibula shaft frags
Age	Foetus/Neonate; 36-40 weeks
Sex	-
Stature	-
Non-Metric Traits	-
Pathology	Woven bone on endocranial skull surface of the parietals. These progress from centre outward to margin in irregular lines. A few islands of grey woven bone are interspersed with the grooves; multi-layered woven bone - meningitis or birth trauma? Small island of grey woven bone on ectocranial frontal bone - birth trauma?

Dental Health	-
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Skeleton Number	SK 13079/ BN 229b																
Preservation	5																
Completeness	35% - cranial frags, humerus shaft frags, femora mid-shaft frags, L tibia, R tibia, L talus, L calcaneus																
Age	Adolescent; 12-14																
Sex	-																
Stature	-																
Non-Metric Traits	-																
Pathology	-																
Dental Health	27 permanent teeth present, 2 teeth erupting, 9 tooth positions, 4/29 teeth with DEH, 20 loose teeth.																
	Right Dentition								Left Dentition								
Present	E	P	P	P	P	P	P	-	-	P	P	P	P	P	P	P	E
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	2	3	2	2	2	1	-	-	1	1	1	1	2	1	1	
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present	E	P	P	P	P	P	P	P	-	P	P	P	P	P	P	P	E
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	L	-	-	-	L	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	1	2	3	2	1	3	3	2	-	2	3	2	2	2	2	2	1

Skeleton Number	SK 13188/ BN 231																
Preservation	4																
Completeness	50% - cranial frags, rib frags, R medial clavicle, L lateral clavicle, scapulae, humeri, ulnae, radii, R ilium, R femur, L femur shaft frags, R tibia shaft, R fibula																
Age	Younger Juvenile; 3-4																
Sex	-																
Stature	-																
Non-Metric Traits	-																
Pathology	<p>Proximal half of the right ulna deviates severely in anteromedial direction – rickets.</p> <p>Woven bone on visceral fragment of a rib, likely central. Light grey and patchy, covering entire surface.</p> <p>Midshaft of right humerus appears elongated in anteroposterior direction.</p>																

Dental Health			15 permanent teeth unerupted, 11 deciduous teeth present, no tooth positions, 9/15 permanent teeth with DEH.													
	Right Dentition								Left Dentition							
Present	-	-	U	-	-	U	-	U	-	U	U	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	L	-	-	L	-	-	-	L	L	-	-	L	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	1	-	1	-	1	1	-	-	1	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	U	U	U	U	U	-	-	-	U	U	U	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	L	-	-	L	-	-	-	-	L	-	-	L	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	1	1	1	1	-	-	-	1	1	1	1	-	-
	Deciduous Right Dentition							Deciduous Left Dentition								
Present	P	-	P	-	-	-	-	-	-	-	-	-	-	P	-	
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	2	-	3	-	-	-	-	-	-	-	-	-	-	3	-	
Maxilla	e	d	c	b	a	a	b	c	d	e	a	b	c	d	e	
Mandible	e	d	c	b	a	a	b	c	d	e	a	b	c	d	e	
Present	P	P	P	P	-	-	-	-	P	P	P	P	P	P	P	
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wear	2	2	2	2	-	-	-	-	2	2	2	2	2	2	2	

Skeleton Number	SK 13165/ BN 234
Preservation	3
Completeness	60% - rib frags, thoracic spine frags, lumbar spine frags, prox sacrum, partial pelvis, legs, no feet, R humerus prox shaft, L distal humerus, distal R ulna and radius, R hand, L distal radius
Age	Mature Adult; 46+
Sex	Male

Stature	162.8 +/- 3.27cm
Non-Metric Traits	<i>Plaque (bilateral)</i>
Pathology	Substantial marginal osteophytes around present vertebral bodies – DJC. L5 body may have been fused to S1 at inferior margin, which demonstratively has osteophyte formation along the left antero-lateral rim. – DISH? Slight DJC in rims of most observable joint surfaces. Contour change on right proximal femur (head) – DJC. Eburnation on proximal femora and distal left femur – OA. Schmorl's Nodes on three available thoracic vertebrae. Osteophytes at both acetabuli.- DJC. Exaggerated posterior bowing in distal right ulna shaft. Lamellar striae on midshaft fragments of right tibia, most pronounced along medial surface.
Dental Health	-

