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Burials at Winton House, Cockenzie and  
Port Seton, East Lothian

A4-B8

WINTON HOUSE

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Human bones

Daphne Home Lorimer

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Microfiche report

REPORT ON BONES FROM THE WINTON HOUSE CEMETERY COCKENZIE AND PORT  
SETON, EAST LoTHIAN

by

Daphne Home Lorimer

Introduction

The bones sent for examination from Winton House cemetery, Cockenzie and Port Seton, came from five, possibly six, cist burials and comprised six adults: B4, a possible male of about 45 at the time of death; B1, B2 and P5, three females of about 17 to 25; B3, one female between 30 and 40 and B5, bones of a skeleton of sex and age unknown. In addition, Burial 1 contained the bones of a juvenile of, tentatively, about 10 and Burial 6, the remains of a small child of between 2 1/2 and 3. Since there had been disturbance - both recent (from the developers) and in antiquity - the minimum number of individuals was checked by using the left femoral shaft as a marker for the adults and the right radius and ulna for the juveniles. The bone scatter from find 9 was not considered to be a separate burial.

The bones were in very poor, fragmented condition with only one complete and two broken adult skulls and fragments of juvenile crania. There were few vertebrae and few ribs, while smaller long bones were mostly represented by shells of outer cortex from the shaft. It was noted that the bones in contact with the base of the grave appeared to have suffered more erosion than those uppermost. The exception was Burial 4, where the bones were possibly protected by having been laid on sandstone slabs.

The skeletons were gracile and bone dimensions small. Where,

however, stature could be estimated it appeared normal, ranging from 5 ft 3 ins to 5 ft 6 ins (1.60-1.68 m) in the females and approximately 6 ft in the one male. (The stature was estimated using the formulae devised by Trotter and Gleser and given by Brothwell (1981). Since most of the long bones were fragmented, the lengths had to be calculated from the formulae given by Steel (1970) which does increase the risk of error) In the one skull where the relevant measurements could be taken, the cranial index was 74 (ie Dolichocephalic).

A depression on the strongly marked pre-auricular sulcus of the ilium of B2 might possibly be a scar of parturition ie indication of one or more pregnancies (Kelly 1979) (although Iscan (1988) quotes recent research by Andersen which suggests that looser articular relationship between the female sacrum and the ilium may cause depressions to form from squatting, trauma, obesity etc).

All the available femora (with the exception of B4) exhibited platymeria or antero-posterior flattening of the shaft. A medial squatting facet was noted on the anterior surface of the lower end of the left tibia of B1. Although not now necessarily considered due to squatting, this variation at the end of the tibia does indicate considerable dorsiflexion of the ankle joint and although the cause of platymeria is not fully understood the two conditions could be a bone response to walking over rough or hilly ground (Angel 1971, Chesterman 1981).

In addition, both the femora from B2 had flanges on the lateral aspect of the shafts just below the lesser tuberosity. This bone structure has been noted by MacLaughlin and Eryce (1985a), 22-3

feature in Bronze Age single cist burials. It was not so noticeable in the other intact femora.

The measurements from the male cranium, B4, were not characteristic of the Scottish short cist crania given by Reid and Morant (1928) while the affinity shown by the cephalic index and vault height (Brothwell 1981) was nearer the recent Western Scottish than any other group. (There was, however, some pathological thickening of the parietal bone in this skull.)

Some non-metrical variations were seen in the extant crania (see table) but it was difficult to detect non-metrical variations in the post-cranial skeleton. Non-metrical variations are usually genetically determined and are a useful indicator of population distance (Berry and Berry 1967 and Finnegan 1978) but the sample from Winton House was too small for this purpose.

