

CIST BURIAL AT ONIP

DUNWELL et al

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Human remains report (Margaret Bruce)

G2-10

HUMAN REMAINS REPORT

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with a dental report by Neill Kerr MBChB, BDS, FDSRCS

Age determination - All long bone epiphyses are closed; the basi-occipital basi-sphenoid junction is missing; rib epiphyses are closed; the appearance of the anterior ends of the ribs approximates to phase 6 (Iskan *et al* 1984); the pubic symphyseal face corresponds to phase 7 (Todd 1920); the coronal suture was closing laterally, the sagittal suture is closed posteriorly and was closing anteriorly; the lambdoid suture was closing medially; there was lipping round the antero-medial inferior quadrant of the left humeral head (right damaged) and on the scapula; also at the acromioclavicular articular on the left side; round the humeral articulation and proximal radial articulation on both ulnae, on both thumb metacarpals, at the quadriceps tendon attachment on the patella; round the auricular surface of both innominates (more so on the right), on the ischio-pubic margins on the right innominate (left damaged), at the hamstring attachments on both ischial tuberosities at the supero-lateral margin of both acetabulae; at the outer margin of the left iliac crest, at the adductor insertion on the pubic body; at the left obturator foramen; on the anterior margin of the sacral auricular facets (left more than right) with some breakdown of the auricular articular surface on both sides. There were moderate osteophytic growths on thoracic and lumbar vertebral bodies from at least the seventh thoracic to the upper sacrum. The osteophytes vary from slight to moderate and at first are found on the right of the midline until the fourth lumbar where the left side is also affected, as in the fifth lumbar. Generally there is little or no degenerative change on the facet joints. However, there is asymmetry in the upper and lower facets of the fourth and fifth lumbar vertebrae, with the left surface being more extensive; on the lower left facet (LV5) there is some eburnation and the joint margins are lipped and interlock with a similarly enlarged facet on the sacrum; osteophytes are present on both sides of the upper margin of the sacral body (left more than right); femoral foveae are deeply excavated and extensive (about 2 cms long x 1 cm wide) and lipped. Dental wear was marked but there had been no pre-mortem tooth loss.

These factors suggest an age-at-death of around 40 years, depending on the level and type of physical activity in which the individual was engaged.

Sex determination - The innominates are typically male in form; many muscular insertions are well developed; the supra-orbital ridges on the skull are moderate to well-developed; the mastoid process is moderately developed as are the nuchal muscle markings; the gonial angles on the mandible are flared and the chin region is 'squared'.

This skeletal pattern strongly indicates male sex.

Skeletal pathology - See above for degenerative changes.

The bones appear well mineralised and skeletal size and proportions are normal. There is no evidence of metabolic or deficiency disease, although the height is relatively short.

The facial injury is described in the dental report below.

Detailed description of skeleton

Axial skeleton

Skull: fairly well preserved but with some damage to the right squamous temporal and to the cranial base from the basi-occipital to the basi-sphenoid; no metopic suture; there probably had been small Wormian ossicles in the lambdoid sutures; supra-orbital notches are present on both sides; the infra-orbital foramen is very large on the left side; zygomatico-facial foramen is double on the left (right side damaged); no parietal foramina were identified; the right mastoid process was damaged and a small mastoid foramen was identified on the left side; jugular foramen on the left was damaged; there was no marked asymmetry in the vault; on the maxilla all the molars are in situ, as are both right premolars; the rest of the dentition was recovered. The right condyle of the mandible is missing; all mandibular teeth are in situ.

Ribs: Several fragmentary ribs mainly from the left side were recovered; degenerative changes are described above.

Vertebrae: Most of the thoracic (TV?2-12) were recovered in fair condition; all of the lumbar vertebrae and most of the sacrum was recovered. There was no trace of any of the cervical vertebrae. Degenerative changes are noted above.

Larynx: Nothing of the laryngeal skeleton was positively identified.

Limb skeleton

Upper limb: Both clavicles were recovered, the left is almost intact; the left scapula is intact apart from the medial border while the right consists only of glenoid cavity, spine and coracoid process. Both humeri (head on the right side damaged), radii and ulnae were recovered. The medial and lateral lips of the bicipital groove on both sides were roughened; the deltoid tuberosity was pronounced, especially on the left side; the lateral supracondylar ridge was very pronounced on both sides and both olecranon fossae were large; the biceps insertion on both sides was well developed; the proximal articular ulnar joint surface on the radius was larger on the left side; the hand and wrist skeleton is complete on both sides apart from some terminal phalanges.

