

VIII.

RE-EXCAVATION OF THE CHAMBERED CAIRN OF QUOYNESS, SANDAY, ON BEHALF OF THE MINISTRY OF WORKS IN 1951-2.

BY PROFESSOR V. GORDON CHILDE, D.LITT., D.Sc., F.B.A., F.S.A.Scot.

The cairn, erroneously called the Broch of Quoyness by the transfer of its proper name, Augmond's (Egmond's) Howe to the adjacent fortified site, stands on the E. side of the promontory of Els Ness, right on the shore. The cairn is built on a flat platform that rises now 2 to 3 ft. above a level tract of grass-grown foreshore that passes over on the E. into the shingle of a storm beach. At low tide inclined beds of Old Red Sandstone are exposed beyond and below the shingle, but a high spring tide might lap the skirts of the platform. The platform is correctly described in the *New Statistical Account* by Dr Wood, who says that its edge was "formed by stones set upright" (*N.S.A.*, xv, 136), but was ignored by later writers till the visit of the Royal Commission. The chamber was cleared out in 1867 by Farrer, who thought the cairn was a broch but recognised two retaining walls, a feature just discovered in Neolithic cairns by Anderson in Caithness. The relics recovered reached the National Museum, the skulls were sent to Thurnam in London, but the remaining bones were unceremoniously dumped

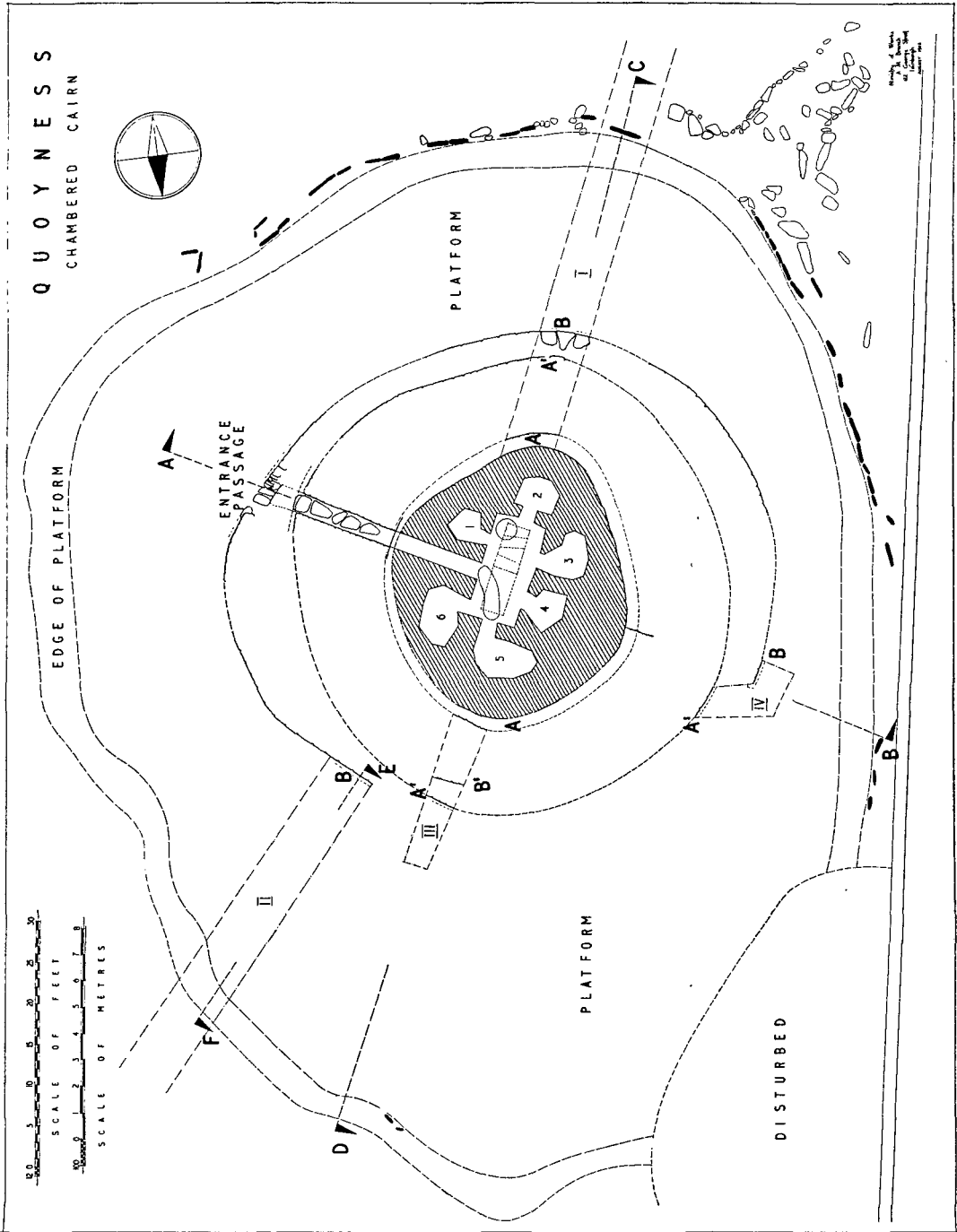


Fig. 1. Plan of Egmond's Howe.

back where they had been found. A far from accurate plan was prepared by Dryden and published by Anderson in *Scotland in Pagan Times*; it shows the two retaining walls as exposed on the surface of the mound (together with a third at the entrance), and implies their destruction on the NW. Before leaving the island the excavator gave instructions for the preservation of the walls as far as possible, and in fact a quite unnecessary wooden shoring was put up in the chamber, further disturbing the floor, and the bones redeposited upon it. But when I visited the site in 1929 I found the chamber intact indeed but partially open and choked with rubbish, a gash of naked stones over the line of the entrance passage, a similar but grass-grown gap on the NNE. which must be due to earlier disturbance, since Dryden's plan shows the breach in the walls that it produced, and sundry heaps of stones on the west, attributable either to efforts to trace the outer wall or to quarrying for stones to be used in the building of the Elsness shore-dyke that runs across the western edge of the platform. The latter operation was presumably responsible for the disappearance of most of the upright slabs mentioned by Dr Wood. A road across the platform on the E. had further disturbed its edges. So I persuaded the late Mr Irvine, then owner of Elsness Farm, to place the monument under the guardianship of the Ministry of Works. In July and August 1951 I had the privilege of superintending the preparatory operations undertaken by the Ministry for clearing out the chamber, determining the limits of the monument and deciding how most faithfully to preserve its original form. To the latter end two sections were cut right across the platform: (I) along the main axis of the chamber on the SSW., and (II) at right angles to a straight section of the outer wall B on the NE. The line of the outer retaining wall B was traced on the S. and E.; the edges of the bank on the SW. and N. were deturfed exposing two "horn works," the SW. having been noted from superficial indications by Mr Cruden; a cut into the grassy gap on the NNE. (Section III) exposed the lower courses of the inner retaining wall A, where the gap occurs on Dryden's plan. Section III, however, revealed further features—particularly the stump of a retaining wall A' that had been missed in Sections I and II and is confused with wall B in Dryden's plan—which necessitated a return to the site for three weeks in July–August 1952. Then a further segment of wall A' was exposed on the W. in a further cut (Section IV) and subsequently traced all round the SE. quadrant. At the same time the platform was stripped of turf, allowing many new uprights to be identified and the edge of the structure accurately planned.

