

HUMAN SKELETAL REMAINS FROM LONG MELFORD (LMD 115).

Sue Anderson, March 1997.

Introduction

Seven skeletons of late Roman date were submitted for analysis.

1. Method

Measurements were taken using the methods described by Brothwell (1981), together with a few from Bass (1971) and Krogman (1978). Sexing and ageing techniques follow Brothwell (1981) and the Workshop of European Anthropologists (WEA 1980), with the exception of adult tooth wear scoring which follows Bouts and Pot (1989). Stature was estimated according to the regression formulae of Trotter and Gleser (Trotter 1970). All systematically scored non-metric traits are listed in Brothwell (1981), and grades of cribra orbitalia and osteoarthritis can also be found there. Pathological conditions were identified with the aid of Ortner and Putschar (1981) and Cotta (1978).

2. Number of individuals

Articulated skeletons of six individuals were recovered, and a fragmentary ?articulated burial of a child was also found. As its grave was probably relatively shallow, it may have been disarticulated during machining.

3. Condition

Four skeletons were in good condition, although the coffin burial was heavily dessicated from close contact with gypsum. Three skeletons were poor or very poor, with surface erosion and deformed skulls. All adult skeletons were relatively complete, but the child consisted of a few long bones and part of the torso only.

4. Demographic analysis

Table 1 lists the age and sex determination for each individual.

Sk.	Male	Female	Child
0009	MA-Old		
0072			Newborn
0078		c.19-21	
0110	MA		
0144	MA		
0188		MA?	
0194	Old		
Total	4	2	1

Table 1. Age and sex.

All but one of the adults were in middle-age or older.

5. Metrical and morphological analysis

Measurements were taken for each of the articulated adult skeletons, and stature could be calculated for all six. The males ranged from 1.635m (5' 4") to 1.741m (5' 8"), and the females were 1.541m (5' ½") and 1.621m (5' 4"). These are within the normal range of heights for a group of this period.

Three cranial indices were calculated, all male, and these ranged from 78.3 to 79.7. All were towards the broad end of the mesocranial category.

Non-metric traits were scored for the bones present and these are listed in the catalogue. Unfortunately the results of this analysis could neither confirm or deny the presence of family relationships within the group. A number of rare traits (in comparison with later groups) were

recorded, but these may not have been rare in the population from which the group was derived.

6. Dental analysis

At least part of the dentition of all six adults had survived. Five had lost teeth before death, but the most badly affected of these were 0188 (at least seven teeth lost) and 0194 (at least 16 lost). Periodontal disease was common among all the older adults, and had resulted in extreme alveolar resorption in Sk. 0110 and Sk. 0188. There was very little evidence for caries in this small group — three individuals had one small cervical cavity each. Large abscesses had formed in the lower right molar region of 0194, and these may have been the cause of his extensive tooth loss.

Most individuals had slight-medium calculus deposits on most teeth. Enamel hypoplasia was uncommon.

An interesting congenital anomaly was noted in the maxilla of 0078, the young female. Both upper canines were impacted towards the midline of the palate. The deciduous canines were probably still in place at the time of death, but the affect that the two teeth had on the incisors is uncertain because the front of the maxilla is in poor condition. None of the other skeletons had a similar anomaly.

7. Pathology

Four individuals showed signs of degenerative disease. Sk. 0009 had osteoarthritic changes to the lower spine, but most other joints had not survived. Sk. 0110 had osteophytosis (bony lipping) of the spine, elbows, hips, left knee, and ankles. Sk. 0144 had osteophytosis of most joints, but especially those of the spine, shoulders, wrists, hips, and knees. Sk. 0194 also had osteophytosis of most joints, especially the spine, ribs, shoulders, wrists, hips and knees. The latter two also had calcified costal and thyroid cartilage. In some cases the osteophytes on the lower spines of these individuals had the appearance of lipping associated with ankylosing hyperostosis, but the vertebrae were not fused together.

Changes associated with mild iron deficiency were found in Sk. 0078 (cribra orbitalia and possible healed porotic hyperostosis) and 0110 (possible healed porotic hyperostosis).

Schmorl's nodes, which are depressions in the body of a vertebra caused by strain or trauma, were found in the spines of 0144 and 0194.

Sk. 0194 had a large lump on the back of the skull above the left nuchal crest. This may have been a benign osteoma, or it could be related to trauma, perhaps caused by a torn muscle in this area.

Evidence for maxillary sinusitis was found in Sk. 0188, probably related to dental disease. The sinuses of 0194 were not assessable, but it seems likely that the high degree of periodontal disease present in this individual would have caused some inflammation of the sinuses.