Skeleton Number	SK 13274/ BN 235															
Preservation	3															
Completeness	80% - almost complete, hands missing, feet missing, partial pelvis missing, sacrum missing, lumbar spine missing, sternum missing															
Age	Younger Juvenile; 3-5															
Sex	-															
Stature	-															
Non-Metric Traits	-															
Pathology	Trabecular structure and slight protrusion from the normal orbital roof surface, new bone formation – possible scurvy Greyish fine woven bone around right lingula and around area of unerupted right mandibular second molar. Greyish woven bone on inferior surface of pars basilaris – possibly indicative if scurvy. Porous layer of new bone on ectocranial surface of left temporal bone, superiorly of auditory meatus. Lamellar striae on external surface of 3 central left ribs.															
Dental Health	6 permanent teeth unerupted, 19 deciduous teeth present, 20 deciduous tooth positions.															
	Right Dentition								Left Dentition							
Present	-	-	U	-	-	-	-	-	U	-	-	-	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	-	-	-	1	-	-	-	-	1	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	U	-	-	-	-	U	-	-	-	-	-	U	-	-

Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	-	-	-	1	-	-	-	-	-	1	-	-
	Deciduous Right Dentition								Deciduous Left Dentition							
Present	P	P	P	P	P				PM	P	P	P	P			
Calculus	-	-	-	-	-				-	-	-	-	-	-	-	-
DEH	-	-	-	-	-				-	-	-	-	-	-	-	-
Caries	-	-	-	-	-				-	-	-	-	-	-	-	-
Wear	1	3	3	3	3				-	3	3	3	3	1		
Maxilla	e	d	c	b	a				a	b	c	d	e			
Mandible	e	d	c	b	a				a	b	c	d	e			
Present	P	P	P	P	P				P	P	P	P	P			
Calculus	-	-	-	-	-				-	-	-	-	-	-	-	-
DEH	-	-	-	-	-				-	-	-	-	-	-	-	-
Caries	-	-	-	-	-				-	-	-	-	-	-	-	-
Wear	1	3	2	3	3				3	3	2	3	1			

Skeleton Number	SK 13076/ BN 237a - likely part of BN 238, but treated separately.															
Preservation	4															
Completeness	35% - cranial frags, mandible frags, rib frags, R pelvis, prox sacrum, L distal radius, humeri shaft frags, tibiae, R talus, R calcaneus															
Age	Old Middle Adult/Mature Adult; 36+															
Sex	Probable Female															
Stature	-															
Non-Metric Traits	-															
Pathology	DJC in right proximal tibia, left distal tibia, right tarsals															
Dental Health	4 teeth present, 10 tooth positions, 6 teeth lost post-mortem, 3/4 teeth affected by flecks to slight calculus, 1/4 teeth with DEH, 1 tooth not present, 1 loose tooth. Slight periodontal disease.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	NP	P	PM	PM	P	P	-	-	-	-	-	PM	PM	P	PM	PM
Calculus	-	Fa	-	-	Sb	Sb	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	6	-	-	5	7	-	-	-	-	-	-	-	6	-	-