Now Quoyness is the finest chambered cairn under the Ministry's guardianship after Maes Howe, and exhibits significant similarities to the latter, where the Royal Commissioners expect well-built retaining walls below the turf. As we recovered fuller details about the construction of the cairn than are available anywhere else, it will be worth while recording the results

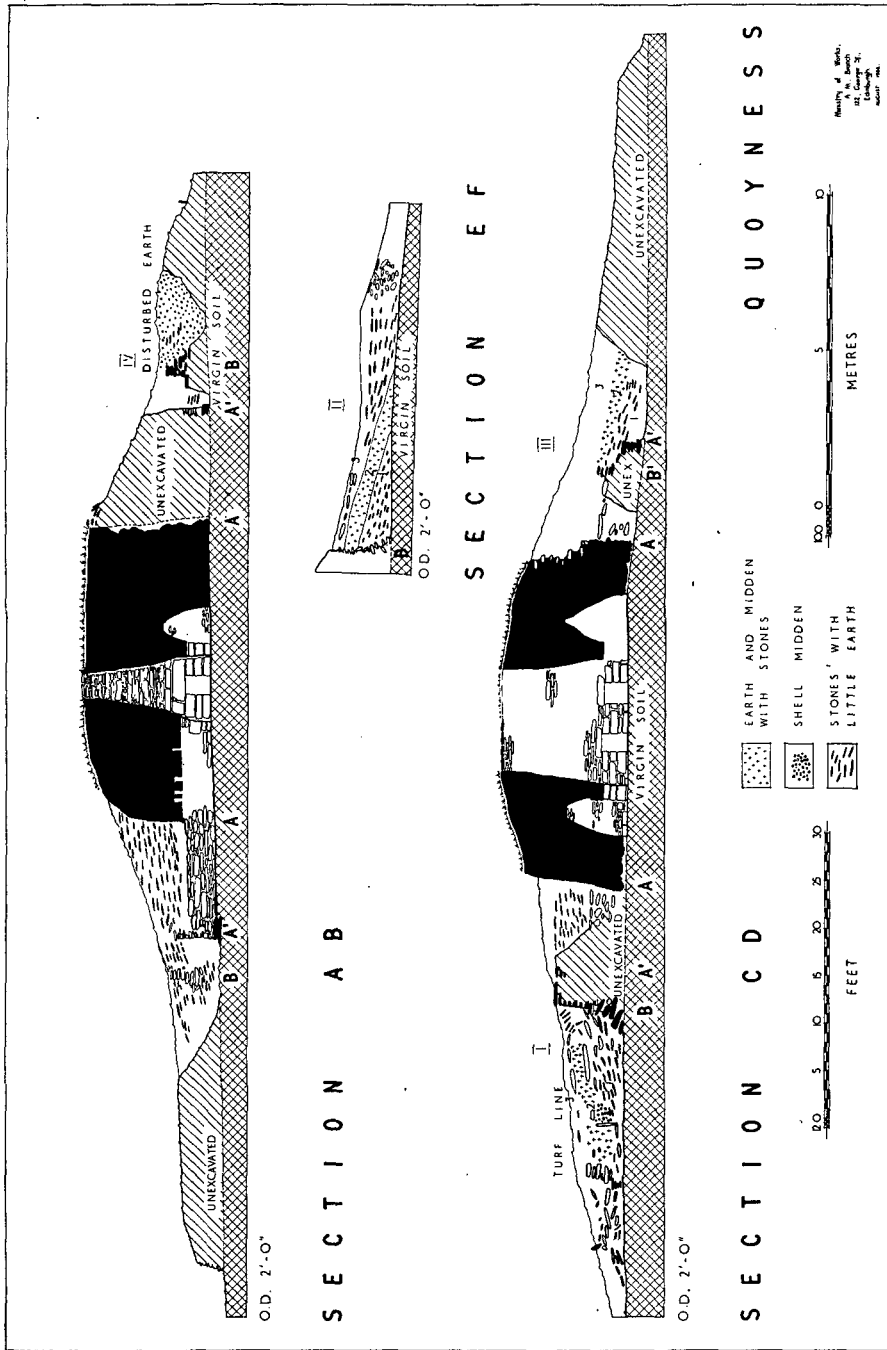


Fig. 2. Sections of cairn and platform:
 CD = Sections I and III; EF = Section II.

Herbert A. Smith
 Edinburgh
 1951

in considerable detail. Sections I and II showed that while the inner retaining wall A, like the chamber, stood on virgin soil, the outer retaining wall shown on the old plan, our B, rested on stones of the platform, 2 to 5 ft. above virgin soil. Hence the platform too was an integral element of the familiar structure. But Sections III and IV and a re-examination of the entrance revealed that the central cairn was primarily supported by wall A', rising from virgin soil a few feet inside B's circuit. It will accordingly be convenient to describe (1) the site; (2) the chamber; (3) the central cairn; (4) the mantling cairn and the platform.

THE SITE.

The original site selected was a very low ridge, rising some two and a half feet from lower ground to the N. and sloping still more gently to a similar depression on the S. The ridge itself, a bed of harder flagstone capped with the usual "yellow clay" or rock-head, slopes more gently down from W. to E. towards the shore till it dips abruptly beneath the shingle of the old storm beach. The chamber was built across the crest of the ridge, where the yellow "clay" was 6·10 ft. above O.D., while the passage runs along the sloping crest for 3 ft. and on to the shingle beyond its dip. As a result then of the original configuration of the ground, the outer margin of the platform rests on the W. on yellow clay at 6·80 ft. above O.D., but on the N.—along the axis of the chamber—on grey clay, probably formed in a lagoon or marsh—only 3·70 ft. above O.D.

THE CHAMBER.

The chamber is approximately rectangular, measuring 13' 6" by 6' 6" at ground-level, and 13' high. The side and end walls are bonded into one another at intervals, but only one slab in each of the four corners joins the adjacent walls obliquely. The courses of both side and end walls oversail one another slightly so as to reduce the area to be spanned by lintels to 10' 10" by 2' 10", the side walls overhanging 1' 8" and 1' 9" and the intact (S.) end wall 1' 3". On to the chamber open six corbelled cells of irregular plan measuring at floor-level (1) 4' by 4' 3", (2) 4' 3" by 5' 0", (3) 4' 3" by 6' 0", (4) 4' 0" by 5' 9", (5) 4' 9" by 7' 9", and (6) 5' 0" by 6' 9". The walls corbel up to heights of 5' 8", 6' 3", 6' 0", 4' 10", 6' 7" and 6' 3" respectively, while the doors vary from 2' 1" to 2' 7" in height. The largest stones in the chamber are the lintels over the doors of the two end cells, the door to cell 2 being spanned by a block 7' by 3' by 1', while its opposite number is slightly longer but less massive (Pl. XXIV, 1 and 2).