Mild ischial bursitis was present in Sk. 0144. This disease is related to inflammation at the base of the pelvis, and can be caused by long periods of sitting on a hard seat. It is also known as 'Weaver's bottom'. However, the same skeleton showed evidence for injuries related to the stresses of walking, with large callouses on the inner metatarsals of both feet. The third metatarsals were the worst affected and had parallel bars of new bone running down either side of the shaft. These could be related to so-called 'march fracture'.

The eleventh thoracic vertebra of Sk. 0194 was slightly wedged to the anterior, and may have resulted in a mild kyphosis (forward bending of the spine).

Evidence for physical stress in the feet was found in Sk. 0110. The left calcaneus had a projecting spur on the lateral tubercle which may have been related to a torn muscle. A small area of bone had been lost from the front of the right calcaneus, possibly as the result of a form of aseptic necrosis or due to a stress fracture. The corresponding area of bone on the talus was slightly roughened and pitted, suggesting inflammation in the area.

Ossified ligamentous attachments at the sacro-iliac joint and on the left iliac crest of Sk. 0194 suggested the possibility of pulled muscles in these areas of the pelvis. This individual also had a hairline fracture of a wrist bone (the right scaphoid) which showed little evidence of healing. An exostosis at the head of the right first metatarsal may have been traumatic in origin, although the lack of muscle attachments in this region suggest a different cause such as a benign neoplasm (osteochondroma?). A hole in the left scapula appeared to have occurred in antiquity, although whether it was ante- or post-mortem was difficult to decide. The edges of the hole opened towards the posterior surface, and evidence for injuries to the ribs was looked for but not found. Unfortunately the relevant ribs were in poor condition. The 'lesion' may have been caused by a root, but there is a possibility that it is the remains of an unhealed wound.

Two deep cuts were found on the skull of Sk. 0078. One ran diagonally across the top of the right parietal and penetrates the outer table, removing part of it. The other cut through the same bone at the back, close to the lambdoid suture and also across the occipital and into the temporal at the mastoid process. The edges were sharply defined with no evidence of healing, and the wounds were probably inflicted shortly before death. No other cuts were found on this skeleton, which was in good condition. This individual also had a slightly bowed and shortened left femur, the cause of which is uncertain, although it could be the result of a fracture or perhaps malnutrition in childhood.

Summary and discussion

This small group of skeletons consisted of four middle-aged or elderly men, one young and one middle-aged woman, and a newborn infant.

From the evidence available, it appears that these individuals were within the normal range in terms of physical appearance (metrical and morphological characteristics) for a group of the late Roman period. There was no evidence for family relationships, although the group did show some evidence for a number of unusual genetic traits and the possibility that they were related cannot be ruled out completely.

The rate of caries was quite low for this time, although the high degree of tooth loss in older individuals could be partially accounted for if the teeth had decayed first. In general, oral hygiene was probably poor, resulting in chronic periodontal disease.

Pathological lesions were mainly associated with degenerative changes in old age, such as new bone growth around and erosion of the joints, but other lesions were probably associated with physical stress and trauma, such as torn ligaments and unhealed head wounds. The group was too small to make further conclusions.

References

- Bass, W., 1971 *Human Osteology*. (Missouri Archaeol. Soc.).
- Bouts, W. and Pot, Tj., 1989 'Computerized recording and analysis of excavated human dental remains', in Roberts, C.A., Lee, F. and Bintliff, J. (eds), *Burial Archaeology: current research, methods and developments*, BAR Brit. Ser. 211.
- Brothwell, D., 1981 *Digging up Bones*. (London, BM(NH)/OUP).
- Cotta, H., 1978 *Orthopaedics, a brief textbook*. (Stuttgart, Georg Thiem Verlag).
- Krogman, W., 1978 *The Human Skeleton in Forensic Medicine*. (Illinois, C.C. Thomas).
- Ortner, D. and Putschar, W., 1981 *Identification of Pathological Conditions in Human Skeletal Remains*. (Washington, Smithsonian Institute).
- Trotter, M., 1970 'Estimation of stature from intact long limb bones', in Stewart, T.D. (ed), *Personal Identification in Mass Disasters*. (Washington, Smithsonian Institute).
- WEA, 1980 'Recommendations for age and sex diagnoses of skeletons', *J. Human Evolution* 9, 517-49.

Appendix: Catalogue

Notes

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

Teeth are recorded in the form illustrated below.

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

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

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

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

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

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

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

Sk. 0009 Male, MA-Old.

Description: Skull, arms legs and feet, and a few fragments of lumbar spine and sacrum.

Condition: Very poor, surface erosion.

Determination of age: Tooth wear heavy, some degeneration.