Table of non-metrical variations in crania

Non-metrical variation	B1B	B2	B3	B4	B6b
Highest nuchal line present					
Ossicle at the lambda					
Lambdoid ossicle present			+	+	
Parietal foramen present				+	
Bregmatic bone present					
Metopium					
Coronal ossicle present					
Epiteric bone present				+	
Fronto-temporal articulation					
Parietal notch bone present					
Ossiculae at asterion					
Auditory torus present					
Foramen of Huschke present					
Mastoid foramen exsutural					
Mastoid foramen absent				+	
Posterior condylar canal patent					
Condylar facet double					
Precondylar tubercle present					
Anterior condylar canal double					
Foramen ovale incomplete					
Foramen spinosum open			+	+	
Accessory lesser palatine foramen present				+	
Palatine torus present					
Maxillary torus present					
Zygomatico-facial foramen absent			+		
Supraorbital foramen complete				+	
Frontal notch or foramen present					
Anterior ethmoid foramen exsutural					
Posterior ethmoid foramen absent					
Accessory infraorbital foramen present					

Evidence of bone disease was noted in B4 where the right femur, the left tibia and the skull showed possible Paget's disease. Paget's Disease or Osteitis Deformans is a chronic bone disease which rarely appears before the age of 40, occurs more frequently in men than in women and can affect one or more bones in the body but never involves the entire skeleton (Ortner and Putschar 1985). The disorganized bone weakness may give rise to fractures. It is not an uncommon disease in antiquity (the earliest example being a femur from a French Neolithic site in Lozere) but the early mortality rate in ancient populations makes it less frequent than today.

In B6, the left humerus had an appearance suggestive of mild chronic sclerosing osteomyelitis following trauma. This may have involved amputation of the arm from above the elbow. The same generalized disfiguration was seen in the right humerus, radius and ulna fragments in Find 9. There was a possible cloacal opening in the ulna masked by post-mortem damage. This disease is the result of the introduction of pyogenic bacteria, often by direct infection through trauma. In severe cases there is necrosis of the bone with the formation of sequestra and cloacal openings into the medullar canal. It can be confined to one bone or spread to other long bones of the extremities remaining active for a long time, or heal temporarily to recur years later. The less severe course has fewer or no sequestra or cloacal openings and is almost indistinguishable from tertiary syphilis on the dry bone. Should B7 be a post Medieval interpolation into the cemetery (since there is no mention of it being a cist burial) an alternative diagnosis would have to be considered (Ortner and Putschar 1985).

Pathology of the loose teeth associated with the skeletons showed as slight calculus from the adult B7 and B4 where periodontal disease was also noted; caries was found on one molar only, in B4. The juvenile in B6 had marked hypoplasia of an unerupted first right permanent molar and, possibly, in the second right primary molar which indicated some metabolic disturbance in the latter half of the first year of life. Enamel hypoplasia is due to a systemic interruption of enamel formation and appears as pits or grooves running in localised bands on the surface of the tooth or teeth. It indicates an episode in the development of an

individual and the age at which it occurs (Hillson 1986).

### Report

Unstratified bone scatter can only be positively identified with a particular skeleton if there is union with a broken part or articulation with a bone in situ. All the unstratified and disturbed bones were examined with this in mind and, where possible, identified with a particular burial. In some cases the evidence can only be presumptive. The bones found in situ have been marked on the accompanying skeletal charts in solid colour, while the associated unstratified bones have been marked by hatching.

### Burial 1 (Find No. 15, Context 7)

Finds nos. 1, 4, 5 and 9 contain bones which, possibly, were part of Burial 1. This consisted of two skeletons: an adult female of between 18 and 25 at the time of death and about 5ft 4in (1.62 m) in height and a juvenile, sex unknown and aged, tentatively, about 10 at the time of death.

The adult bones from Find no. 1 (retrieved by the contractors from the area of Burial 1) showed no positive identification. They did, however, have dark soil adhering to the surface and were complementary in type, size age and sex with those in situ. The frontal bone in Find no. 1 was that of a juvenile with rounded frontal bossing. These bones have, therefore, been regarded as part of one and the same burial.