The chamber walls rest on clean yellow clay which forms the floor of the chamber and cells save for cell 3, where rock rises to floor-level, as it does in

part of cell 5. In the S. corner of the floor a circular cist, 33" across and 8" deep, had been dug through the yellow clay down to the rock. It had been emptied by Farrer, who replaced in it the human long bones, ribs and vertebræ, that he found in it, together with animal bones, bits of wood and cork. Several stones were lying in the cist on the top of this mixture, but three thin slabs resting tightly against the sloping walls of the cist in the S. quadrant are certainly remains of an original lining.

From the entrance to cell 5 to the mouth of the entrance passage a curved trench, 22" wide and 8" deep, has been dug in the clay floor; it stops short at the mouth of the passage and the door to cell 5 where its floor is rock. It was filled with dirty soil in which a number of small slabs, minute scraps of pottery and bits of bone and wood were embedded. It is doubtful whether the slabs were remains of an original cover or lining, and indeed whether the trench was not dug by Farrer to test the virginity of the soil!

The passage opens some 1' 3" NE. of the centre of the SE. side wall and is 2' 10" high by 2' 0" wide. It runs approximately 32° S. of E. at the same width for 12', where it debouches through wall A. In this section its floor is of the same yellow clay as that of the chamber but slopes down in the 12' some 7". The two innermost lintels alone are horizontal slabs, the rest are set on edge. Through gaps between the latter can be seen a second course of similar slabs on edge, as Farrer noted.

Beyond wall A the built walls of the passage continue for a further 12 ft. to the point where it debouches through wall A'. The lintels over this section, according to Farrer again slabs on edge,¹ are no longer in place. The passage is here paved with five slabs which do not run under the side walls. The first three rest on the usual yellow "clay," but the two outermost cover lower slabs that do run under the walls. The first of these in turn rests on yellow "clay," but the last is part of the plinth of wall A' and passing under the S. wall of the passage continues for over 4 ft. under wall A'. Under it, barely 4.50 ft. above O.D., is only broken rock, presumably the old storm beach.² The north wall of the passage is bonded into wall A' above its plinth, the edges of the stones at the corner having been artificially rounded off (Pl. XXV, 1). On the opposite side only the basal courses form a corresponding return. Above them we found an irregular gap of 1' 6" along the passage wall and 1' 3" in wall A'. This breach may be due to Farrer, but we observed a slab, 2' 4" long, 1' 9" wide and 3½" thick, projecting 1' 8" into the passage a foot above the pavement as if to form a step down to it.

¹ Six or seven slabs, each with one good straight edge, 2' 10" to 4' long, 1' 3" to 1' 10" wide and 4" to 7" thick, lying in Farrer's dump may well represent missing lintels.

² In 1951 a drain was laid from the chamber through the yellow "clay" under the passage floor and tunnelled under the plinth of wall A' to reach this loose broken rock. Moisture drains away freely into it and the chamber is now quite dry and much lighter.

Nothing to-day survives of any portal through wall A' more elaborate than the rounded corners of the return, nor yet of any continuance of the passage beyond its line. Instead, the fairway was blocked with stones on which rests the plinth of wall B. There is a ragged gap in the latter opposite the passage-mouth, due in its present form to Farrer. On the N. a bed of slabs runs out from the back of wall B towards wall A', 1' 4" from the passage-mouth and about level with the top of A', which is here only 2' 10" high. But on the S. the space between wall A', here soon rising to 6' in height, and the base of B was filled with loose earth and stones, from which we recovered a few human and animal bones.

Farrer found the outer section of the passage "blocked with rubbish" in which he recovered several skulls, "one at least half an inch thick," and a stratum of decayed bones. Here we found, in 1951, a couple of human long bones, bones of cattle and a few sherds, one sherd actually lying in a hollow of the yellow "clay" below the junction of the third and fourth paving-stones. More human bones and teeth were found in a decayed state just S. of the passage-mouth against the face of wall A', and there was an even larger but more disintegrated deposit of bones on the opposite side but above the present top of wall A'. A peculiarly painful gap in Farrer's report is the absence of any account of the means of access to the entrance passage. It may be taken as certain that no built walls continued its line under the base of wall B and across the platform. From the platform access would therefore involve a descent.

THE CENTRAL CAIRN.

The chamber with its accessories was cased to its top in a towering cairn composed entirely of stones and rising at least 14' above the original ground-surface. This mass was supported in the first instance by wall A, which survives in places to an elevation of 18·10' O.D. though it is only one course thick. In Section I the face was exposed standing for 10' from virgin soil, and proved to be composed largely of relatively thin slabs so that in all fifty-eight courses could be counted (Pl. XXVI). In this section, as over the entrance, the wall is built with considerable batter, amounting to 25" in the 10' exposed. Partly perhaps as a result of slipping, the batter is exaggerated near the top—7" in the topmost 3' in this section and 4" in 18" near the NW. corner.

Wall A presumably ran continuously round the chamber, interrupted only by the narrow entrance passage; even on the N., where Dryden's plan shows a gap, our Section III exposed a segment standing 4' high from virgin soil (Pl. XXVII, 2). In plan the space thus defined has a curious ovoid outline—36' along the chamber axis and 32' across it. But this outline is well contrived to accommodate the chamber and cells economically. At its observed

base in Section I the face of wall A is only 5' 6" from the inner face of cell 2's wall, and its distance from cell 5 in Section III is the same. Wall A in turn was itself buried in a mantling cairn supported by a complex system of retaining walls.

Wall A', the innermost of these, stands everywhere on a plinth of selected slabs, some exceeding 4' in length and most 4" thick. These project some 4" beyond the line of the face and rest on the yellow clay (in Sections III and IV) or on the presumably undisturbed shingle (at the entrance). Above the plinth, wherever seen, the wall-face rises almost vertically. North of the entrance, like the passage wall, A' is barely 3' high. But on the S., after the partial gap near the passage-mouth, wall A' soon reaches a height of 6', and 10' from the passage its top is protruding through the present surface of the cairn above and behind wall B at an elevation of 15.10 above O.D. so that it must be standing 9' high. About this level we traced it all round the SE. quadrant to the edge of Section I. But on the line of section its top courses have already slid forward to below the level of wall B, so that we missed it altogether in 1951 when we went down obliquely to the base of wall A from the top of wall B in order to leave the well-preserved section of the latter intact. Northwest of Section I wall A' has collapsed outwards still more and nowhere emerges above wall B. In Section IV it now stands only 2' 4" high and in Section III only 1' 8" (Pl. XXVII, 2). It cannot indeed be proved that on the W. and N.—an admittedly disturbed sector—wall A' ever stood any higher, since the mass of stones outside its line could have been derived from the collapse of wall B and, on the N., of wall A itself. On the S., however, there survives a considerable mass of loose slabs over and outside the top of wall B that may well have slid forward from wall A' and would suffice to increase its already substantial height by a foot or more.

The line of wall A' follows more or less the curvature of wall A. At the entrance it is just over 12 ft. from the latter along the passage which is radial to its arc. The shortest measured distances from exposures of walls A to A' are 11' 6" on the S. and SE.; 10' 9" in Section I; 12' 9" at the NW. corner (reducible to 10' 9" from wall A base by allowance for batter) and 10' 9" in Section III. The figure it describes is thus again pear-shaped on plan with axes of 58' and 55'.

