

## II.

ACCOUNT OF THE EXCAVATION OF BRONZE AGE CISTS AT  
PINNACLEHILL, KELSO. BY CHARLES S. T. CALDER,  
A.R.I.A.S., F.S.A. SCOT. WITH A REPORT ON THE SKELETAL  
REMAINS, BY DR W. C. OSMAN HILL.

*Read December 9, 1946.*

While clearing trees and shrubs from a mound in the grounds of Pinnaclehill House, the property of Lieutenant-Colonel and Lady Anne Babington, the gardener unearthed at a depth of about 9 inches under the surface of the summit two large irregularly shaped stone slabs. These were lying about 1 foot apart, with their longer axes in rough alignment north-east and south-west. A third and much smaller slab lay at the south corner of the western one, and the north-eastern one rested on the exposed tops of two other small slabs on edge. Realising that the construction might be of archæological importance Lady Anne Babington sought expert opinion, and in September 1946 Professor Childe visited the site and advised excavation. In the temporary absence of the Director of the National Museum of Antiquities the work devolved upon me, and I desire to thank the Royal Commission on the Ancient and Historical Monuments of Scotland for permission to publish this account of the results. I also desire to thank the Society of Antiquaries of Scotland for defraying part of the expenses to make the excavation possible.

Pinnaclehill is situated on the outskirts of Kelso, slightly less than 350 yards due north of the railway station, and is approached from Cornhill Road

(fig. 1). Immediately within the entrance gates and on the north side of the drive leading to the house there is a conspicuous eminence in the shape of a truncated cone (Pl. II, 1). In size it averages 140 feet in diameter at the bottom, and measures 18 feet in height above the highest point of the drive, which cuts through its outer edge. Diametrically opposite on the north-west it measures  $28\frac{1}{2}$  feet in height above the steep bank of a burn which debouches into the Tweed some 170 yards farther to the north.

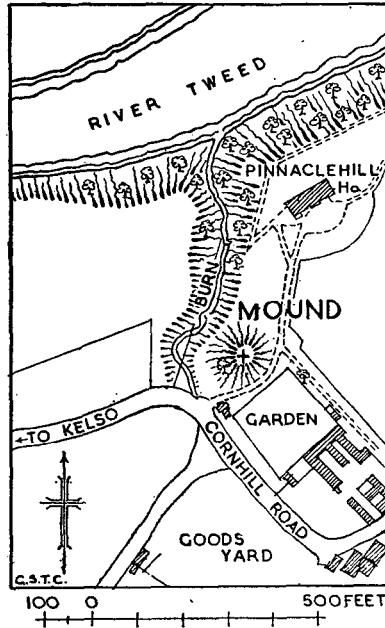


Fig. 1. Plan of Site.

The mound is a natural accumulation of sand and shingle<sup>1</sup> with a goodly proportion of large-sized water-worn stones, and its surface seems to have been smoothed and dressed at some time or other, probably when trees and shrubs were planted on it as a feature in the lay-out of the policies.

Excavation revealed with a fair degree of certainty that stones exposed by the gardener had belonged to inhumation in at least one if not two cisted graves now very much disturbed, and that another cist of heavier construction and presumably earlier date lay at a lower level to the south-west within a foot or two of the first.

The two largest of these stones are shown marked A and B on the cross-

<sup>1</sup> I am indebted to Dr A. G. MacGregor and to Mr R. Eckford of the Geological Survey Department for the following confirmation: "The mound is undoubtedly of natural origin and belongs to the undulating spread of fluvio-glacial sand and gravel which extends over Pinnaclehill Park and vicinity."

section XY (fig. 2), and are indicated by a dotted line in what the gardener stated, from memory, to be their original position. He had dug down as far as the line OO. Respectively their average measurements are 4 feet 7 inches long, 2 feet 6 inches wide, and 9 inches thick, and 4 feet 1 inch long, 6 inches thick, with an extreme width of 2 feet 6 inches. The third slab mentioned above measured 3 feet 6 inches long, 1 foot 3 inches wide, and  $4\frac{1}{2}$  inches thick maxima. The two slabs on edge already referred to are lettered C and D on the drawing and may have constituted two sides of an original cist, but slab C is the likelier to have been moved out of position. On plan they form an acute angle with the apex towards the south, and respectively they measure 1 foot  $4\frac{1}{2}$  inches long by 11 inches high and  $2\frac{1}{2}$  inches thick, and 2 feet 2 inches long, 1 foot 6 inches high, and 3 inches thick. Two other very small slabs marked F and G lay loosely upright near at hand but are insignificant. At a point E between slabs C and D a few human bones were recovered from the sand and shingle infilling. The finding of a larger quantity of human bones in circumstances described later attested more conclusively than the stones themselves the previous existence of either one or two graves. According to the report on the skeletal remains these two lots of bones represented two distinct skeletons.