Skeleton Number	SK 13104/ BN 237b															
Preservation	3															
Completeness	95% - mostly complete, hands missing															
Age	Young Middle Adult; 26-35															
Sex	Female															
Stature	155.6 +/- 3.72cm															
Non-Metric Traits	<i>Sutural Mastoid Foramen (left); Bridging of Supraorbital Notch (left); Accessory Infraorbital Foramen (bilateral); Medial Tibial Squatting Facet (right); Lateral Tibial Squatting Facet (right); Double Anterior Calcaneal Facet (left); Double inferior Talar Facet (left)</i>															
Pathology	<p>Head of first left rib exhibits osteophytes, slight porosity and eburnation – OA. Very slight eburnation on right superior proximal head of right femur – OA.</p> <p>Lamellar striae on right medial and posterior aspects of right and left tibial shafts.</p> <p>Distinct, lamellar bone on medial aspect of right fibula, along entire shaft but slightly patchy.</p> <p>DJC in right clavicle, distal humeri, proximal ulnae, femora.</p> <p>Cribr orbitalia bilaterally (stage 2-3).</p> <p>Sinusitis in both sinuses.</p>															
Dental Health	<p>30 teeth present, 30 tooth positions, 18/30 teeth affected by flecks to medium calculus, 8/30 teeth with DEH, 2 teeth not present.</p> <p>Slight periodontal disease.</p>															
	Right Dentition								Left Dentition							
Present	NP	P	P	P	P	P	P	P	P	P	P	P	P	P	P	NP
Calculus	-	Sb	Fa	Fbm	Sb	Fb	Fb	-	-	-	-	-	-	Fa	Sa	-
DEH	-	L	-	L	-	-	L	-	-	L	-	-	L	L	L	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	3	4	2	2	3	3	4	4	3	3	4	4	5	3	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	Sl	MI	Fbl	Sbl	-	-	Fl	Fl	Sb	Sb	Fb	Fa	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	L	L	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wear	3	3	4	2	2	3	4	4	4	3	3	3	3	4	4	3
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Skeleton Number	SK 13132/ BN 238 - most likely is same individual as BN 237a, but treated separately.
Preservation	5
Completeness	10% - R lateral scapula, R distal humerus, R ulna, R radius
Age	Adult, 18+
Sex	Unsexed
Stature	-
Non-Metric Traits	-
Pathology	-
Dental Health	-

Skeleton Number	SK 13135/ BN 239
Preservation	3
Completeness	95% - mostly complete, partial skull missing
Age	Old Middle Adult; 36-45
Sex	Female
Stature	155.2 +/- 3.95cm
Non-Metric Traits	<i>Ossicle at Parietal Notch (left); Mastoid Foramen Extrasutural (left) Absent Zygomaticofacial Foramen (left); Plaque (left); Vastus Notch (left)</i>
Pathology	<p>Hypervascularity on ectocranial skull, superior of nuchal crest.</p> <p>On both humeral heads, there is porosity at attachment site for subscapularis muscle – enthesal changes.</p> <p>Paravertebral osteophytes on L4 and L5, and marginal osteophytes around apophyseal facets.</p> <p>DJC in spine, clavicles, humeri, radii, ulnae, hands, femora.</p> <p>Porosity and eburnation on joint surface of both first ribs – OA.</p> <p>Well healed fracture at mid-11th rib – trauma.</p> <p>Lamellar striae at anteroinferior margin of right humeral neck. Well integrated into cortical bone.</p>
Dental Health	<p>16 teeth present, 6 tooth positions, 2 teeth lost ante-mortem, 10/16 teeth affected by slight to medium calculus, 3/16 teeth with caries, 1 tooth not present, 13 loose teeth.</p> <p>One abscess at left mandibular first molar, likely second abscess in left mandibular second molar socket.</p>

	Right Dentition								Left Dentition							
Present	-	-	-	-	P	P	P	P	P	P	-	-	P	P	P	-
Calculus	-	-	-	-	-	-	-	Sb	Sb	Sb	-	-	Sb	Hb	Hbl	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	Ll	-	-	-	-	-	-	-	-	-	Md	-
Wear	-	-	-	-	4	4	4	4	4	4	-	-	4	6	6	-

Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	-	-	-	P	P	P	P	P	AM	AM	P	P	NP
Calculus	-	-	-	-	-	-	-	-	-	Mbl	Sbl	-	-	Mblm	Sa	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	Ld	-	-
Wear	-	-	-	-	-	-	7	8	8	5	4	-	-	4	3	-

Skeleton Number		SK 13181/ BN 240														
Preservation		5														
Completeness		5% - two cranial frags, lower leg long bone frags														
Age		Younger Juvenile; 4-5														
Sex		-														
Stature		-														
Non-Metric Traits		-														
Pathology		No pathology observed														
Dental Health		17 deciduous teeth present, 19 permanent teeth present, no tooth positions, all teeth loose, 7/19 permanent teeth with DEH.														
	Right Dentition								Left Dentition							
Present	-	-	U	-	U	U	-	U	-	U	-	U	-	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	L	-	-	-	-	L	-	L	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	1	-	1	1	-	1	-	1	-	1	-	1	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	U	U	U	U	U	U	U	U	U	U	U	U	U	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	L	-	-	-	-	L	L	-	-	-	-	L	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-
	Deciduous Right Dentition								Deciduous Left Dentition							
Present	P	P	P	P	P	P	P	P	P	P	P	-	-	P	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	2	2	3	2	3	3	3	3	3	2	3	-	-	2	-	-