The space between walls A and A' was built up with substantial slabs, not just thrown in, but laid flat though not properly coursed. The mass was solid enough to stand almost vertical above the side walls of the outer passage in the entrance gash. A section of it has been preserved by a lucky chance against the topmost courses of wall A at an elevation of 18.10' O.D. (Pl. XXV, 2), and so close to the original summit of the cairn at the NW. corner, though here wall A' had been reduced to a stump.

In its sole exposures, in Sections I and III, the space immediately

outside the base of wall A was found to be packed for a radial distance of at least 6' with massive blocks of from 6 to 9 cubic feet brought up from the shore. These blocks tended to be laid horizontally though not built. In both sections this heavy packing appeared to be capped with a rather less irregular layer of flat slabs with their surfaces about 3' above virgin soil and so roughly on a level with the big lintels over cells 2 and 5 (Pl. XXVII, 1). On the north in Section III this levelled area was bounded by another retaining wall, B'. This stands only 18" or four courses high and rests not on virgin soil, but on a layer of gently sloping slabs that run up from the top of wall A' and apparently from the virgin soil beyond it (Pl. XXVII, 1). The face of the latter is here only 3' in front of that of B'. Wall B' would have been missed for the same reason as wall A' in Section I, and could not have been reached in Section IV without destroying the cairn if it exist in either section.

Wall B rests on a bed of rather thin slabs sloping up gently towards wall A', and in Section III seeming to continue across its stump to wall B'. (It is the outer retaining wall exposed by Farrer, and, save at the entrance, confused with A' on Dryden's plan.) Its line is still traceable all round the cairn save for the old gap in the NW. quadrant, and defines a space diverging widely from the kernel bounded by walls A and A'. The face of wall B is in fact distant from that of wall A 16' along the south side of the entrance passage, 15' on the south, 13' 9" in Section I, 17 $\frac{1}{4}$ ' on the north (in Section IV) and about 17' just north of the entrance passage which is not radial to it. The corresponding distances from wall A' are 4' just south of the entrance passage, 3' 6" at the south corner, about 3' in Section I, 4' 6" on the NW. in Section IV and 5' on the east, north of the entrance (in Section III B was missing and in Section II A' was not reached). Thus wall B bulges out curiously in the NE. quadrant without, however, approximating to a true circle; in fact it lies between circles with diameters of 56' and 67' and actually runs quite straight in some section, for instance for 12' on the NE.

Wall B nowhere stands, like walls A and A', on virgin soil but rises from a wide plinth 2' to 4' 10" above it and projecting as much as 7" beyond the wall face (Pl. XXVIII, 1). The level of the plinth is 8·10' O.D. opposite the entrance, 10·0' in Section I, 9·35' in Section IV and 9·10' in Section II. Above the plinth, wall B is nowhere standing over 4' high. The best observed face, that exposed in Section I, measured only 3' 8" from the plinth and probably never rose higher; for the large slabs exposed at its top—one 6" thick and 2' 6" wide—look like coping-stones. On the W. and N. the wall is generally reduced to a couple of courses.

Opposite the entrance and in Sections IV and II the plinth rests immediately on two or three layers of large round-edged slabs, piled rather than laid one over the other and nowhere firmly founded on virgin soil but resting on a lower slab layer. As remarked already, wall B breaks off with ragged ends on either side of the mouth of the entrance passage, but a disorderly

mass of stones continued its line across the gap below the level of the plinth. Their condition may be due to Farrer's operations, but if they were *in situ* and supported at least a plinth, as seems likely, they would have effectively blocked access to the passage on its own level. If there had been a portal through wall B, a descent of 2' 8" from the plinth level would have been required to reach the passage threshold, and would presumably have been effected by steps. Alas! Farrer gives no indication whether a portal through B or a stairway ever existed, and the slab observed by us projecting into the passage may have been displaced. For all we know, the passage-mouth may have been completely masked by wall B and its substructure.

Under the plinth and its substructure lies a bed of gently inclined slabs that extends 15' or more beyond the line of wall B under the platform; a second layer of platform material was seen also to pass under wall B in Sections II and III. Wall B is in fact built on the platform.

THE MANTLING CAIRN AND THE PLATFORM.

The platform, now completely grass-grown, appears superficially (apart from the distortions mentioned on p. 123) to rise by a slope some 5' wide to a crest, just 2' above the surrounding ground. Hence it seems to extend perfectly flat (though actually rising 6" to 12") for 8' (on the S.) to 14' (on the N.), and then begins to rise more steeply towards wall B. This kink in the slope may be due to stones slipped from B and A', but may mark the true base of the cairn. Apart from distortions due to the farm road and to dumps, this superficial profile mirrors fairly closely that disclosed by excavation. To the crest corresponds a bank of boulders which reaches a height of 2' 6" to 3' 6" above virgin soil, but normally rests on a more extensive layer of slabs. In Section I and opposite the mouth of the entrance passage this bank assumed the aspect of a wall though not composed of properly selected and coursed facing-slabs. The bank is faced externally with a skirt of slabs, 4' to 6' wide, inclined gently up towards it. At least on the S. and W. the incline is interrupted by a kerb of slabs on edge. Seven or eight were just protruding through the turf when we arrived, but thirty-one are now in position. Wood mentions "stones set upright" defining the "terrace" on the E. too, so the setting presumably once went right round the cairn. To-day only two stones are standing on the edge of the platform just E. of the N. horn, and even these diverge so much both from the line and from the normal form of the kerb-stones that their connexion therewith seems improbable. The genuine kerb-slabs vary in height from 1' 4" to 2' and are from 1' 6" to 4' 3" long. All rest on slabs of the skirt and have been carefully wedged in among these, but many were found leaning forward from the pressure of the earth and stones behind them.

The kerb-slabs are very far from describing a circle, and neither they

nor the platform crest are symmetrically laid out with regard to the cairn's retaining walls. Kerb-stones are preserved 35' from A or 22' from B in Section I, 34' and 17' respectively in Section IV, but on the SSE. the shortest distances are 37' and 24'. Distances to bank crest may best be tabulated:

Crest to	Opposite entrance.	SSE.	SSW. Sec. I.	W. Sec. IV.	NNE. Sec. III.	NE. Sec. II.
wall A	44' 6"	37'	34'	? 31'	45	..
B	28' 6"	24'	17'	? 14'	..	25

Thus the platform seems to extend much further from the cairn on the N. and E. than on the S. and W., just as wall B bulged away from walls A and A' on the NE. But this asymmetry appears less disconcerting when the original contours of the ground are taken into account. The platform is widest where the surrounding land surface is lowest, and narrowest on the crest of the ridge.