Lower limb: The innomates, femora, tibiae, fibulae and four metatarsals, and several phalanges from the foot were identified. The right innominate is almost intact, the left has suffered damage to the ischio-pubic region; degenerative change and sex and age determinants are noted above. The femora are almost intact although the left medial epicondylar region is damaged; degenerative changes are noted above; vascular(?) foramina are numerous and large (about 1 mm diam.) at the base of the obturator pit on the left femoral neck; there are ridges on both femoral necks, which may follow lines of retinacular attachments; abductor attachments are well developed on both sides, both femora have a well marked lateral flange in the proximal shaft; the gluteal ridge is pronounced and almost expressed as a third trochanter on both sides; the flange is separated from the gluteal ridge by a well marked hypotrochanteric fossa; there is a small Poirier facet on the anterior aspect of the femoral necks (about 1 cm diam.) adjacent to the articular surface; the line of attachment of the ilio-femoral ligament on the femoral neck is more pronounced on the right; the lineae asperae are well marked, forming a moderate pilaster in the midshaft; the adductor tubercles are moderately developed; there are deep and oval vascular(?) foramina at the base of intercondylar fossa in the midline; tibiae are flattened anteroposteriorly. All the tarsal and metatarsal bones are present, with the first left proximal phalange and both first distal phalanges.

Metric observations

SKULL

Maximum length	187 mm
Nasion-lambda	180 mm
Basion-nasion	-
Basion-alveolare	-
Basion-bregma	-
Alveolare-nasion	67 mm
Maximum breadth	142 mm
Minimum breadth	95 mm
Bizygomatic breadth	142 mm (est.)
Bimaxillary breadth	86 mm
Left orbital height	34.7 mm
Left orbital width	46.0 mm
Right " height	35.2 mm
Right " width	45.4 mm
Nasal height	46.8 mm
Nasal breadth	25.8 mm
External palatal length	55.4 mm
" " breadth	56.6 mm
Foramen magnum length	-
" " breadth	-

Indices of shape and proportion

Cranial index (skull shape)	76 (mesocranic)
Cranial module (size)	-
Length/height index	-
Breadth/height index	-
Frontal/parietal breadth Index	67 (average)
Upper face index	47 (broad)
Nasal Index	54 (broad)
Orbital Index	75 ^L (broad)
Palatal index	98 (broad)

LIMBS

Upper Limb

	Left	Right	
Humeral length	316 mm	318 mm	
Humeral head diam. (max.)	44.8 mm	-	
Bicondylar width (hum.)	62 mm	63 mm	
Midshaft circumference (hum.)	68 mm	64 mm	L>R
Ulnar length	264 mm	261 mm	
Radial length	245 mm	240 mm	
Clavicle length	151.2 mm	-	

Lower limb

Maximum femoral length	419 mm	418 mm	
Bicondylar femoral length	416 mm	415 mm	
Maximum head diam. (fem.)	41.1 mm	41.1 mm	
Vertical head diam. (fem.)	40.6 mm	40.1 mm	
Midshaft circumference (fem.)	75 mm	84 mm	R>L
Antero-posterior diameter at midshaft (fem.)	28.3 mm	26.7 mm	L>R
Medio-lateral diameter at midshaft (fem.)	27.5 mm	26.5 mm	L>R
Subtrochanteric ant.-post. diam. (fem.)	23.8 mm	22.7 mm	L>R
Subtrochanteric med.-lat. diam. (fem.)	34.9 mm	33.8 mm	L>R
Bicondylar width (fem.)	-	-	
Head-neck angle (fem.)	122°	118°	L>R
Tibial length (max.)	355 mm	355 mm	
Tibial lateral condylar length	352 mm	353 mm	
Tibial nutrient foramen level (NFL)	115 mm	116 mm	
Ant.-post. diam. (NFL)	35.0 mm	34.4 mm	
Med.-lat. diam. (NFL)	20.1 mm	21.1 mm	R>L
Ant.-post. diam. 1/3 along tibial shaft	*	*	
Med.-lat. diam. 1/3 along tibial shaft	*	*	
Tibial circumference at NFL	91 mm	89 mm	L>R
Fibular length	348 mm	344 mm	L>R

*corresponds more or less to NFL.

Height and limb proportions

Height estimation is based on femoral length (3) of

419 mm = 162.7 cms (158.8 - 166.7 cms)
(5'4", range 5'2½" - 5'5½").