Maxilla	e	d	c	b	a	a	b	c	d	e
Mandible	e	d	c	b	a	a	b	c	d	e
Present	P	P	P	-	-	P	P	P	P	P
Calculus	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-
Wear	3	2	2	-	-	2	2	2	2	3

Skeleton Number	SK 13095/ BN 242															
Preservation	2															
Completeness	5% - anterior and R mandible, L distal radius shaft, partial L hand															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	6 teeth present, 6 tooth positions, 2 teeth lost post-mortem, 1 tooth lost ante-mortem, 1/6 teeth affected by flecks of calculus, 1/6 teeth with DEH, 3 loose teeth. Periodontal disease, but AMTL. Abscess at right maxillary first premolar socket, almost healed.															
	Right Dentition								Left Dentition							
Present	-	P	P	P	AM	PM	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	Fdb	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	5	7	5	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	-	P	P	P	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	6	6	6	-	-	-	-	-	-	-	-	-	-

Skeleton Number	SK 12310/ BN 244
Preservation	3
Completeness	25% - cranial frags, R mandible, R tibia, fibulae, partial feet

Age	Young Middle Adult; 26-35															
Sex	Probable Male															
Stature	-															
Non-Metric Traits	-															
Pathology	Slight lamellar bone on articular eminence of right temporal bone. Ossification at the right distal fibula and right distal tibia at the location of the interosseous membrane/ligament. Possibly myositis ossificans traumatica. DJC in distal right tibia, distal fibulae, right tarsals.															
Dental Health	7 teeth present, 8 tooth positions, 7/7 teeth affected by flecks of calculus, 1 tooth not present. Slight periodontal disease.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	NP	P	P	P	P	P	P	P	-	-	-	-	-	-	-	-
Calculus	-	Fa	Fa	Fa	Fa	Fa	Fa	Fa	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	5	6	4	4	4	4	4	-	-	-	-	-	-	-	-

Skeleton Number	12803 / BN 254															
Preservation	5															
Completeness	5% - cranial frags															
Age	Young Adult; 18-25															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	<i>Metopic Suture</i>															
Pathology	-															
Dental Health	14 teeth present, 6 tooth positions, 8 teeth loose, 2/14 teeth affected by flecks of calculus, 2/14 teeth with DEH P* - teeth from BN 171, which match the dentition of SK 12803/ BN 254 and have thus been recorded here															
	Right Dentition								Left Dentition							
Present	-	P*	-	P*	-	P*	-	-	P	P	P	P	P	P	P	-

Calculus	-	-	-	-	-	-	-	-	-	-	-	Fb	Fb	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	L	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	1	-	3	-	2	-	-	2	2	2	1	1	3	1	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	-	P*	-	-	-	-	P*	-	-	-	-	P*	P*	-	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	3	-	-	-	-	2	-	-	-	-	1	3	-	-

Skeleton Number	SK 12609/ BN 255															
Preservation	5															
Completeness	<5% - cranial frags															
Age	Adult, 18+															
Sex	Unsexed															
Stature	-															
Non-Metric Traits	-															
Pathology	-															
Dental Health	5 teeth present, no tooth positions, 5 loose teeth, 2/5 teeth affected by flecks of calculus. One extra peg-tooth of unknown location present and 4 undiagnostic enamel fragments.															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	P
Calculus	-	-	-	-	-	-	-	-	-	-	Fb	-	-	-	-	Fb
DEH	-	-	-	-	-	-	-	-	-	-	L	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	3
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	P	-	-	-	-	-	-	-	-	-	-	-	-	P	-
Calculus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	-	3	-	-	-	-	-	-	-	-	-	-	-	-	3	-

Key: SP = Surface preservation: grades 0 (excellent), 1 (very good), 2 (good), 3 (moderate), 4 (poor), 5 (very poor), 5+ (extremely poor) after McKinley (2004a); C = Completeness; F = Fragmentation: min (minimal), sli (slight), mod (moderate), sev (severe), ext (extreme)