Behind the kerb and bank three layers can be distinguished. Layer I consists of slabs, lying nearly horizontal at first and not observed in Section II more than 15' from the line of wall B. From this point the stones, unmixed with earth, slope up gently, passing under the base of wall B and seeming to override the stump of wall A', and rest against wall B', in Section III. Layer II, constituting the bulk of the platform filling behind the bank but only a foot thick over the slope of I in Section II, contains a high proportion of earth and refuse mixed with the stones, so that it remained damp and dark when Layer I had dried out on exposure. It too passed under wall B and could be traced as far as the line of wall A'. It is capped by another more stony layer (III), including nearly horizontal slabs that run from the crest of the bank up to the plinth of wall B. In front of the latter, loose stones rest against the wall-face, representing either slip from it or "extra-revetment" material.

Limpet-shells, broken animal bones and two antler tines were found among the stones of Layer I, even against the foot of wall A'. Such midden material was more abundant in Layer II, which included even a few sherds, while in Section II an almost complete sheep's skull lay under slabs at the base of III. In Section I regular midden deposits of fine black earth and ash mixed with bones and limpet-shells were observed; a bed 10" deep had been heaped up just in front of and against the wall-like section of the crest bank. Six feet nearer wall B was a deposit nearly 2' deep covered by the surface slabs of Layer III, but resting upon other slabs (Layer I). Its outer

limit was marked by a slab on edge, 25" high and 15" wide, and at its base the fine black soil passed over into yellowish-orange material resembling ash. This looks in fact like a temporary hearth. Limpet-shells, scattered everywhere through the platform filling, might well have been brought by rats; we found a recent rats' nest full of limpet-shells in the ungrassed rubble in front of wall B. The sheep's head in Section II, half a cow's mandible between two slabs in Section I, and similar finds of large bones or of artifacts must be either ritual deposits or remains of repasts consumed in the course of piling up the platform or on occasions after its completion.

"Horns" project from the skirts of the platform on the SW. and the N. The north horn before deturfing appeared as a blunt salient from the crest and could not subsequently be traced further in the shallow soil that fills the once marshy depressions. Of the south-west horn the southern margin was clearly defined by a line of ten small slabs resting on virgin soil and at one end interlocked with the basal slabs of the platform's skirt from which the horn projects (Pl. XXVIII, 2). This line was traced for 16' or close up to the base of the shore dyke. The opposite northern margin could not, however, be recognised, and the core of the horn appeared a formless jumble of stones rising to 2' 6" above the old ground-surface. In fact the removal of stones for the dyke has hopelessly distorted the configuration of this salient.

Three Cist-like Constructions have been built upon the platform's skirt outside the kerb. One on the SE., below the normal level of the kerb's base, was defined by two slabs on edge—one on the W. 2' 10" long by 1' 3" high, that on the S. 1' 9" long by 8" high. No counterpart to the first survived on the W., while on the N. the space was defined only by a normal skirt slab, lying horizontal. A thin slab, 1' 6" long but only 10" wide, runs just under the edge of the southern upright and suggests a floor. On it rested further horizontal slabs, while others were leaning against these on the E. The cist was empty save for crushed parts of a lamb's skull and jaw between the slabs. Further W., 22" from and nearly parallel to kerb-stone 1, stands a slab on edge 1' 10" long and 10" high. In the SW. quadrant a comparable slab is similarly set parallel to kerb-stone 18. No headstone survived to close these "cists," which were empty.

SECONDARY FEATURES.

In contour and profile the great gash on the N. resembles that left by Farrer over the entrance passage, save that its flanks have been completely overgrown with grass and that it cut through the upper courses of wall A and probably reached the chamber itself, since here two lintels and the topmost courses of the chamber's N. wall are missing. It suggests, in fact, an attempt to break into the chamber, albeit considerably before 1866 in view of the growth of turf. Now immediately on removing the turf from

the steep slope between the lines of walls A and B in Section III we encountered a deposit of broken animal bones, ash and rare sherds which extends beyond the southern end of our section towards the broken-down top of the chamber. The deposit looks like the remains of a picnic, but it is scarcely conceivable that anybody should have lit a fire, eaten meat and broken pots on the steep declivity where the remains were found. They are much more likely to have slid down from a more level surface near the top of the cairn after the breaching of walls A and A'. In that case the cairn's summit must have been flat or at most slightly convex when the pottery in question was current. Now two of the small sherds bear ribs in relief, suggesting to me Rinyo II (Skara Brae Class A) "secondary Neolithic" ware, but to Mr Stevenson Unstan pottery. Accordingly the deposit could be attributed to a ceremonial feast held by the cairn's builders on its summit after its completion. The builders of the adjacent broch might have been responsible for the gash. Alternatively this might have been due to the builders of the Elsness shore dyke, who in any case most probably robbed the good building stones of wall B leaving only a nettle-grown trench throughout the NW. quadrant.

In the NW. corner between the "horn" and the Elsness dyke deturfing exposed three lines of slabs, laid flat but only one course deep, that look like foundations for the walls of some flimsy rectangular structure standing on the edge of the platform but extending beyond it on to the relatively high old ground surface. No relics were recovered from this area save for some rather fresh sheeps' bones and pieces of cramp. Lumps of the latter material were recovered from other points on the platform, but always in superficial or disturbed layers.

ATTEMPTED RECONSTITUTION OF THE MONUMENT.

The chamber, the cairn and its retaining walls are constructed of slabs of flagstone, quarried by the waves or split off by man from the beds exposed all along the foreshore. The proximity of such good material may indeed have been a factor dictating the choice of the site. It may confidently be assumed that at least the chamber and the innermost cairn with wall A were planned together and raised *pari passu*. After the walls had reached a little over 3' in height, the larger lintels could have been dragged up a ramp, on to the slab bed observed in Sections I and III against wall A and over its stump. If wall A' were already in building too, the stump observed in Section III together with the low wall B' would represent this stage. Thereafter the chamber and wall A could have been raised to their final heights of 13' and over 14' respectively.

The mantling cairn contained in wall A' would most probably have been completed about the same time. It is admittedly possible, if not very

likely, that wall A' was never more than 3' high round the whole north side of the cairn (from the entrance to Section IV), in which case wall A would here have been supported merely by a stony slope. On the south it must have risen at least 10'. If wall A' reached no higher, the 3 or 4 ft. of wall A above that level would have been masked by a stepped slope of laid slabs a remnant of which survives at the NW. corner (p. 128). (A flat terrace between walls A and A' is excluded by this observation.) The result would have been an imposing but very unstable tower, now ready to receive its occupants. If the broken animal bones observed at the base of A' represent remains of ceremonial feasts, they could have been lodged there at this time.

The primary burials surely took place before the platform blocked the mouth of the passage, whose side walls return with artificially rounded corners into wall A'. Indeed the platform may conceivably have been an afterthought dictated by an invasion of the chamber by the sea, such as could easily happen in a storm with the threshold only 3·50' above O.D. and distant 50' from the present tide-mark, or by a collapse outward of the northern half of wall A'. More probably it was part of the original plan. The eccentricity of the cairn within it would have been dictated by the original contours of the land, for the extension of the platform where the ground was low would preserve the effect of a level horizon from which the cairn should seem to rise. A platform is a feature not peculiar to Quoyness; Achnacree is a round cairn rising from a platform, and the heeled cairns of Shetland are really round cairns standing on heel-shaped terraces. But the nearest parallel is Maes Howe; the howe itself stands, again eccentrically, on a platform which rises a couple of feet above the level of the ground outside the ditch and bank that encircle it, and which exhibits just the same kink in its profile near the base of the howe as we note on p. 130. But this platform would not block the entrance passage. Our platform did effectively seal the tomb entrance and mask the passage-mouth. That did not of course preclude further burials, since it is notoriously possible for the initiated to remove the blocking from the entrances to chamber tombs.