In Find no. 4 the malar bone articulated with the frontal bone from Find no. 1. In addition the left humeral shaft was of the same dimensions as the right humerus from the juvenile skeleton in Burial 1 while the femoral epiphysis could well be that of a



child of 10.

The bone scatter of Find no. 5, contained the head of a right femur which belonged to the shaft in Find no. 1. In addition there was a fragment of acetabulum and os pubis which was part of the right os innominatum found in Find no. 9. The head of the femur from Find 1 articulated with this acetabulum.

Examination of the remaining bones in Find 9 showed that they came from probably three skeletons, the adult from B1 and a juvenile which was represented by the left greater wing of a sphenoid and the basilar portion of an occiput with the surface (un-united) for articulation with the sphenoid. These bones were compatible with the juvenile skull in B1. In addition there were right adult humerus, radius and ulna which did not belong to B1 or B2 and showed signs of disease compatible with B6.

#### Adult female

Sex The bones were gracile, the articular surface of the first sacral body was equal in width to each ala (Bass 1987) while discriminant function analysis of the calcaneus and talus (Steel 1976) placed the skeleton well within the female range with an 88% degree of accuracy. (This method is based on mixed American populations and should be treated with caution.)

Age The epiphyses of the lateral elements of the sacrum appeared to have united with the slae but union between the first and second segments of the body did not seem complete indicating an age of between 18 and 25 at the time of death. There was no osteophitic lipping of the vertebrae and this rarely occurs before 25 to 28.

The height of 5ft 4in (1.62 m) can only be approximate and, since no long bones were preserved in the grave, was estimated from fragments of a femur and tibia from the associated unstratified bones in Find 1.

A medial squatting facet was seen on the lower end of the left tibia. The left femur also showed considerable antero-posterior flattening, having a platymetric index of 70.1.

#### Juvenile

Sexual dimorphism of bones, with the possible exception of the sacro-sciatic notch (Hunt and Gleiser 1955) does not occur until after puberty. There is a sex difference in dental maturation but since the sacro-sciatic notch is unavailable and in the absence of jaws and teeth, the sex is unknown. The epiphyses and the metaphyseal ends of the bones were missing, so it was not possible to ascertain the age at the time of death although the length of the diaphysis of the humerus suggests an age of about 10 (Ubelaker 1978).

#### Burial 2 (Find No. 10, Context 1)

The bones in Find no. 2, retrieved by the contractors from the area of B2, had light brown soil adhering to them. The left os innominatum femur, tibia and radius and ulna were all from the same skeleton and the os innominatum articulated with the auricular surface of the sacrum in situ in B2.

In addition, the bones found within the partly disturbed soil within Burial 2 (Find no. 7) and the bones found in loose soil in the middle of the foundation trench near Burial 2 (Find no. 4) could belong to the same burial although lacking the positive

proof of articulation or union of parts.

Among the bones of Find no. 2 was a left parietal bone from the same skeleton as the occiput, Find no. 3, from the east end of the foundation trench and the petrous-temporal bone, Find no. 8, found in loose soil over Burial no. 3. There was a large ossicle (17.5 x 17.6 sq mm) in the left lambdoid suture and there appears to have been a missing ossicle at the lambda, itself. It is tentatively suggested that this skull might belong to the skeleton from Burial 2.

The burial was that of a female of between 17 and 24 years of age at death, about 5ft 2in (1.58 m) in height and very gracile.

Sex The sex was female since the body of the os pubis was rectangular, the ventral arc was marked and the subpubic concavity present; the auricular surface of the ilium was raised (Stewart 1979) and a pre-auricular sulcus was present; the long bones were thin and the diameters of the femoral heads were well within the female range. The maximum diameter of the femoral shaft was 22.5 mm which placed it within the female range for short cist populations (McLaughlin and Bruce 1985b).

Age Changes at the left symphysis pubis (using the formula for females given by Stewart (1979) and wear on the lower left second molar (Brothwell 1981) give an age estimation of between 18 and 25. The ischial tuberosity was united to its body and the crest to the body of the ilium which indicated an age of at least 17 to 19 at death. It was noted, however, that while the heads of the femora were united to the shafts, it was still possible to discern the line of union and this would indicate that the age at

death was at the lower end of the range.