Non-adult age categories: f (foetus, <38 weeks *in utero*), p (perinate, c. birth), n (neonate, 0-1m), i (infant, 1-12m), j (juvenile, 1-12y), ad (adolescent 13-17y)

Adult age categories: ya (young adult, 18-25y), yma (young middle adult, 26-35y), oma (old middle adult, 36-45y), ma (mature adult, 46+y), a (adult, 18+y)

R – Right; L – Left; DJC – degenerative joint changes; OA - osteoarthritis

Present - Tooth presence; am - ante-mortem tooth loss; pm - post-mortem tooth loss; p - tooth present; - - jaw not present; frag – only fragment of crown present; b – broken post-mortem (taphonomic); imp – tooth impacted; pu – pulp only as a result of large caries

Caries - Calculus; F - flecks of calculus; S - slight calculus; M - moderate calculus; H - heavy calculus; a - all surfaces; b - buccal surface; d - distal surface; m - mesial surface; l - lingual surface; o - occlusal surface

DEH - dental enamel hypoplasia; l - lines; g - grooves; p - pits

Caries - caries; s - small lesions; m - moderate lesions; l - large lesions

Wear - dental wear; numbers from 1-8 - slight to severe wear

Appendix B: Osteological and Palaeopathological Catalogue – Disarticulated Bone

Context	Bone Element	Bone	Side	% of Bone	SP	No of Frag	Age	Sex	Other
12698 BN202	Fibula	Shaft fragments	-	10.00%	4	5	A	-	Cortical fragments.
12724 BN 235	Sacrum	S1-S5 posterior arches, S3-S5 bodies and coccyx and coccyxgeal vertebrae CO1-C03	-	70.00%	2	4	ADO/YA	-	Side and posterior arches fully fused. Does not belong to SK 13274 because this is a young juvenile of 4 years.
13098AA BN 208	Burnt bone fragments	Undiagnostic	-			20	-	-	Ca 1.8-2gr
13112AB BN 208	Burnt bone fragments	Undiagnostic	-			3	-	-	
13112AB BN 208	Burnt bone fragments	Undiagnostic	-			3	-	-	
13024AB	Tooth	Deciduous right maxillary second molar	R	60.00%	3	1	J	-	No caries, DEH, calculus or wear.
13024AB	Tooth	R deciduous maxillary first molar	R	60.00%	3	1	J	-	No caries, DEH, calculus or wear.
13270 BN 9	Enamel chips	Human or other animal		5.00%	2	53	-	-	Impossible to tell if human.
12861 BN 144	Distal Femur	Anterior part of distal articular facet	L	5.00%	4	2	A	-	
12861 BN 144	Long bone	Generic cortical fragments	-	5.00%	4	26	A	-	
12861 BN 144	Femur	Cortical femur fragments	-	5.00%	3	2	A	-	
12861 BN 144	Rib	Vertebral end of rib- no head	L	5.00%	3	1	A	-	
12861 BN 144	Mandible	Right half, no coronoid/mandibular condyle	R	40.00%	3	1	A	M	RM3 Calc Fa Wear 4; RM2 Calc Fa Wear 4; RM1 Calc Fa Wear 5; RP2, RP1 and RC1 lost PM.