In any case, the construction of the platform and wall B doubtless mark a new stage of building and ritual activity. The base of the platform would indeed have been there already if the slabs of Layer I had served as part of the ramp for the big lintels. The next stage would then be the heaping of the stony bank round the projected area. The enclosed space would thereafter be filled in with stones and rubbish (II) and finally sealed in with a layer of slabs. The "circle" of uprights may have served as much to support the last layer as to fence off the sacred area.

It is less clear when wall B was built or whether it was projected in the original plan. From Sections II and III we infer that it is later than Layer III in the platform. Perhaps it was only built when wall A' showed signs of bursting outwards or had actually collapsed. If this wall had already

collapsed or had never been built on the north side of the cairn, B, with its otherwise so puzzling wide sweep to the NE., would effectively support the stones sloped up against wall A. On the S., if it buttressed a tottering wall close against which it was built, it completely hid its lower courses. Was its own face exposed, rising from the platform surface and defining with its coping (p. 129) a narrow level terrace from which projected 2 or 3 ft. of wall A'? In that case all the slabs lying over the top of wall B and against its face above the platform must be due to slip. I am personally more inclined to believe that most of these stones are extra-revetment material, deliberately sloped up against the faces of walls B and A'. I picture in fact a domical cairn of stones, resembling in profile Maes Howe, rather than a "stepped pyramid" rising from the level horizon of the platform.

RELICS.

In his Rhind Lectures Dr Anderson expressed the hope that a careful re-examination of the floor of our chamber would lead to the recovery of relics, overlooked by Farrer. He was right, but only just. Embedded in the floor of the chamber and of the passage we found:

- (1) One finished stone disc, smoothed on the surface and sides and measuring $1\frac{5}{8}$ " across and $\frac{7}{32}$ " thick.
- (2) A flat pebble chipped round the edges as if to make a similar disc.
- (3) Six very small sherds of soft, imperfectly fired ware, containing large angular grits, but reddish on the surface.

None of these relics were so sealed-in that they could not have been trampled into the yellow clay by secondary visitors to the tomb. The pottery is so imperfectly fired that it will disintegrate in water. Now water has been percolating into the tomb since the disappearance of the two lintels from the roof, and the floor was covered with sticky mud of the consistency of lubricating oil. In this mess reddish smudges, representing completely disintegrated fragments of pottery, could be distinguished in the passage (even with the aid of two incandescent lamps the chamber was too dark).

This pottery, like the relics previously recovered by Farrer, could perfectly well belong to the Rinyo culture, while the disc is a type familiar in the "megalithic culture" of Western Europe even beyond the British Isles.

From the make-up of the platform too came relics not inappropriate to the Rinyo culture. The potsherds, though more abundant, were no more decisive than those from the chamber, but two Skail knives, and pot-lids of various sizes, are quite reminiscent of Skara Brae. Other relics from the platform include a piece of rubbed pumice, one rough "club" of stone and several hammer-stones, a fragment of utilised whale bone and a sawn-off tine. No bone implements were found in the platform, but bones of animals were

very numerous—in order of prominence, sheep or goat, cattle and red-deer. The occurrence of red-deer antler on virgin soil against the base of wall A' in Section III establishes the existence and hunting of this cervid at the time of the tomb's erection. Several lumps of cramp were noted but none came from certainly undisturbed layers. In the absence of peat on Sanday, dung must have been the principal fuel.

The stone disc establishes a further link with the West European megalithic complex. While "pot-lids" are common also in the Rinyo and Broch cultures, our "pot-lids" grade down in size to the "stone discs" that explicitly belong to the "megalithic complex" of Atlantic Europe. From the Cotswold-Severn cairn of Ty-isaf, Brecknocks., Grimes¹ recovered stone discs varying from 125 mm. in diameter by 25 mm. thick to 47 mm. by 13 mm. shaped "by rough edge-trimming improved in one case by grinding to reduce the faceted appearance." Better parallels to the discs from the chamber are provided by two from Pant y Saer, a curious passage grave on Anglesey, which measured 2.5" and 1 $\frac{7}{8}$ " in diameter by $\frac{3}{4}$ " and $\frac{5}{8}$ " thick respectively²; and one from the excentric "Clyde-Carlingford" tomb of Ballynamona Lower, Co. Waterford,³ which measured 50 mm. across by 8 mm. thick. Outside the British Isles parallels have been quoted from two megalithic tombs in Brittany—Champ Grosset, Côtes du Nord, and Keriaval, Morbihan—and from the Castro of Pavia, a domestic site occupied by megalith-builders in Portugal.⁴ Hence, while the pottery connects our monument firmly with the Rinyo-Neolithic C culture, the discs, as much as its architecture, connect the tomb no less firmly with the "megalithic culture" of Atlantic Europe, a connexion which fits in well with Scott's⁵ theory of the south-western origin of the Rinyo culture itself.

THE STRUCTURES AND THEIR RELATIONSHIP.

The Quoyness tomb is a good representative specimen of a quite distinct class of Orcadian chambered tomb characterised by intramural cells grouped round a relatively spacious and lofty central chamber—the Royal Commission's "variety G." Judged by the very old plan,⁶ Quanterness, between Kirkwall and Finstown, must reproduce almost exactly the Quoyness chamber. The cairns on Wideford Hill and Kewing Hill, also overlooking the Bay of Firth, but one and three miles respectively west of Quanterness, though less regular, embody the same idea, which finds its grandest expression in Maes Howe. Finally, the celebrated cairn on the Holm of Papa

¹ *P.P.S.*, v, 132.