Touching slab C on the north-west side a setting of laid water-worn stones H formed a ring of about 11 inches in internal diameter and resembled the packing of a post-hole. Its western margin was in close contact with a massive slab J, which turned out to be the cover-stone of the lower cist which was found intact. The cover-stone lay directly under slab A, from the bottom of which it was separated by a depth of about 10 inches of sand and shingle, but there was no obvious structural connection between them. The top of the cover-stone was barely 2 feet below the surface and was approximately on a level with the supposed bottom of the upper cist (Pl. II, 2).

On plan the lower cist was trapeziform, with the longer axis on a line running north-east and south-west and the whole lying in the south-west half of the summit (Pl. II, 3). It was constructed of four main large slabs on edge, on which the cover-stone rested, and the south-west end was strengthened by a packing of five small slabs on edge and two on bed as outlined in the drawing. The greater part of the bottom was paved with two slabs, and the remainder was just the natural sand and shingle. A paved bottom is an exceptional feature.<sup>1</sup> Internally the cist measured 3 feet  $\frac{1}{2}$  inch and 4 feet 5 inches on the north-west and south-east sides, and 2 feet  $4\frac{1}{2}$  inches and 2 feet on the south-west and north-east ends respectively and it averaged 2 feet in depth. Full dimensions of the corresponding side and end slabs are: 3 feet 10 inches long, 2 feet deep, and  $4\frac{1}{2}$  inches thick; 4 feet 5 inches by 2 feet by  $2\frac{1}{2}$  inches; 2 feet 2 inches by 2 feet 1 inch by  $4\frac{1}{4}$

<sup>1</sup> Childe's *Prehistory of Scotland*, p. 106.

