

Ralston: title & contents - Sheet 1/A2

IAN RALSTON: FOUR SHORT CISTS (FICHE)

Four short cists from North-East Scotland and Easter Ross

Inventory of human skeletal remains

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FICHE

THE SKELETAL REMAINS FROM THE MAINS OF SCOTSTOWN CIST

by Dr Margaret Bruce

The remains are those of one individual, a male aged about 40 - 45 years. The following bones were present:-

Axial skeleton: The cranial vault and base were almost complete although the floor of the right anterior cranial fossa was missing as was the medial wall of the left orbit; the facial skeleton was extensively damaged but the left half of the palate and the horizontal palatine shelf was intact; three molar teeth and a premolar were in situ; the right half of the mandible was intact with the following teeth in situ - lateral incisor, canine, both premolars and three molars; and three molars were in situ on the separated left half of the mandible. The vertebral column was in poor condition with only the left half of the arch of the atlas, the axis, cervical vertebrae 3 - 6, the bodies of five lower thoracic vertebrae and a sacral fragment present; rib fragments and a sternal fragment were also identified.

Appendicular skeleton: The upper limb was represented by an almost complete left clavicle, fragments of the left scapula, fragments of the lower half of the shaft of the left humerus and of the head and upper half of the right humeral shaft, an almost complete left radius (distal end missing), an almost complete left ulna (proximal end damaged); the lower limb was represented by part of the left innominate (pubis, ischium and fragment of the ilium) and fragments of the right innominate including the superior ramus of the pubis, pubic symphysis and superior surface of the acetabulum, right iliac bone and right ischium; both right and left femora had suffered some damage to the proximal and distal extremities; the right tibia was almost intact while the lateral condyle and distal part of the shaft of the left tibia were damaged; the distal two-thirds of the right fibular shaft and the head of the fibula were present; all the tarsal bones of the right foot were represented as were the left talus and calcaneus; several metatarsals were also identified.

Sex: The rugged innominate bone showed typically male characteristics in the shape of the obturator foramen, sciatic notch and the size of the acetabulum. The maximum femoral shaft diameter was in the male range (MacLaughlin and Bruce, 1985). The skull had well-developed

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supra-orbital ridges, prominent mastoid processes and pronounced muscle markings in the nuchal area. The clavicle and humerus were robust in contrast to the relatively slender forearm bones. The femora and tibiae showed pronounced muscle markings. The skeleton then shows generally pronounced male characteristics.

Age: Dental attrition was marked; there was degenerative change in the form of 'flipping' into tendons and muscle attachments and on the surfaces of the vertebral bodies; the surface of the pubic symphyseal face was consistent with middle age. These features are consistent with an age in the 35 - 45 age range, probably in the latter part of the range.

Pathology: There was no evidence as to the immediate cause of death. An interesting disturbance of bone structure was observed on the left innominate bone. After extensive consultation following radiographic examination no firm diagnosis of the condition was arrived at but it is likely to have been the result of a malignant tumour of as yet unknown aetiology. Possible diagnoses include chondrosarcoma and metastasis from a prostatic carcinoma. Evidence of malignant disease is sparse in early populations which renders this specimen of special interest.

In addition there is a small circumscribed lesion on the left frontal bone which is almost certainly ante mortem in origin. Possible diagnoses include a sebaceous wen or cyst in the skin overlying the bone or a low-grade infection of the skin of the area.

A minor degree of degenerative change on vertebral bodies and at the site of muscle attachments was present.

The loss of the lower central incisors may have been the result of trauma which led to abscess formation following exposure of the pulp cavity. Otherwise there was no unequivocal evidence of caries or of periodontal disease.

Body build: Stature was probably about 177 ± 4 cm (about 5 ft 9 in) which is somewhat above average for short cist males from Scotland. The face was broad and rugged with a well-marked chin. The robust upper arm and lower limb bones suggest a muscular build. The skull was characteristically brachycranic. The femur shows the lateral flange of bone on the upper third of the shaft which is characteristic of short cist skeletons, and gives a flattened appearance to the shaft. The flange is in the position where maximum tensile loading is likely to occur.

Ralston: Scotstown skeletal remains - Sheet 1/A3-A7

Whether its presence is related to some particular feature of the life-style of these people or whether it is genetic in origin is presently unclear (Bruce 1987, 8). This condition was reported by MacLaughlin and Bruce in 1983; and illustrated by Bruce 1986a, ill 17. The tibia also shows marked flattening, this time in an antero-posterior direction. The significance of this tibial bone shape is also unknown.