12861 BN 144	Mandible and Maxilla	Left half of mandible and small fragment of R maxilla	R and L	40.00%	3	3	A	M	R12 Wear 4; R1 Wear 4; L1 and L2 lost PM. LC1 Calc Fld Wear 4; LP1 DEH L Wear 4; LP2 root; LM1 Calc RI Wear 4; LM2 Calc Fmld Wear 4; LM3 Calc Fmd Wear 3.
12861 BN 144	Maxilla fragment and dentition	Maxilla fragment and 6 teeth	R	10.00%	3	7	A	-	RM3 Wear 3; RM2 Calc Fb Caries Mm Wear 5; RP2 Wear 4; RC1 Wear 4; R12 Wear 4; R11 DEH L Wear 4
12422AA BN 113a	Shaft fragment- cortical bone	Tibia		5.00%	4	2	A	-	
12422AA BN 113a		Generic long bone cortical fragments- non specific		1.00%	4	76		-	Very small cortical fragments
12422AA BN 113a	Tooth fragments	Premolar fragments		10.00%		13	A	-	2 larger premolar crown parts, 11 x small enamel fragments. Unknown specification.
12491AA BN 184b		Generic Cortical Fragments		1.00%		2		-	
12461 BN 92	Midshaft and proximal fragment	Tibia	R	15.00%	5	3	A	-	Right midshaft and lateral shaft of proximal epiphysis.
12461 BN 92	Tibia	Left shaft 1/2 proximal, mid and distal shaft	L	40.00%	5	3	A	-	
12461 BN 92	Femur	Partial distal shaft and distal epiphysis	L	10.00%	5	3	A	-	
12461 BN 92	Tibia	Distal epiphysis (central)		5.00%	5	2	A	-	Only small part present, not distinct.
12461 BN 92	Long bone	Generic long bone cortical fragments		5.00%	5	48	A	-	
12453	Generic small cortical fragments	Cremated fragments of bone 0.4g		1.00%		4		-	From fill of BN 92. Max size: 13.9 x 6.8mm
12634	Cremated fragments	Non ID x 14, 1 cranial vault fragment 5 x 4mm		1.00%		15		-	From fill of BN 136. Tot: 0.4g, likely from a disturbed cremation.

12752 BN 139	Dentition	Right M2 and molar cusp fragment		1.00%	5	A	-	RM2 Wear 3. Molar cusp crown c.4
SK 12652 BN 186	Proximal end and shaft	Ulna	L	50.00%	3	1	Peri	
SK 12652 BN 186	Proximal end and shaft	Ulna	R	50.00%	3	1	Peri	
Unstrat	R mastoid process and petrous portion	Temporal bone	R	70.00%	3	3	A	Found with SK 12557 /BN187.
12587AD	Shaft fragment	Rib	L	10.00%	2	1		
12587AD	Proximal half	Glenoid of scapula	R	10.00%	2	1	A	
12587AD	Acromion	Scapula	R	10.00%	2	1	A	
12587AD	Complete	LM2	L	95.00%		1	A	Wear 3.
12587AD	Generic Fragments	Vertebrae		5.00%	3	5		
12587AD	Complete	1st distal hand phalanx	L	100.00%	3	1	A	
12587AD	Complete	Intermediate hand phalanx		90.00%	2	1	A	
12587AD	Proximal 2/3	Proximal hand phalanx		70.00%	2	1	A	
12587AD	Cremated bone	Flake of cortical bone				1		10 x 8mm, 0.3g.
12587AD	Cremated bone	Cortical fragments				10		Max 1cm x 1cm. Total weight 2.5g.
12562	Midshaft and distal shaft	Humerus	L	50.00%	5	4	A	Belong to SK12652/BN 186-bags labelled incorrectly.
12562	Complete shaft	Ulna	L	80.00%	5	2	A	Belong to SK12652/BN 186-bags labelled incorrectly.
12562	Shaft and distal end	Radius	L	80.00%	5	3	A	Belong to SK12652/BN 186-bags labelled incorrectly.
12562	Complete Bone	Tibia	L	95.00%	5	2	A	Belong to SK12652/BN 186-bags labelled incorrectly. Proximal tibia (artic facet) shows severe OA with eburnation of the entire medial facet.

12742	Generic long bone cortical fragments	Cremated bone		10.00%	2			2 fragments- crystalline white, warped and cracked.
12406	Generic long bone cortical fragments	Cremated bone		10.00%	7			All fragments white and cracked. Weight c. 8.5g.
12790	Shaft fragment	Long bone (generic)		5.00%	5	1		
13316	Non ID	Cremated bone			17			Talus/calcaneus? Crystalline, white 'dusty' appearance. Unclear if human.
12298	Posterior inferior corner	Parietal	L	15.00%	2	1	A	No pathology.
12365	Generic bone fragments	Cremated bone		10.00%	4			1 cranial fragment, 3 long bone cortical fragments. Warped, cracked and white.
12519	Generic cortical fragments.	Undiagnostic		2.00%	3	26		No pathology.
12779	Midshaft	Femur		35.00%	5	6	A	
12779	Midshaft	Tibia	L	20.00%	4	2	A	Lamellar striae, especially posterior surface.
12779	Generic long bone fragments	Long bone (generic)		5.00%	5	8	A	
12779	Small bone	Fragments (generic)		1.00%	5	200		
12507	Proximal end and shaft, midshaft and proximal distal shaft	Femur	L	70.00%	3	13	A	Enthesal changes on posterior proximal shaft (gluteal line). Well integrated lamellar striae midshaft.
13052	Distal shaft and distal end	Humerus	R	40.00%	3	1	Peri	Perinate humerus.
13052	Shaft complete	Metacarpal 2nd/3rd	L	75.00%	4	1	A	Iron stain (ring).
13145	Complete	Distal hand phalanx		95.00%	2	1	A	Likely belongs to 178a.