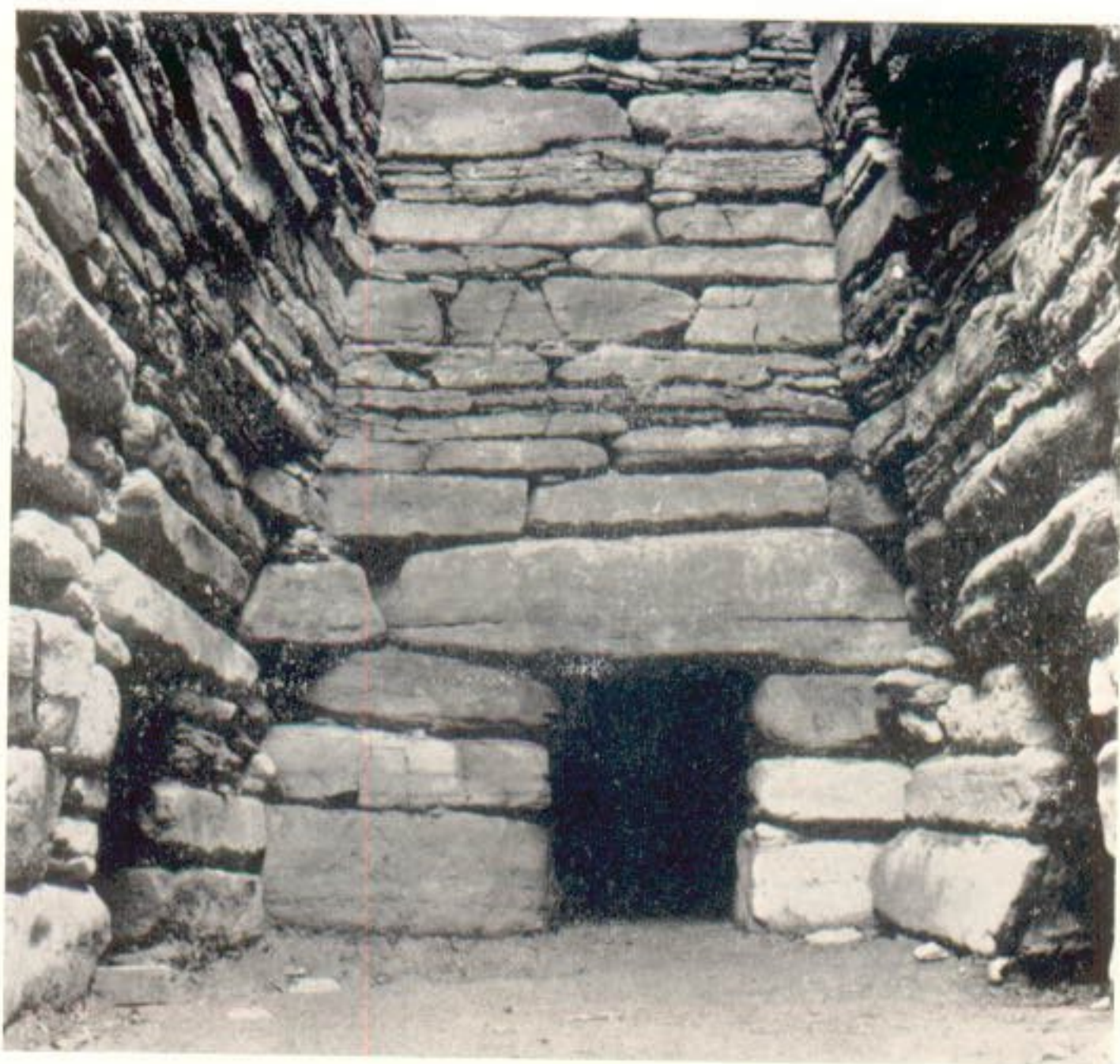
² Powell, *J.R.S.A.I.*, LXVIII (1938), 269.

³ Vergilio Correia, "El Neolítico de Pavia" (*Comm. de Investigaciones Prehistoricas y Pal.*, Mem. 27), Madrid, 1921.

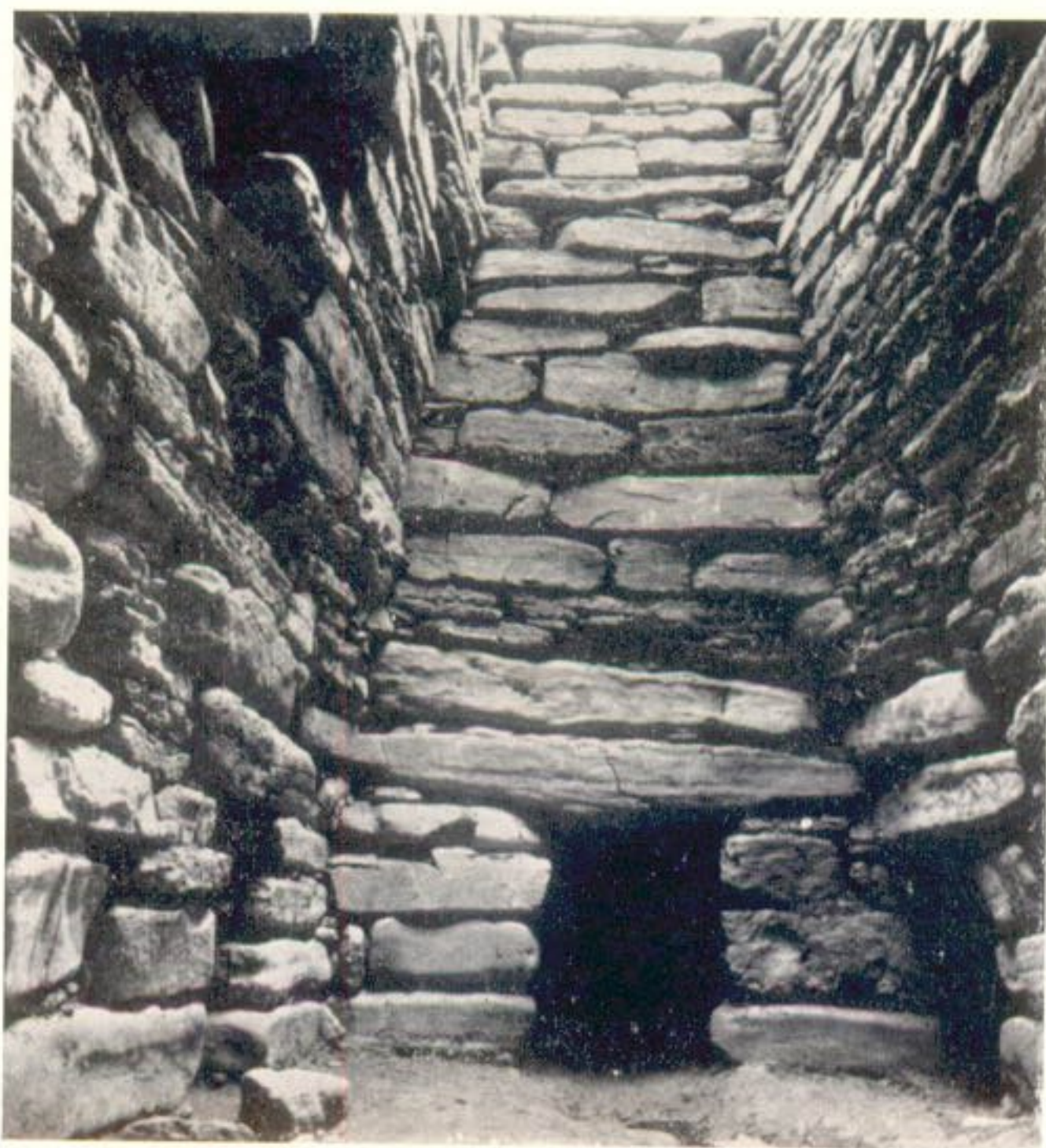
⁴ "The Colonization of Scotland in the IIInd Millennium B.C.," *P.P.S.*, xvii (1951), 16-18.

⁵ R.C.A.M., *Orkney and Shetland*, i, 19.

⁶ Scott, *Arch. Camb.* (1933), 218, 233.