Non-metric features: Mastoid emissary foramina were present, the right was on the suture line, the left was inside the line and was double; small 'wings' of bone were present on the basi-occiput on front of each occipital condyle; hypoglossal canals were large and double on the left; right and left jugular foramina were approximately equal in size. The pattern of dental wear was unusual with attrition being more pronounced on the left resulting in the loss of the buccal cusps on the upper right premolars and lower first right premolar. This suggests that the teeth may have been used to hold or pull on some object being held in the right hand.

Metric features:

Skull and mandible:

Maximum length	185 mm
Maximum breadth	157 mm
Minimum breadth	112 mm
Bizygomatic breadth	138 mm (estimated)
Right orbital height	34 mm
Right orbital breadth	44 mm
Bicondylar mandibular breadth	155 mm (estimated)
Bigonial mandibular breadth	106 mm (estimated)
Left ramus breadth	40 mm
Right ramus breadth	34 mm
Left coronoid height	66 mm
Right coronoid height	58 mm (estimated)
Symphysial height	27 mm
Mental foramen - mental foramen	48 mm

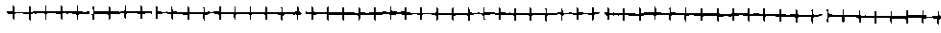
Ralston: Scotstown skeletal remains - Sheet 1/A3-A7

Appendicular skeleton

Left clavicle length	158 mm
Left femoral length (estimated)	486 mm
Left femoral head diameter	33 mm
Left maximum femoral shaft diameter (AP)	31 mm
Right maximum femoral shaft diameter (AP)	31 mm
Left femoral diameter (ML) at flange	33 mm
Left femoral diameter (AP) at flange	24 mm
Right femoral diameter (ML) at flange	32 mm
Right femoral diameter (AP) at flange	24 mm
Left tibial length (estimated)	391 mm
Right tibial length	395 mm
Level of nutrient foramen on left tibia	250 mm
Level of nutrient foramen on right tibia	255 mm
Left tibial diameter (AP) at nutrient foramen	37 mm
Right tibial diameter (AP) at nutrient foramen	36 mm
Left tibial diameter (ML) at nutrient foramen	23 mm
Right tibial diameter (ML) at nutrient foramen	24 mm
Left tibial diameter (AP) at 1/3 shaft level	39 mm
Right tibial diameter (AP) at 1/3 shaft level	38 mm
Left tibial diameter (ML) at 1/3 shaft level	23 mm
Right tibial diameter (ML) at 1/3 shaft level	22 mm
Cranial index	85 (brachycranic)
Platycnemic index at left nutrient foramen level	62 (platycnemic)
Platycnemic index at left 1/3 shaft level	60 (platycnemic)
Platycnemic index at right nutrient foramen level	67 (mesocnemic)

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Platycnemic index at right 1/3 shaft level 56 (platycnemic)



FICHE

THE SKELETON FROM A SHORT CIST AT DRIDAIG COTTAGE

by Margaret Bruce and N W Kerr

The remains are those of an adult, probably female, aged around 35 years. There is no evidence as to the cause of death.

The axial skeleton is represented by the well-preserved left half of the skull, parts of the atlas, axis and other cervical vertebrae, parts of upper thoracic vertebrae and of a lumbar vertebra, sacral fragments and several rib fragments.

Of the appendicular skeleton, the upper limb is represented only by fragments of the left scapula and clavicle, the upper two-thirds of the left humeral shaft and fragments of the shafts of the remaining limb bones. Of the lower limb, fragments of the left acetabulum with the ischial tuberosity and of the right pubic symphysis with the superior ramus of the pubis remain, together with fragments of the femoral head, of the distal femoral shaft and of the femoral condyles. In addition, two left tibial shaft fragments and parts of the left talus, calcaneus and cuboid are present.

Dentition: The maxillary dentition is intact from the third central incisor in a complete arch round to the left third molar; the alveolar bone is intact from the right central incisor region to the left maxillary tuberosity. In the mandible the teeth from the left central incisor to the left third molar were *in situ*. The attrition of the teeth has resulted in an edge to edge bite in the incisor region and a rather flat occlusal plane without any cuspal interference.

The teeth are caries free and there is no evidence of plaque related disease of the supporting tissues.

The teeth display third degree attrition with almost complete wearing away of the occlusal enamel surface; although this has not proceeded to pulp exposure it nevertheless suggests an extremely coarse and abrasive diet.

Age: The epiphyses of the long bones and the basisphenoid - basioccipital synchondroses are closed, indicating adulthood. The extent of cranial suture closure, the presence of depressions

Ralston: Dridaig skeletal remains - Sheet 1/A8-A10

caused by arachnoid granulations, the presence of some bony build up on the rim of the articular margins of the shoulder and knee joints and the presence of dorsal lipping on the pubic symphysis suggest an age in the mid-thirties. This is supported by an age estimate of 30 - 35 years from the evidence of dental attrition.