13145	Generic fragments	Cortical bone		2.00%	3	125		
13003	Enamel flecks	Generic small fragments		10.00%		15		Not diagnostic. Splintered tooth?
12339AA	Generic cortical bone	Cremated bone		5.00%		4		Weight c.1g, max 10 x 8mm. Human?
13259AA	Generic cortical bone	Cremated bone		1.00%		1		Weight c.0.2g, max 10 x 3mm. Human?
13126AA	Generic cortical bone	Miscellaneous cremated fragments. 1 x cranial, 1 x long bone, 1 x root, 29 non-ID		1.00%		32	A	Weight 10g, max 28 x 17.4mm (cranial).
12603AA	Generic cortical bone	5 fragments of cremated bone- vertebra?		2.00%		5		Weight 3g, max 7.0 x 6.0mm.
12347AA	Generic cortical bone	Small fragments, non-ID		1.00%		45		Not clear if human, 4g. Max 7 x 1mm.
12488	Cremated bone	Small fragments						Not clear if human; 4 long bone cortical fragments. White with cracks. <4mm sieve- 4g. >6mm- 6g. Max 20 x 12.7mm, total 10.1g.
13036	Midshaft	Humerus	L	15.00%	2	1		From fill of BN 209.
12589AE		Undiagnostic cremated bone						5 fragments, 1 x 0.5mm max. Fill of BN 58.
12747	Shaft	Rib	R	10.00%	2	1	A	Likely part of BN 86/SK 12748.
12732	Cranial fragments	Cremated x 1		10.00%		1	A	16 x 19mm. Irregular cracks in surface. From fill of 87.
13267	Partial acromion, lateral border	Scapula	L	20.00%	5	6	A	Possibly belongs to BN 22- was in fill.
13164	Cortical bone shaft	Long bone, cremated		10.00%		2	A	1 x white, 1 x charred. Max 22 x 13mm. From fill of BN 243.
13184	Partial acromion	Scapula	L	5.00%	2	1		
13184	Medial side, midshaft	Tibia	R?	5.00%	3	1	A	
12666AD	Undiagnostic	Small bone fragments		1.00%		14		- Generic small bone fragments
12666AD	Tooth	LM, crown	L	100.00%		1	NA	- Likely non-adult. Only crown remains. Discoloured and

									very little enamel polishing.
12602AA BN 193	Burnt	Bone fragments 0.3g		17.00%		6		-	Fill.
12601AA BN 193	Burnt	Bone fragments 0.1g		1.00%		2		-	Fill.
12585AA BN 193	Burnt	Bone fragments <0.1g		1.00%		1		-	Fill.
13210AA BN 223	Burnt	Bone fragments 0.2g		1.00%		3		-	3mm x 2mm max. Undiagnostic- from fill.
13210AA BN 223	Unburnt	?Bone fragments, undiagnostic		1.00%		8		-	5 x 2mm max. Undiagnostic.
12448AA BN 227	Burnt	Bone fragments, undiagnostic 0.5g		1.00%		7		-	4 x 2mm max. Undiagnostic- from fill.
12431AA BN 228	Burnt	Bone fragments, undiagnostic 0.6g		1.00%		6		-	3 x 2mm max. Undiagnostic- from fill.
13201 BN 153	Proximal shaft 1/4	Femur, no head or neck or greater or lesser trochanter	L	10.00%	4	4	A	-	Found with BN 153 but belongs to an adult- possibly part of BN154?
12576 BN 152	Generic shaft fragments	Metatarsals		5.00%	4	15	A	-	Undiagnostic small fragments- may be part of BN154 (feet of)- not recorded as separate skeleton.
13171 BN 158	Humerus	Entire shaft and distal and proximal end	L	90.00%	4	3	A	-	Disarticulated across tibiae of SK158. No pathology.
12607 BN 156	R and L M3	Complete teeth with root	R and L	100.00%		2	A	-	In fill of BN 156 and possibly part of BN 156/SK 12606. Significantly less wear than RM2 and much larger- possibly different individual altogether. Both have calculus Sa.
SK 12836 BN 157	Long bone	Cortical fragment- undiagnostic				4		-	
12529AA BN 125	Burnt bone	Generic cortical fragments				7	A?	-	Max 25.8 x 9.5mm, 2g. From fill.
SK 13079 BN 229b	Rib	2 x rib fragments, central end	R	20.00%	2	2	P/N/I	-	Possibly belong to SK 13060, but are slightly smaller.
SK 13104 BN 237b	Atlas	Right arch (posterior), no facets	R	20.00%	5	1	A	-	Possibly part of BN 238/237a.
SK 13104 BN 237b	Navicular	Complete but eroded	R	90.00%	5	1	A	-	No pathology.