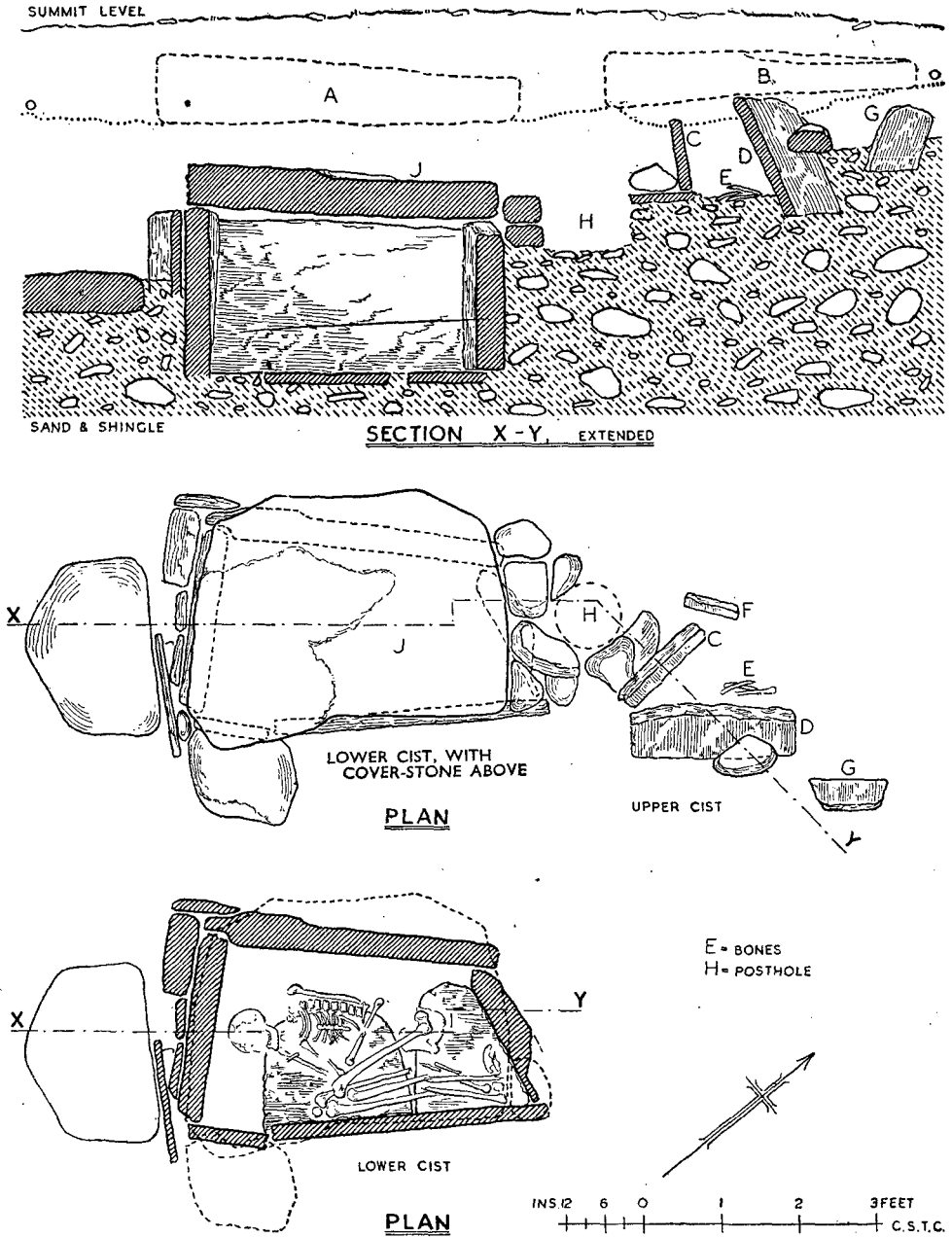


Fig. 2. Bronze Age Grave, Pinnaclehill: Plans and Section.

inches, and 1 foot 11 inches by 1 foot 10 inches by 4 inches. The cover-stone averaged 4 feet long, 2 feet 10 inches wide, and  $5\frac{1}{2}$  inches thick. The western end of the north side slab was partly shouldered, probably by an accidental fracture and received the rough edge of the end slab which was itself eked out below for most of its depth by two water-worn stones one above the other filling a gap made by its slanting edge and the same side stone. The south-east side slab was broken in two 10 inches from its west end. The east end slab lay obliquely between the side slabs and formed an acute angle at the east corner, where the lowness of the adjacent ends of the slabs, together with the shortness of the cover-stone here, left in the top of the cist a small gap which if not originally was at least ultimately closed by two water-worn stones set one on top of the other.

The cist contained the fairly well-preserved remains of a male skeleton lying on its right side in a contracted position with the head to the south-west and the feet to the north-east. The body had been deposited hard up against the south-east side and rested mainly on the paving. The skull had been damaged by the flaking of a side stone, and the pedal bones were covered by small lumps of puddled clay, of reddish colour, in and on which were some bones of another skeleton and one bone of a dog. These latter constituted the quantity of other bones which earlier have been mentioned as having formed part of the upper burials. Undoubtedly these bones and the clay had been collected during the disturbance of the upper cist or cists and had been pushed through the gap in the corner of the lower cist to form the heap in which they were found. A number of small snail-shells were gathered along with the bones of the original skeleton.<sup>1</sup>

Small tree roots had penetrated the cist without, however, doing much damage, and comparatively little silt had accumulated. What there was of it lay chiefly in the angles, and it was mixed with pebbles which had fallen in. A careful sifting yielded neither relics nor pottery fragments, but it is not an unusual occurrence for a cist of this period to be entirely barren of grave goods. To sum up, the lower cist is a typical interment of the Early Bronze Age (Childe's Archæological Stage III),<sup>2</sup> and the upper two burials may well be assigned to a somewhat later period in that epoch.

The disturbance which caused the broken-down condition of the upper cist with consequent loss of actual dimensions and possibly relics, may be accounted for by the digging of the post-hole which is almost centrally situated on the summit. Whoever dug this hole, whether with the intention of erecting a flag-pole or some other wooden construction of which only the post-hole was found, had partially destroyed the structure either by accident

<sup>1</sup> I have to thank Dr A. C. Stephen of the Royal Scottish Museum for the identification of the shells as "Cellar snails (*Oxychilus cellarius*), all but two of which seem to have some concretion upon them, and are probably therefore as old as the bones. The species is known from Pleistocene levels. The two without concretion are probably recent introductions."