Sex: The bones do not present a particularly robust appearance. Sharp orbital margins, the appearance of the ventral and dorsal surfaces of the pubic symphyseal region and the conformation of the body of the third cervical vertebra. The dimensions of the dentition also tend in the female direction. The vertical diameter of the humeral head and of the glenoid fossa.

Stature estimation: Because of the fragmentary nature of the long bones it was not possible to estimate the stature of this individual.

Pathology: The clavicle shows evidence of a healed fracture. In addition, there is a degenerative lesion on the left postero-superior aspect of the body of the third cervical vertebra. There is further evidence of some degenerative change in the lipping around the articular margins of the shoulder and knee joints and on the ventral and dorsal margins of the pubic symphysis. It is not clear whether the latter are associated with obstetric trauma.

Non-metric features: The pituitary fossa is shallow with wide depressions on either side of the region of the cavernous sinuses. There are a number of small foramina behind the posterior occipital condyle. A tongue of bone extends from the upper border of the lateral pterygoid plate in the direction of the spine of the sphenoid. There is a very deep groove on the hard palate extending forwards in front of the left greater palatine foramen.

Metrical analyses:

Skull:

Length	177 mm
Basi-bregmatic height	125 mm
Basion - nasion	99 mm
Orbital breadth	40 mm
Orbital height	31 mm

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Palatal length	31 mm
Length of foramen magnum	36 mm
Breadth of foramen magnum	31 mm (estimated)

Scapula:

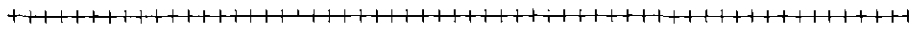
Length of vertical diameter of glenoid fossa	34 mm
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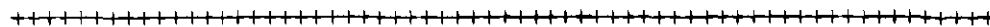
Humerus:

Length of vertical diameter of head	43.5 mm
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Tibia:

Platycnemic index	65.6
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FICHE

THE SKELETAL REMAINS FROM THE SHORT CIST AT SANDHOLE QUARRY

by Margaret F Bruce and N W Kerr

The remains are those of a male in his early twenties and of relatively short stature. There is no anatomical evidence as to the cause of death.

The skeleton is generally in a poor state of preservation. Only the right half of the calvarium and facial skeleton is present but the mandible with an almost full complement of teeth is intact. Of the remainder of the axial skeleton only several rib fragments and the left half of the manubrium sterni are present. No part of the vertebral column remains. The appendicular skeleton is somewhat better represented. The right and left glenoid fossae of the scapulae, an almost complete right clavicle and the medial half of the left clavicle, robust shafts of both right and left humeri and ulnar and radial fragments are present. The intact left 1st - 3rd metacarpals, some metacarpal fragments, a proximal phalanx (probably the first left) and an intermediate phalanx are all that remains of the hand. The lower limb remains include two pelvic fragments, consisting of part of the right iliac blade together with a postero-inferior segment of the ischium and the bony margin of the left obturator foramen. The shafts of both femora are well preserved although the extremities have suffered considerable damage. The left tibia is well preserved but only the distal half of the right tibia remains albeit in very good condition as is the surviving lower end of the right fibula. Of the left fibula only a fragment of the shaft was identified. The right tarsus is represented by a well preserved talus and calcaneus. The left talus is also present but in the form of two damaged fragments. Nothing else remains of the foot skeleton.

Dentition: A full complement of teeth (except for the left third permanent molar) was in situ in the mandible while in the maxilla only a vertically split first right premolar and an intact first left permanent premolar were in position. Isolated teeth and tooth fragments were consistent in the amount of attrition and wear with the teeth in situ. An interesting feature is the retention of a lower deciduous incisor (or supernumerary tooth) between the lower right canine and the lateral incisor. There is no evidence of caries but there appears to be a distinct lack of alveolar bone height. This appears to be more due to lack of alveolar bone development than to bone loss due to plaque related disease. This observation is supported by the lack of evidence of

Ralston: Sandhole Quarry skeletal remains - Sheet 1/A11-A14

inflammatory disease in the inter-dental areas and suggests that the individual suffered from considerable gum recession at a very young age. Second degree attrition is present with some areas of dentine exposure although mostly there is enamel crown coverage. This level of attrition by the age of death suggests an abrasive diet.

Age: The epiphyses of the long bones, except for the medial ends of the clavicles, and of the pelvis are closed. In both right and left clavicles a deeply excavated pit is evident showing that fusion had not started. The basisphenoid - basioccipital suture is closed ectocranially and the lamboid suture and coronal sutures are closed at their central and lateral margins respectively. Together with the amount of occlusal attrition present on the molar teeth, these features suggest an age at death of some 20 - 24 years.