Determination of sex: Skull DF +1.7. Large, robust bones.

Stature: c.171.9cm (5' 7.5") from left tibia (approx. length).

Cranial index: 79.7 - mesocranial

Teeth:

8	7	-	-	-	-	-	1	-	-	-	-	-	-	-	-
C?7	X	5	4	3	2	R	R	2	3	4	5	-	-	-	-

Dental pathology: Open pulp cavities of lower second incisors and lower left second premolar, but no evidence surviving for abscesses. Some calculus.

Pathology:

Congenital anomalies: Squatting facets both sides.

Osteophytosis: L4-5.

Osteoarthritis: L4-5 grade III bodies. Very few other joint surfaces surviving.

Ankylosing spondylitis: possibly on L4-5.

Sk. 0072 Newborn child.

Description: Cervical vertebrae, ribs, left clavicle, left humerus, metacarpal and right tibia and fibula.

Condition: Good.

Determination of age: Long bone metaphysis lengths (HuL1 68, FiL1 66, HuL1 68, CIL1 45).

Sk. 0078 Female, c.19-21 years.

Description: Almost complete skeleton, fragmented skull.

Condition: Good.

Determination of age: Third molars in process of erupting, basi-occipital almost completely fused, stage of epiphyseal fusion (elbows and knees fused, shoulders and ankles partially fused, iliac crest partially fused, etc.).

Determination of sex: Skull DF -1.3, pelvis -1.4. Small gracile bones.

Stature: 154.1 cm (5' 0.5") from femur+tibia.

Teeth:

8	7	6	5	4	U	/	?	?	?	U	4	5	6	7	0
0	7	6	5	4	3	2	1	1	2	3	4	5	6	7	0

Dental pathology: Both upper canines impacted across anterior maxilla to mesial line. Probable retention of deciduous canines (lost post-mortem). Second permanent incisors probably erupted, but maxilla poor in area of first incisors so not certain whether they erupted or remained in jaw, or were pushed out by the canines. Slight calculus on all teeth.

Pathology:

Cribra orbitalia: porotic both sides.

Porotic hyperostosis: Slight striation of parietals.

Trauma: Two deep cuts on the skull. One runs diagonally across the top of the right parietal and penetrates the outer table, removing part of it. The other cuts through the same bone at the back, close to the lambdoid suture and also across the occipital and into the temporal at the mastoid process. Sharply defined edges with no evidence of healing. Probable cause of death.

Miscellaneous: The upper half of the shaft of the left femur is thicker (25mm A-P) and more anteriorly curved than the right (23mm A-P), and the bone is shorter in length. There is also a rough area of new bone on the posterior medial 'edge' of the left, making the section of the shaft squarer. May be greenstick fracture and related haematoma? Or possibly osteosarcoma or cartilaginous tumour - no outward changes to suggest this. Radiograph required.

Sk. 0110 Male, MA.

Description: Fragmented skull, arms, pelvis and legs. Most of the rib cage and vertebrae missing.

Condition: Poor. Skull badly deformed by soil pressure.

Determination of age: Tooth wear medium, some degeneration.

Determination of sex: Skull DF +1.8. Bones robust.

Stature: c.163.5 cm (5' 4") from left tibia (approx. length).

Teeth:

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

Dental pathology: Caries interstitial cervical. Slight calculus. Periodontal disease? Area around maxillary molars unusually wide with outer ridge on left, some pitting. Enamel hypoplasia of anterior teeth c.3-5 years.

Pathology:

Congenital anomalies: Squatting facets both sides.

Osteophytosis: L2-5, especially between L2-3 bodies and L4-5 bodies.

Osteoarthritis: OP/patchy OA superior parts both acetabuli (both in poor condition). Slight OP L. patella, talo-calcaneal joints both sides R>L, proximal ulnae. Very few joints intact.

Trauma: Small curved area of bone loss from anterior edge of right calcaneal anterior articular surface, and also a small area of pitting in corresponding position on anterior talus. Probably stress fracture or aseptic necrosis. Left normal, apart from a projecting spur on the lateral tubercle, which could also be traumatic or stress-related.

Sk. 0144 Male, MA.

Description: Almost complete skeleton.

Condition: Good, but heavily desiccated by gypsum. Some bones have flaking surfaces. Face damaged.

Determination of age: Tooth wear medium, pubic symphysis suggests mature/middle-aged, some degeneration.

Determination of sex: Skull DF +1.4, pelvis +1.0. Bones medium, femoral head large.

Stature: 174.1 cm (5' 8") from femur+tibia.

