

I.

A SHORT CIST CONTAINING A FOOD-VESSEL AND HUMAN REMAINS AT BRIDGENESS, WEST LOTHIAN. BY J. GRAHAM CALLANDER, F.S.A.SCOT., DIRECTOR OF THE NATIONAL MUSEUM OF ANTIQUITIES. WITH A REPORT ON THE SKELETAL REMAINS BY PROFESSOR THOMAS H. BRYCE, M.D., F.R.S., F.S.A.SCOT.

At Bridgeness, the eastern extension of the town of Bo'ness, on the southern shore of the Firth of Forth, is a small plateau faced on the north with an outcrop of whinstone, and elevated between 40 and 50 feet above sea-level. The site is easily located, as near its northern edge is Bridgeness Tower, a high circular building within which, it may be mentioned, is incorporated an old windmill built in 1750. Behind it, to the south, the land rises sharply to a height of more than 150 feet, while in front, to the north, between it and the water's edge, is a stretch of about 200 yards of flat ground, to a large extent reclaimed from the Forth during the last seventy years.

In early times the plateau, formerly known as the Vitriol Park, from a chemical work in existence here a century ago, would appear as a low promontory, the sides of which would be encroached upon for some distance by the tide. On its western side, about 30 feet above Ordnance datum, a level deposit of shells was recently brought to light during excavations for the foundation of a retaining wall, which has now been built, to support one side of a new bowling-green for the local Miners' Welfare scheme. The deposit of shells, where exposed, was covered by about 4 feet of soil, and showed a very regular thickness of about 10 inches, except at the edges where it tailed out. Although the possibility of the shelly layer being a kitchen-midden, perhaps contemporary with those belonging to the Azilian period which have been found in the west of Scotland, was considered, I think there is no doubt that it has been formed by natural agencies. Generally the shells are of small size, and a large proportion are broken into mere fragments; many water-rolled pieces of shale also are to be found amongst the shells. In the prehistoric kitchen-middens of the Scottish coasts, limpet, periwinkle, cockle, and oyster shells are most abundantly found, but at the site under discussion the relative proportion of these shells is very small. After being washed, a heaped double handful which I brought away was found to consist, for the greater part, of shells broken into very small fragments, there being only three small limpets, three pieces of small cockles, and a bit of an oyster shell the size of a penny.

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A small piece of bone was found amongst the shells, but this was not kept, and Mr H. M. Cadell of Grange, the proprietor of the ground, found in the layer a sub-oval piece of thin water-worn shale, measuring 5 inches by 2½ inches, with one side wrought to an angled edge by what resembled rough filing from both faces. It seems an undoubted artifact, but its purpose is not apparent.

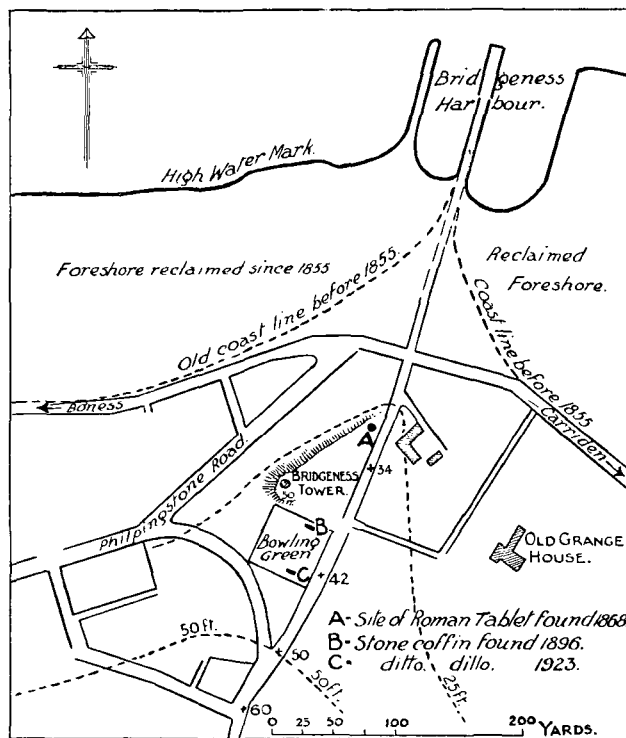


Fig. 1. Plan of Discoveries at Bridgeness.

During the early Bronze Age the site had proved attractive to the people of the district, as two short cists of this period, each containing an urn of the food-vessel type, have now been discovered on it. A third and smaller cist full of earth but with no bones or urn was also found between the others. Besides these a human skeleton without any enclosing structure was recently found, but there was nothing associated with it by which its period could be determined. In addition to the cists mentioned, another containing unburnt human remains and a food-vessel was unearthed at Cowdenhill about 300 yards to the westward.