<sup>2</sup> *Scotland before the Scots*, pp. 7 and 18; pl. vi, fig. 2.

or design, and with more or less reverence had reburied in the lower cist some of the bones that had turned up.

I desire to thank Lieutenant-Colonel and Lady Anne Babington for having kindly permitted me to carry out this excavation, and for having placed at my disposal the assistance of Mr Dodds, the gardener, whose enthusiasm and energy were very greatly appreciated; also Dr W. C. Osman Hill, of Edinburgh University, for the appended report on the skeletal remains, which he was good enough to prepare with great promptitude in order to make possible the speedy re-interment of the bones and the covering-in of the cist.

### REPORT ON THE SKELETAL REMAINS.

By Dr W. C. OSMAN HILL.

Three individuals appear to be represented, and these are, for convenience, labelled A, B, and C. A, the principal and probably primary occupant of the cist, is represented by a fairly complete skeleton, though curiously the missing bones all pertain to the left side. B is comprised by a small number of very incomplete bones discovered in the eastern corner of the cist beneath the gap between the cover-stone and the side slabs. C comprises a still smaller collection of very imperfect bones, discovered outside the cist and superficial thereto. Were it not for the presence of the imperfect shafts of a pair of humeri in collection B and of a third humeral shaft in collection C, I should have had no hesitation in declaring B and C the same individual.

#### SKELETON A.

This is represented by a fairly complete brain-case, but the face is, unfortunately, lacking, having been damaged in excavation. All the upper teeth were recovered, and also a tolerably complete mandible, with its dentition. Other parts include the last 7 thoracic vertebræ, parts of at least 5 others, sacrum, all 12 right ribs, but no left ones, sternum, and the following appendicular bones: lateral end of right clavicle, right scapula, both humeri, radii and ulnæ, parts of both innominates, both femora, tibiæ, fibulæ, calcanea, and tali, together with a right patella, a cuboid, scaphoid, semilunar, pisiform, one manual and one pedal cuneiform, two ossa magna, and a collection of metacarpals and phalanges, mostly from the hand. The bones represent a well-built man of middle age, the stature being computed at 1730 mm. (5 feet 8 inches).

The skull is large, having an estimated cranial capacity of over 1300 c.c.,

and is remarkable for its great relative height (hypsicranial and acrocranial). It falls into the mesaticranial category in regard to its length-breadth ratio, being rather less broad than is often found in crania of this age. But the biparietal diameter is curiously less than the bimastoid dimension, giving the norma occipitalis a peculiar aspect encountered seldom in human, but regularly in anthropoid crania. The outer table has been eroded in places, exposing the diploë, and in some parts complete perforations have been effected; all these are regarded as posthumous products. Superciliary ridges are strongly marked. The sutural arrangement so far as discernible is of the normal human pattern, but the parieto-squamous suture has an atypical form, sloping smoothly upwards from the asterion to a summit more or less in line with the bregma, thence steeply descending in an irregular curve towards the pterion. This is no doubt merely an individual peculiarity. The measurements of the skull and appropriate indices derived therefrom are recorded in Table I.

TABLE I.—CRANIAL MEASUREMENTS.

	mm.		mm.
Maximum cranial length . . . . .	184	Sagittal arc . . . . .	360
"    "    breadth . . . . .	141	Transverse arc . . . . .	c. 320
Bimastoid breadth . . . . .	150	Cranial circumference . . . . .	c. 530
Least frontal breadth . . . . .	98	Mandible-symphyseal height . . . . .	31
Auricular height . . . . .	128·5	Bigonial . . . . .	c. 88
Basion-bregmatic height . . . . .	140	Maximum depth of ramus . . . . .	30
Foramen magnum length . . . . .	36	Minimum " " . . . . .	27
"    "    breadth . . . . .	30	Maximum thickness of ramus . . . . .	20

*Indices.*

Length-breadth index . . . . .	77	(mesaticranial).
Length-height index		
(using auricular height) . . . . .	70	} (hypsicranial).
"    (using basion-bregma) . . . . .	76	
Breadth-height index		
(using auricular height) . . . . .	91·5	} (acrocranial).
"    (using basion-bregma) . . . . .	100 approx.	

The forehead is high; commencing vertically, it soon curves smoothly backwards, rising more or less uniformly to the vertex, maintaining its height for some distance, then descending in a uniform curve past the lambda, with the result that the occiput forms a fairly vertical though not flattened surface; there is no projection of the occipital pole.