Cranial index: 78.6 - mesocranial

Teeth:

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

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Dental pathology: Caries cervical. Periodontal disease - heavy resorption especially upper right PM1, M3s, lower incisors. Slight calculus. Enamel hypoplasia upper canines, 2-6years.

Pathology:

Schmorl's nodes: T10-11, L3-4 (all on inferior surface only).

Osteophytosis: C4-7, T2-4, T12, L1-5, S1. Vertebral facets generally not affected by degenerative changes.

Osteoarthritis: C4-7 bodies (C4-5 II, C5-7 III). R. clavicle-acromion joints II.

Ankylosing spondylitis: L2-3 (not fused).

Degeneration: OP most joints, especially SIJs, acetabuli (R>L), scapula glenoids (R>L), right humerus head, both MC1-greater multangular joints (left with eburnation), both knees (R>L). Heavy deposits of new bone along both soleal lines and both linea asperae. Calcified costal and thyroid cartilage.

Miscellaneous: Small patch of porosity on left ischium - mild ischial bursitis? MT2-4 on both sides have bars of new bone formation (callouses) along both medial and lateral sides of the shafts. The MT3s are most affected. This is suggestive of long-term stresses on the feet, resulting in strained muscles (interossei dorsales).

Sk. 0188 Female, MA?

Description: Skull and long bones only.

Condition: Poor. Very eroded at ends of bones. Skull deformed post-mortem. Some bones appear to have been chemically altered near areas of erosion.

Determination of age: Heavy tooth loss, but no degenerative changes to remaining joints.

Determination of sex: Skull DF -1.9, bones gracile.

Stature: 162.1 cm (5' 4") from right humerus.

Teeth:

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- - - - - X X X 2 3 X X X X ?
- - - - 4 3 - 1 - - 3 - - - - -
C

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Dental pathology: Caries interstitial cervical. Periodontal disease of maxilla - extreme alveolar loss.

Pathology:

Sinusitis: Patch of new woven bone growth in left maxillary sinus - probably related to tooth loss?

Sk. 0194 Male, old.

Description: Almost complete skeleton.

Condition: Good, although some erosion on front parts of body and shafts of long bones.

Determination of age: Heavy tooth loss, some degeneration.

Determination of sex: Skull DF +1.97, pelvis +1.8, bones large and very robust.

Stature: 166.1 cm (5' 5") from femur+tibia.

Teeth:

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? X X 5 4 - X X X - / 4 X X / -
? / 6 X X X 2 / X 2 X X X X X ?
A A

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Dental pathology: Very large abscess cavities around lower right molars. Chronic periodontal disease. Signs of inflammation along all closed alveoli. Slight-medium calculus on few remaining teeth.

Pathology:

Schmorl's nodes: T8-12, L1.

Osteophytosis: C4-7 large, T2-12, L1-5, S1.

Osteoarthritis: T9-10 R. facets (II).

Ankylosing spondylitis: T8-9?, L1-3 (none fused).

Degeneration: OP most rib heads and vertebral facets, both acetabuli, both scapula glenoids (L>R), anterior heads both humeri, both femoral condyles, distal radii. Slight lipping most joints. Lipping linea asperae. Calcified costal cartilage and xiphisternum, ligaments around SIJ? (could be traumatic), and L. iliac crest.

Trauma: Hairline fracture of R. scaphoid, very little healing evident. Large exostosis superior lateral edge of R.

MT1 head, 12mm long, curving downwards, 9mm thick. No muscle attachments in this position so cause uncertain.

Neoplasm: Very large ?osteoma just above L. nuchal crest on occipital, 22 x 17 x 4 mm. Other possibilities include ossified haematoma from torn muscle in that region.

Miscellaneous: T11 wedged to anterior. Roughly circular hole in centre of L. scapula, edges opening to posterior.

Appears old, although could be post-mortem. Nothing on ribs, but relevant ones in poor condition. Possibly fatal wound?

Disarticulated remains

0003: Fragment of adult fibula shaft.

0006: 2 frags of adult fibula shaft (same as 0003?).

0020: Adult metatarsal.

0077: Adult left first metacarpal - unhealed cut across lateral edge. Also frag of ?human ?iliac crest epiphysis or possibly calcified costal cartilage (may be animal bone).

0096: Segment of sub-adult sacrum.

0109: Adult right scapula and fragment of finger phalanx, poor condition.

0136: Right femur of infant, 80mm long.

0139: Infant skull fragment. Three fragments of adult bone, probably human.

0193: Adult manubrium, fragments of calcified thyroid cartilage, two tarsal bones.

0222: Right tibia of infant, 62mm long.

Adult and sub-adult bone probably all belongs to identified skeletons, although there may be an extra infant.