Later on this locality was visited by the Romans, who erected the eastern terminal fort of the Antonine Wall in the neighbourhood. The famous sculptured and inscribed tablet set up by the Second Legion, which is now preserved in our National Museum, was found in 1868, near the north-eastern corner of the plateau, at the spot marked A in fig. 1.



Fig. 2. Stone Axe found at Bridgeness. (Ca. 4.)

The first cist, which was discovered in 1896 (B in fig. 1), contained the remains of the skeleton of a man and a food-vessel. These were handed over to Sir William Turner, who placed them in the Anatomical Museum in the University of Edinburgh, and published a description of the skull and urn in the *Transactions of the Royal Society of Edinburgh*, vol. li. pp. 187, 189.

A well made, finely polished stone axe (fig. 2), measuring $4\frac{1}{8}$ inches in length, $2\frac{1}{8}$ inches in breadth, and $1\frac{1}{8}$ inch in thickness, with the top and bottom sides ground flat, was found near the grave.

The Cowdenhill cist was discovered in 1905, and a report on it by Mr Cadell appeared in our *Proceedings*, vol. xl. p. 316. Mr Cadell, who excavated the grave, had the cist re-erected

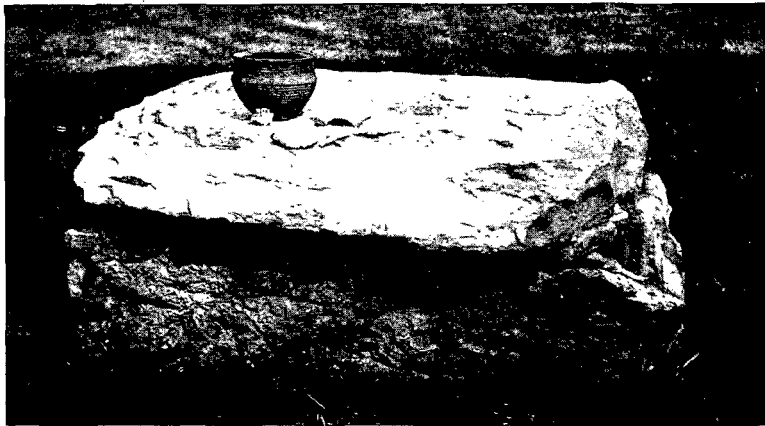


Fig. 3. Cowdenhill Cist as re-erected.

in the garden of the old house of Grange, where it is now to be seen (fig. 3). The bones contained in the cist were too fragmentary

to give an indication of the sex of the individual, but the urn (fig. 4) is a very fine example of a food-vessel, the square-sunk moulding on the top of the lip being quite unusual.

The second Bridgeness cist was brought to light in the middle of November last, by workmen excavating ground for the formation of a bowling-green, at C on fig. 1, about 50 feet south-south-west of the spot where the first cist was found. On the cover-stones being encountered, Mr Cadell was informed of the discovery, and he had one of the slabs raised, when human bones were seen lying on the gravelly bottom of the grave. The stone was replaced, and the discovery having been reported to the Museum, I went out to the site a few days later and assisted Mr Cadell in the examination of the burial.

The cist (fig. 5), which was formed of four thin slabs of the yellow sandstone set on edge, was a very good example of this class of grave. It was sunk in gravel, and was covered by about 4 feet 6 inches of soil. The main axis lay 98° west of north magnetic, and in shape it was almost rectangular. The grave measured internally 3 feet 11 inches and 3 feet $6\frac{1}{2}$ inches along the north and south sides, 2 feet $1\frac{1}{2}$ inch and 2 feet $4\frac{1}{2}$ inches across the east and west ends, and 1 foot 6 inches in depth. The slabs forming the cist, which probably came from outcrops of sandstone in the bluff to the south-east of the site, were of very regular thickness, those on the north and south sides averaging $4\frac{1}{2}$ inches and $3\frac{1}{2}$ inches in thickness, and those at the east and west ends $1\frac{3}{4}$ inch and 2 inches. The ends were inserted between the sides, which projected about 4 inches at the west end but were flush at the east end. The tops of the slabs were almost level, except at the north-east and north-west corners, where single thin stones were inserted. There were no signs of clay luting between the slabs at the corners, and the floor was neither paved nor causeyed. The mouth of the cist was covered with a long thin slab along the northern side and by two short slabs on the south side, the openings between these stones being closed with smaller slabs.



Fig. 4. Food-vessel from Cowdenhill.

When the cover-stones were removed, the remains of two skeletons and a complete urn were exposed on the floor of the grave quite clear of soil, none of which had percolated into the chamber, as so frequently happens when the soil is of a sandy nature.