The mandible indicates that the face was relatively broad, but the height is difficult to decide in the absence of any maxillary bones. The chin was moderately developed. The teeth indicates an edge-to-edge bite and show a fair amount of wear, but no evidence of caries or ante-mortem loss of individual teeth. All wisdoms were erupted, but unworn. There is slight malocclusion of the lower incisors.

The spinal bones present little for comment, except the sacrum. This is of the usual male type, but is specially interesting in being composed of six in place of the usual five vertebræ. The additional element is due to "sacralisation" of the last lumbar vertebra, and from the fragment remaining of the last lumbar the union appears to have been fairly complete. The sacral index is calculated to have been approximately 104, placing it in the subplatyhieric category.

The bones of the limbs possess a rugged character and are of robust build, indicative of a muscular physique. This applies especially to the lower limb. Measurements are given in Table II.

TABLE II.—OSTEOMETRY OF LIMB BONES.

	R.	L.
Humerus, maximum length . . . . .	343	345
Femur: Maximum length . . . . .	480	482
Physiological length . . . . .	477	477
Trochanteric height . . . . .	460	454
Sagittal diameter of upper third . . . . .	29	29
Transverse " " " " . . . . .	36.5	36.5
Sagittal diameter of middle third . . . . .	31	27.5
Transverse " " " " . . . . .	29	26.5
(Platymeric) platymeric index . . . . .	79.5	79.5
Pilastric index . . . . .	107	107
Tibia: Maximum length . . . . .	389	394
Sagittal diameter } at level of . . . . .	36	42
Transverse diameter } nutrient foramen . . . . .	29.5	29
(Mesocnemic) platycnemic index . . . . .	76.2	69
Fibula, length . . . . .	376	373
Talus, length . . . . .	64	61
,, breadth . . . . .	48	47
Calcaneum, length . . . . .	95	89
,, breadth . . . . .	46	46
Humero-femoral index . . . . .	72	
Tibio-femoral index . . . . .	81	
Maximum height of innominate bone . . . . .	220	
Interspinous diameter . . . . .	127	
Intercristal diameter . . . . .	145	



These dimensions and proportions correspond well with skeletons of similar age previously examined. Noteworthy are the great broadening of the femoral shaft in its upper third and the high development of the posterior buttress formed by the *linea aspera*. The tibia, especially the left, exhibits a very marked rugose thickening of the oblique popliteal line, suggesting a very great development of the muscles of the calf. The side-to-side flattening so frequently met with in tibiae of this age is not present, but the lower end presents squatting facets.

The scapula and innominate bones conform to the general plan in being large and heavily marked by muscular impressions. The innominate definitely determines the sex. The scapula exhibits a relatively small supraspinous but a roomy infraspinous fossa due to the high position and obliquity of the spinous process. A curious bony outgrowth from the lower part of the vertebral border was probably associated with the insertion of the *rhomboideus major* muscle. The coracoid is comparatively small, but the axillary border is very stout and rugged.

#### SKELETON B.

The bones are few, fragmentary, and in poor condition. The only parts of the skull recovered are the squame of the occipital bone, a fragment of a parietal, and another, smaller flat bone, probably also from a parietal; there is also the orbital plate of the frontal—a rather curious element to have been preserved in the absence of the remainder of the frontal bone. No trunk-bones are represented, but the following limb-bones are preserved in a rather incomplete condition: shaft of left humerus, both femora and both tibiae; an additional long bone mixed with this skeleton appears to be the shaft of the left humerus of a medium-sized dog. The only long bone sufficiently complete for measurement was the left tibia. This is in two parts, but pieced together they represent a bone of approximately 333 mm. long, which suggests a possible stature of 1590 mm. (5 feet 2 inches). It is not possible to determine satisfactorily either the sex or age of this skeleton, but it is of more delicate build than Skeleton A. It may possibly, therefore, have been female or juvenile.

#### SKELETON C.

No part of the skull is represented. The remains include eight rib fragments, among which two can be relegated with certainty to the right side and one to the left. In addition, there is an imperfect, detached scapular spine, the shaft of a left humerus, the major part of a right ulna, and a fragment of shaft from another forearm bone. It is impossible to infer much about the possessor of these fragments other than to state that the presence of a humerus precludes the possibility of associating this group with group B. The sex and age cannot be determined from the condition of this material.