Stature There were no entire long bones but, the length of the right femur was calculated as 42 cm and the height of the skeleton as 1.58 or approximately 5ft 2ins.

The state of the post-cranial bones was such that non-metrical variations were not apparent and there was no evidence of pathology. The strongly marked pre-auricular sulcus on the left ilium showed a depression which might, possibly, be a scar of parturition.

There was pronounced antero-posterior flattening of both femora (platymeria) but both tibiae showed marked euricnemia rather than lateral flattening. Lovejoy et al (1976) consider that a hollow triangular section with rounded corners is the bone response of a population where locomotive and postural patterns lead to more medio-lateral strain.

Burial 3 (Find No. 14, Context 5)

Burial 3 was that of a female with a tentative age of 30 to 40. Height unknown. The skull had suffered pressure in the soil and was slightly elongated but a cephalic index could not be obtained owing to the missing right side. The non-metrical variations noted were few: a lambdoid ossicle, an open foramen spinosum and the absence of a zygomatic facial foramen. There was no apparent pathology although grazing by snails did simulate bone disease on the skull.

Sex The supra-orbital ridges were slight and the upper margins of the orbit sharp. The mastoid process was small and the posterior root of the zygomatic process was only slightly

extended over the external auditory meatus which are all female characteristics.

Age There were no teeth available but the third left molar had erupted. There was no evidence of suture closure either endocranially or ectocranially which indicated an age at death of less than thirty. Suture closure is, however, very variable (Krogman 1962) but the slight depressions for Pacchionian bodies noted on the inner surface of the left parietal bone near the sagittal suture together with the well marked grooves for the middle meningeal artery suggest a tentative age of between 30 and 40.

Burial 4 (Find No. 23, Context 2)

Burial 4 was that of a male of about 40 to 45 years of age at the time of death and approximately 6ft (1.83 m) in height.

Although the skeleton in Burial 4 lacked bones from the trunk and the right upper extremity, those bones present were in a better degree of preservation than in the first three burials, possibly due to lying on sandstone slabs rather than on an earthen floor.

Sex The bones were gracile and the articular surfaces small - the breadth of the glenoid fossa, for example lying on the cut off point between male and female, while discriminant function analysis of the skull and mandible lay within the female range (Giles and Elliott 1964). Discriminant function analysis is however, population specific and in comparison with that of Burial 3 the skull showed the full range of male characteristics: pronounced supra-orbital ridges, external occipital protuberance and large mastoid processes. The nuchal lines were strongly marked and the posterior root of the zygomatic process extended

well over the external auditory meatus into the supra-mastoid crest.

Age Examination of the wear on the teeth indicated an age at death of between 35 to 45, possibly more as the wear was in the order of 5++ (Brothwell 1981). There appeared to be some entocranial closure of the sagittal and coronal sutures but ectocranially, there was no sign of closure, although the slight build up of bone on the right parietal side of the coronal suture may indicate that closure had 'lapsed' (Krogman 1962). This, together with some lipping on the dorsal margin of glenoid fossa (Stewart 1968), and osteophytic lipping on the cervical vertebrae supported the age given by tooth wear.

The non-metrical variations consisted of a large ossicle (47.5 x 32.5 mm) in the right lambda, a parietal foramen and an epiteric bone, an absent mastoid foramen, an open foramen spinosum and an accessory palatine foramen all on the left side, while the supra-orbital foramen was complete on both sides. It was also interesting to note that although metopism was absent, 6.2 mm of the metopic suture was still apparent at the glabella and also that although the superior articular facets of the atlas were single, they were very waisted and the two halves were marked by a series of faint grooves on the right side.