The better preserved skeleton, which is that of a man about thirty years of age, probably about 5 feet 6½ inches to 5 feet 7 inches in height, lay in a crouching position on its right side with the skull near the centre of the west end, the face to the south, the hands in front of the chest, and the knees drawn up in front of the body. The second skeleton,



Fig. 5. Short Cist with Skeleton and Urn at Bridgeness.

which is that of a child about seven years of age, was placed in front of that of the man, as two pieces of the child's skull lay close to the face of the other. Behind the skull in the north-west corner of the grave was the urn (fig. 6), a very small, perfect example of the food-vessel type, standing on its base, slightly tilted towards the centre of the cist. It is formed of dark brown ware, and measures 3½ inches in height, 3½ inches in external diameter at the mouth, 4½ inches at the bulge, and 2¼ inches across the base. The vessel is bowl-shaped, the sides being curved instead of angular at the widest part, and the broad lip is sharply bevelled downwards towards the interior. The decoration on the wall consists of two broad bands entirely covering it, and separated from each other just below the bulge by three transverse lines of a roulette-like pattern,

which seems to have been formed by winding tightly round a core a thin twisted cord and impressing it on the clay while soft. The upper band shows seven panels filled with the impressions of a triangular stamp, sunk most deeply at the obtuse apex in two, three, and four vertical rows; two and four, which adjoin, occur only once, and three occur five times: these panels alternate with groups of three, four, and five roulette-like vertical lines, four occurring four times, three twice, and five once. The lower band which covers the tapering lower half of the vessel is covered by triangular marks similar to those just described, only the apex of the triangle is placed towards the right. On the bevelled top of the rim are three concentric circles of impressions formed with the same triangular stamp.

The thanks of the Society are due to Mr Cadell for so kindly presenting the urns from the second Bridgeness cist and from the Cowdenhill cist, to the National Museum.

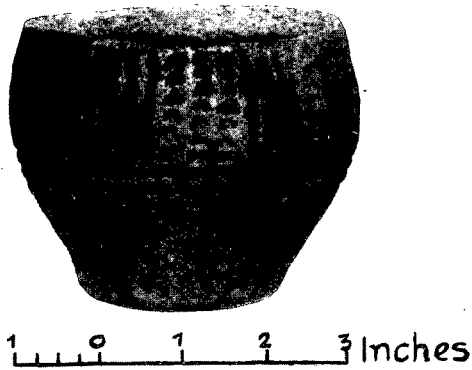


Fig. 6. Food-vessel from the second Bridgeness Cist.

REPORT ON BONES FROM THE SECOND BRIDGENESS CIST.

By Professor THOMAS H. BRYCE.

The bones recovered from the cist represent two individuals, an adult male under thirty years of age and a child of seven. The adult skeleton is very incomplete, but sufficient remains for the determination of the age and sex, and for the computation of the stature of the individual.

The skull was complete when first removed save for the upper part of the face, which was broken away, and the left side of the base. Unfortunately, the remaining part of the base, which was extremely fragile and almost unsupported, collapsed during manipulation. The vault, however, is whole, and yields data for conclusions regarding the shape of the cranium. All the sutures are open, and show no sign of commencing closure, even on the inner surface. As closure of the sagittal

suture begins under thirty, it may be concluded that the individual was not over that age. The teeth in the lower jaw, the greater part of which remains intact, show a certain amount of wearing of the crowns. All three molars are in position, indicating that the person had attained adult age. The vault is of oval shape looked at from above, and the sides of the skull are "well filled." The glabella is prominent and the supra-orbital ridges are well marked. The frontal bone above the glabella does not rise vertically, but arches with a full curvature to the vertex.

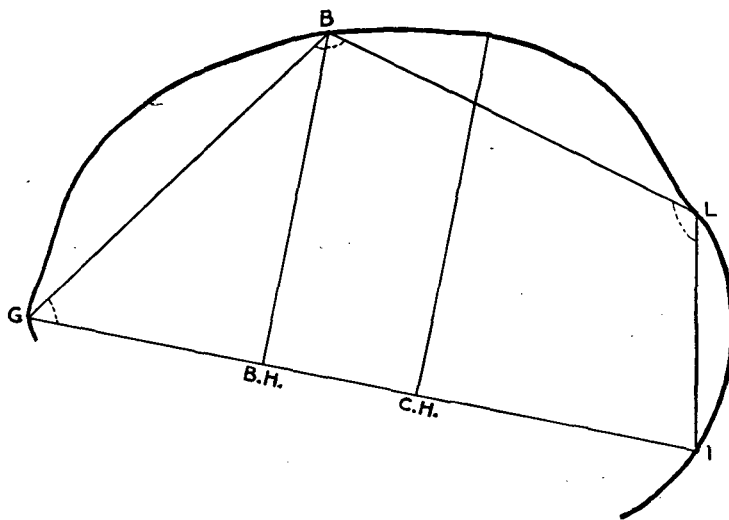


Fig. 7. Sagittal Outline of Bridgeness Skull. (3.)