Sex: The conformation of the sciatic notch, the generally robust appearance of the skull (especially the supra-orbital ridges) and the long bones, the size of the teeth and the form of the dental arch indicate male sex.

Pathology: No externally obvious signs of pathological change were evident although there was a discrepancy between the collo-diaphyseal angles of the left and right femora and the right femur presents a somewhat distorted appearance due to a very considerable build up of bone on its antero-superior aspect. The skull in the region of the pterion is very thin and the middle meningeal vessels lie in deep grooves on the inner aspect. There is a small bony outgrowth from the margin of the left obturator foramen.

Non-metric features: Foramina of Vesalius are present on the medial side of each foramen ovale. The cribriform plate of the ethmoid is markedly asymmetrical, the smaller right plate being considerably 'overhung' by the frontal bone, while the crista galli is 'bulged' on the left.

There is a marked lateral flange on the proximal shaft of both femora; the upper third of the gluteal ridge is expanded into a third trochanter. The left tibia shows marked medio-lateral compression in its upper third.

Ralston: Sandhole Quarry skeletal remains - Sheet 1/A11-A14

Metric analyses:

Skull:

Length	176 mm *
Basion-nasion length	96.5 mm
Foramen/magnum length	36.4 mm
Foramen magnum breadth	28.5 mm
Orbital height	31.5 mm
Interorbital breadth	11.3 mm

Mandible:

Breadth between foramina mentalia	48.0 mm
Coronoid height	69.3 mm

Clavicle:

Right maximum length	156 mm
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Humerus:

Right vertical diameter glenoid fossae	46.8 mm
Left maximum length	317.4 mm
mid-shaft antero-posterior diameter	25.0 mm
mid-shaft medio-lateral diameter	22.0 mm
vertical diameter of glenoid fossa	47.0 mm

Metacarpal:

Left II maximum length	74.1 mm
Left III maximum length	73.0 mm

Femur:

Right trochanteric length	400.0 mm
maximum diameter head	46.8 mm
Collo-diaphyseal angle	130 deg *
maximum medio-lateral diameter of upper shaft	34.3 mm
antero-posterior diameter at same level	25.4 mm

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maximum antero-posterior diameter
of lower shaft 29.5 mm

medio-lateral diameter at same level 25.2 mm

Platymeric index 79.4

Left maximum length 419 mm *

Collo-diaphyseal angle 140 deg *

maximum medio-lateral diameter of upper shaft 33.7 mm

maximum antero-posterior diameter
of lower shaft 29.3 mm

medio-lateral diameter at same level 28.5 mm

Tibia:

Left maximum length 352 mm *

Platycnemic index 57.8

Talus:

Right maximum length 52.4 mm

maximum width 42.6 mm

body height 33.8 mm

Calcaneus:

Right maximum length 73.5 mm

body height 45.6 mm

load-arm width 44.2 mm

* indicates estimated value because of some bone erosion.

Stature estimation:

Using the regression formulae (femur and tibia combined) of Trotter and Gleser (1958), stature is estimated at 160 - 166 cm (5 ft 3 in - 5 ft 5 in).

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FICHE

THE SKELETAL REMAINS FROM THE SHORT CIST AT TAVELTY

by Margaret F Bruce

The recovered bones and teeth are in poor condition with only fragments of the upper and lower limbs preserved.

Upper limb: distal half of the shaft of the right humerus; fragment of the head and proximal shaft of the right ulna; fragments of the proximal shaft of the right radius.

All upper limb bones were slender and the epiphyses were closed.

Lower limb: posterior fragment of the right ilium including part of the auricular surface and the iliac crest, the epiphysis of which was unfused at its posterior extremity and just fusing in front of this; fragments of the shafts of the right and left femora with the distal epiphyses closed externally but showing signs of recent closure internally; fragments of the shafts of right and left tibiae.

Metric data:

Maximum antero-posterior diameter of femoral shaft	29.5 mm
Medio-lateral diameter of tibial shaft at nutrient foramen	24.0 mm
Antero-posterior diameter of tibial shaft at nutrient foramen	32.1 mm
Chemle index at nutrient foramen	75

MacLaughlin and Bruce (1985) discuss the significance of the first of these measurements in determining sex.

Sex: probably male, on the criterion discussed by MacLaughlin and Bruce (1985).

Body build: slender; forearm bones in particular are very slender; this individual was probably quite tall.

Age: this individual was probably in late teens or early twenties, on the basis of the state of the epiphyses.

Pathology / Cause of death: there is no evidence from the surviving material as to cause of death; there is no evidence of transverse (or Harris) lines in the femur or of enamel hypoplasia

Ralston: Tavelty skeletal remains - Sheet 1/B1-B2

on the teeth; cortical thickness and trabecular density were normal; irregularities identified on the tibial shaft are probably a post mortem artefact.

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