	L	R
Brachial index (forearm/upper arm)	78	75
Crural index (leg/thigh)	85	85
Intermembral index (upper limb/lower limb)	72	72
Platymeric index (femoral proximal shaft shape)	67	68 (flat)
Platycnemic index (tibial proximal shaft shape)	57	61 (flat)
Robusticity index (femoral) at midshaft	0.13	0.13

Dental Report

The individual has a well preserved facial skeleton with a complete dentition of 32 teeth. Distinguishing features are a prominent chin and marked crowding of the upper front teeth. There are also heavy deposits of supragingival calculus. There is severe dental attrition which is more severe on the right side of the mouth than on the left.

This individual is of particular interest in that there is evidence of a severe but healed right sided facial injury. This injury caused fracture of the right cheek bone (malar complex), fracture of the neck of the right condyle and, judging from the appearance of the insertions of the right masseter and medial pterygoid muscles, considerable loss of function of the elevators of the right side of the mandible and considerable deformity of the angle of the mandible on the right compared to that on the left.

The cheek bone fracture (which extended into the lateral wall of the orbit) had been minimally displaced, and healed with little obvious evidence of the fracture. The fracture of the zygomatic arch was much more severe, with a displaced fracture of the central section of the arch with non-union of the bone ends. This central section

of the arch is missing and the aburnated bone ends suggest a lack of continuity of the arch following the injury.

The fracture of the right condylar neck must have resulted in displacement as it failed to unite. The condylar head is missing post-mortem but there is no evidence of it having been displaced from the fossa. The condylar neck of the ramus is smooth and rounded, and it is therefore likely that some form of fibrous ankylosis occurred after the fracture. There is little doubt that this amount of damage would have resulted in considerable trismus and limitation of jaw movement on the right side. This reduced movement would account for the difference in the degree of attrition seen on the right and left sides of the mouth, and would undoubtedly have predisposed to food stagnation and been a factor in the high incidence of caries seen in this individual, who may have favoured a slightly softer, and therefore more cariogenic, diet in view of this injury.

Four upper teeth were carious, three with gross caries. Abscesses were present associated with four molar and one premolar teeth. Some of these are secondary to extensive caries but some are apparently extensions of deep periodical intrabony pockets.

Of the 21 interdental septa available for the assessment of periodontal disease, none were healthy; seven showed gingivitis, eight had evidence of an acute burst of periodontitis, two were in the quiescent phase, and four had evidence of angular defects. The overall picture is one of a moderately advanced periodontitis.

It is difficult to assess age from a dentition damaged by the injury described above, but it is likely that this individual was around 35 years old at the time of death.

Teeth present

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

Attrition scores
(Scott, 1979)

Right 1st molar (maxilla) 9, 9, 10, 10
Right 1st molar (mandib) 8, 9, 9, 9
Right 2nd molar (maxilla) 9, 9, 9, 7
Right 2nd molar (mandib) 8, 8, 4, 4
Left 1st molar (maxilla) .
Left 1st molar (mandib) 4, 5, 6, 8
Left 2nd molar (maxilla) 8, 8, 9, 6
Left 2nd molar (mandib) 4, 5, 6, 8

Periodontal status

(Kerr, 1989)

score

5 5 4 3 2 0 0 0 0 0 0 0 2 4

interspace

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

score

2 2 2 3 3 2 3 3 3 3 2 3 5 5

Caries

Gross caries upper left 2nd premolar and 1st molar. Disto-occlusal caries right upper 2nd premolar, occlusal caries upper right 2nd molar.

Measurements

Mandibular

Width of condylar head

left - 20.5 mm

right -

Bi-condylar width -

Mandibular angle - 127

degrees

Projected length of body - 81 mm

Height at symphysis - 30.6 mm

Height of ramus

left - 41.3 mm

right - 36.7 mm

Minimum antero-posterior
width of ramus

left - 35.2 mm

right - 34.5 mm

Maxillary

Mid point fissures

1st premolars - 36.7 mm

Palatal alveolar crest

2nd molars - 37.4 mm

Central fossa

1st molars - 45.2 mm

Spina nasalis to line joining

alveolar crest palatal

aspect central incisors - 45.8 mm

Occlusion

Crowding of upper anterior segment.

Pathology

Apical abscesses associated with upper right 2nd premolar and 1st and 2nd molar teeth. Also upper left 1st molar and lower left 2nd molar.

Evidence of severe facial trauma with fracture dislocation of the right condylar neck and the right zygomatic arch. Considerable deformity of the right vertical ramus. Fracture without displacement of the right malar complex.