From these features of the forehead it may be concluded that the individual was in all probability a man. The glabellar-occipital diameter is 187—a fairly high but moderate figure—and the transverse diameter is 142 mm. The cephalic index is therefore 75.9, and the skull falls on the borderland of the dolichocephalic class. Owing to the absence of the base and of the face it is not possible to ascertain the altitude of the vault nor the height of the face, but the accompanying tracing of the sagittal outline of the vault (fig. 7) and measurements made on this outline will provide certain data regarding the characters of the skull.

Glabella-inion length	180 mm.
Calvarial height	99 "
Maximum breadth	142 "
Distance of foot point of calvarial height from glabella	105 "
Distance of bregma foot point from glabella	61 "

Length of frontal arc	124 mm.
" " chord	110 "
" parietal arc	123 "
" " chord	110 "
" supra-inial arc	66 "
" " chord	63 "
Bregma angle (Schwalbe)	55·3°
Angle between frontal and parietal chords	110°
Lambda angle (Schwalbe)	79°
Angle at lambda	116·5°

The vertebral column and ribs are represented by small fragments only, which yield no information.

Upper Extremity.—The bones of the arm which have been preserved entire are the right scapula, the left humerus, the right radius and ulna, various carpal and metacarpal bones, and some phalanges. The ossification is quite complete in all the bones, indicating that we have to do with the skeleton of a person of full adult age. The bones show no special features to distinguish them from modern bones. They are all well-formed and well-marked bones, but do not suggest a specially muscular person, and the forearm bones, especially the ulnæ, are more delicate and slender than those of an average individual. They have undergone a good deal of superficial erosion, presumably post-mortem, but even allowing for this, the shafts of the ulnæ are remarkably slender. The maximum lengths of the long bones are as follows:—humerus, 33·0 cm.; radius, 26·5 cm.; and ulna, 28·3 cm.

Lower Extremity.—The whole of the ventral part of the pelvis has decayed away, but, fortunately, the bodies of both hip-bones have been preserved. The characters of the sacro-sciatic notches can therefore be determined. On both sides the notch is specially narrow, and its upper border descends abruptly behind. This is a feature distinctive of a male bone, and we can therefore, even in the absence of the pubic arch, identify the skeleton as that of a man.

The long bones are well developed and of average dimensions. The femur measures 47·0 cm. in its maximum length, and the tibia 37·5 cm. These figures furnish data for the calculation of the stature of the individual. The application of Pearson's formula for the femur and tibia combined brings out his stature at slightly over 169 cm., *i.e.* between 5 feet 6½ inches and 5 feet 7 inches. The femur does not show an appreciable degree of flattening below the trochanters. The transverse diameter is 33 mm., and the antero-posterior 27 mm., giving a platymeric index of 81·8. The linea aspera is rather more prominent

than in many bones, and the shaft of the bone is fairly strongly curved. The dimensions are transverse diameter 24 mm., and antero-posterior diameter 29.5 mm., giving a pilasteric index of 122.9. The tibia shows no bending back of the head, and it is not markedly flattened from side to side in its upper third. The antero-posterior diameter is 35 mm., and the transverse diameter 27 mm., yielding a platymeric index of 77.1. There is no indication of the so-called squatting facets on the lower end of the tibia. The feet have suffered more decay than the hands. Portions of the talus and calcaneus of both sides have been preserved, but the talus is too much injured to permit of an estimation of the angle of the neck. Only one metatarsal (the fifth) is present. It is rather shorter than usual.

The skeleton of the child is represented by part of the frontal region of the skull, the temporal bone of one side, a part of the upper, and a part of the lower jaw. A fragment of the upper end of the right thigh bone is the only part of the skeleton of the limbs which remains. From the teeth it is possible to estimate the age of the child. The fragments of the jaws show only the milk molars in position, but in both the upper and the lower jaw the socket for the first permanent molar is developed and the tooth has fallen out. As this tooth erupts at the end of the sixth year, it may be concluded that the child had reached that age. The second permanent molars are still enclosed in their crypts; the premolars have not erupted; and in the upper jaw the permanent lateral incisor which erupts in the eighth year is still completely enclosed in its crypt. The portion of the jaw holding the median incisor is broken away. From the evidence it may be concluded that the child was over six and under eight years of age.