SK 13104 BN 237b	Proximal foot phalanx	Complete but eroded	R?	90.00%	3	1	A	-	Distal end missing.
13117 BN 237b	1st Metatarsal	Distal end missing	R	85.00%	3	2	A	-	No pathology.
13117	Acromion?	Partial and eroded		50.00%	3	1	A	-	
13117	Burnt bone	Fragment				1		-	Disarticulated.
SK 13076 BN 237a	Teeth	Right and Left M2	R and L	100.00%		2	A	-	No roots, only crowns. Not part of BN 237a/238. Limited wear, no other pathologies.
SK 13135 BN 239	Clavicle	Medial half, no medial articulation	R	40.00%	4	1	A	-	No pathology, not part of BN 239.
SK 13135 BN 239	Rib	Central generic shaft fragment		5.00%	4	1	A	-	
SK 13135 BN 239	Complete	RP1	R	100.00%		1	A	-	RP1- small chip at distal anterior corner. Wear 3.
SK 13135 BN 239	Proximal phalanges (hand)	Three fragments		30.00%	3	3	A	-	No pathology.
13184AD SK 231	Superior apophyseal facet, lamina	Thoracic Vertebrae	L	20.00%	5	1	A		
13184AD SK 231	Shaft fragment and head (distal articulation)	Metacarpal		10.00%	4	2	A		
13184AD SK 231	Spinous process	Thoracic Vertebra		20.00%	4	1	A		
13184AD SK 231		Generic cortical fragments		1.00%	3	60			Too small to ID.
13189		Generic cortical fragments		1.00%	3	34			Likely belong to SK 13188/BN 231.
12538	Full shaft	Femur	R	70.00%	4	21	A	-	
12538	Full shaft	Femur	L	70.00%	4	21	A	-	
12538	Full shaft	Femur	R	80.00%	3	8	A	M	
12538	Full shaft and distal	Femur	L	75.00%	3	2	A	-	
12538	Proximal shaft and midshaft	Tibia	R	50.00%	3	5	A	-	
12538	Pelvis	Generic fragments	-	10.00%	3	4	A	-	

12538	Fibula	Proximal end and proximal mid and partial distal shaft	L	80.00%	3	3	A	-	
12561 BN 124	Fibula	Distal end	L	10.00%	3	1	A	-	Was with SK 12561 but is likely from fill 12538- is adult.
12698 BN 202	Humerus	Mid and distal shaft and distal epiphysis	R	50.00%	4	35	A	-	Found in grave cut of 12698.
12698 BN 202	Ulna	Proximal epiphysis and proximal shaft fragments	R	20.00%	4	8	A	-	Fill. Some DJC- marginal osteophytes.
12698 BN 202	Radius	Proximal epiphysis and mid shaft	R	40.00%	4	4	A	-	Fill.
12698 BN 202	Femur	Proximal shaft	R	20.00%	4	13	A	-	Cortical fragments.
12698 BN 202	Tibia	Anterior shaft crest	-	5.00%	4	2	A	-	Cortical fragments.

KEY:

Juv- Juvenile

AD- Adolescent

SP- Surface Preservation Grade