Osteophytic lipping was present on four of the five available cervical vertebrae: on the odontoid peg and the left inferior articular process of the 2nd, on the right inferior articular process of the 5th and the left inferior articular process of the 6th. In addition, there was marked osteoporosis of these articular processes in the 2nd and 5th vertebrae and on the

condyles of the occipital bone. There was possible osteophytic lipping on the margin of the lesser sigmoid notch of the left ulna.

The right femur had a very high platymeric index (95.68) which is usually indicative of pathology. The bone was markedly thickened and showed some antero-posterior and lateral bowing. An X-ray revealed that the cortex was thickened (especially on the posterior surface) of the shaft and the outline had the typical 'cottonwool' appearance of Paget's disease. The right tibia was markedly larger than the left, the medullary canal narrowed, and the X-rays showed thickened cortex. The skull had small porotic lesions on the superciliary ridges on either side of the glabella and the parietal bone showed thickening of the diploe with loss of outline of the outer table (Ortner and Outchar 1985).

There was also some disease in the teeth: caries on the mesial side of the occlusal surface of the upper second molar, some periodontal disease on the alveolar margin of the upper right second incisor and left second premolar. In the lower dentition there was some calculus on all three right molars and the second premolar with some periodontal disease in the associated alveolar margin.

Burial 5 (Find No. 11, Context 3)

The bones from Burial 5 were few and consisted of both petrous portions of the petrous-temporal bone and the upper left second premolar from the skull; possibly 4 fragments of the humeral shaft (side unknown) from the upper extremity; two fragments (one large - 97.0 mm) of the shaft of the left femur and possibly 5

fragments of the shaft of a tibia (side unknown) and a fragment of cancellous bone with small portion of articular surface of possibly an upper tibial end from the lower extremity.

Age, sex and height are unknown and no disease detected on the small sample available.

Burial 6 (Find No. 18, Context 8)

Burial 6 comprised the bones from two skeletons, an adult and a juvenile.

Adult burial

The bones were gracile and available measurements indicated that the adult burial was possibly that of a female. The wear on the teeth (Brothwell 1891) was compatible with an age at death of between 17 and 25. The height, calculated from the right femur, was about 5ft 1in (1.55 m) in height. There was platymeria or antero-posterior flattening, of both femora.

The skeleton was represented by a fragment of the right parietal bone, 3 auditory ossicles (right and left incus and right malleus) from the cranium; 8 fragments of maxillary border from the facial bones; part of the left mandible (with premolars and molars in situ); the complete upper dentition on the left side and the upper right canine and second premolar (found loose in the soil); fragments of the cervical, lumbar (with 1 worn whole vertebra) and sacrum from the vertebrae; possible fragments of the right scapula, left humerus, radius (side unknown) carpal and metacarpal bones and phalanges from the upper extremity and very small fragment of the os innominatum, both femora and fragments of the right tibia and tarsal bones from the lower extremity.



The non-metrical variations consisted only of a parietal foramen on the fragment of right parietal bone.

The lower end of the left humerus was missing. The attachment areas for the deltoid and the internal head of the triceps were well marked but there was wasting of the lower portion of the shaft with a slight lateral bowing. The medullary canal was narrowed and sclerotic and the outer cortex of the lower portion of the shaft exhibited ridging which could possibly be worn periostitis. It is tentatively suggested that this condition may have been due to osteomyelitis.

Pathology of the teeth was slight and only calculus was seen on the buccal side of the upper right canine.

#### Juvenile skeleton

The juvenile skeleton was that of a child of about 2 1/2 to 3 at the age of death: the crowns of the primary dentition were all complete but the roots were still open; in the secondary dentition, the crown of the first molar was formed but the roots were at an early stage of development and the crowns of the two premolars and an incisor were not complete (Ubelaker 1978). The femoral measurement of 141 mm did indicate a slightly earlier age but this is a more unreliable indicator and suffers from wide racial variation.

Hypoplasia of the unerupted first permanent molar and, possibly, of the second primary molar indicated some metabolic disturbance in the latter half of the first year of life.

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