1. Chamber, south end.



2. Chamber, north end.

V. GORDON CHILDE.

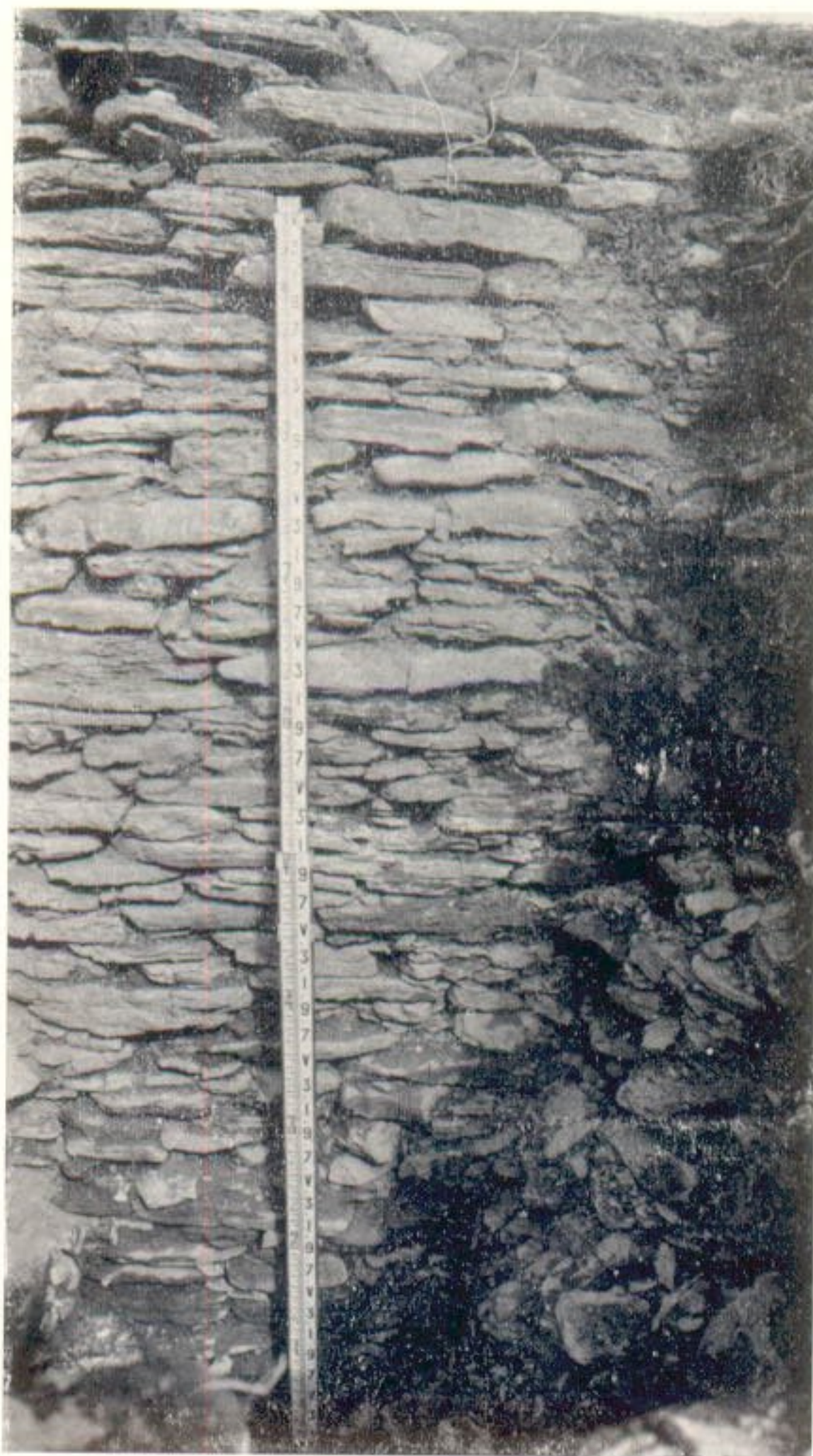
[To face p. 136.]



1. Outer end of passage, north side.



2. Cairn stones against top of Wall A.



Wall A in Section I.



1. Layer of slabs against outer face of Wall A in Section III.



2. Remains of Wall A' (foreground), Wall B' and Wall A in Section III.



1. Wall B in Section II.



South-west horn and part of kerb.

Westray is built according to the same system, though the chamber is absurdly long and the number of cells has been doubled! Of this group Quoyness alone has yielded any relics. These must be taken as pointers to the probable connexions of the remainder: all five should provisionally be assigned to the Rinyo (Neolithic C) complex. Incidentally we thus obtain some hint of how the inhabitants of Skara Brae and Rinyo disposed of their dead kinsmen or chiefs.

The cairn on Wideford Hill was certainly supported by a double dry-stone wall, as were several stalled cairns on Rousay¹ and horned cairns in Caithness. Siret noted a similar feature in the round cairns of Los Millares.² It has been a matter of debate whether both or either of these revetment walls were left exposed. Of course the walls are sometimes built in a decorative "patterned" masonry, but this proves nothing. The elaborate "palace façade" of Early Pharaonic mastabas must have been effectually hidden by the enclosure wall built close to it and therefore visible only to spiritual eyes. On this issue the evidence from Quoyness is satisfactorily explicit.

NOTE ON THE HUMAN SKELETAL FRAGMENTS FROM THE QUOYNESS CAIRN.

By L. H. WELLS, Senior Lecturer in Physical Anthropology,
University of Edinburgh.

The human remains left behind by the earlier explorers of the Quoyness cairn and retrieved by Professor Childe are regrettably fragmentary. They include only a few pieces of cranial bones and no jaws or teeth at all; practically every other part of the skeleton is represented, usually several times over. In a few instances it has been found possible to articulate fragments found in different parts of the monument; consequently the remains from these different positions cannot be taken separately in estimating the minimum number of individuals present.

Of the individual bones of the skeleton, the left humerus appears to be represented by the greatest number (ten) of adult specimens. This figure accordingly indicates the minimum number of adults buried in the cairn. In addition there are bones of two or possibly three children over ten years of age, and one or more, probably two, under seven years. This estimate, made independently, agrees quite surprisingly with Thurnam's statement, cited by Farrer, that there were fragments of twelve or fifteen skulls, adult and juvenile. The pelvic fragments show one to three males and three or four females, which at least suggests about equal numbers of the sexes.

Unfortunately, in the whole collection there are only two limb bones, a left humerus and left radius, sufficiently intact for their lengths to be measured. In both cases the intact specimen is clearly among the shortest examples of this

¹ *Ibid.*, ii, 570, 573, 575, 577, 583.

² Leisner, G. and V., *Die Megalithgräber der Iberischen Halbinsel*, i (1943), 327, taf. 85.

bone. The humerus is massive enough to be regarded as probably male. It measures 289 mm.; calculation by the most recently devised formulæ indicates a corresponding stature of 1590 mm. (5 ft. 2.5 ins.), but this might well be an under-estimate in a right-handed man. In any case most of the men must have been considerably taller than this. Comparison with other skeletons suggests that they ranged between 5 ft. 4 ins. and 5 ft. 8 ins., and one or two possibly up to 5 ft. 10 ins. The radius is almost certainly female; its length of 209 mm. gives a direct stature estimate of 1540 mm. (5 ft. 0.5 ins.). This again is probably one of the lowest adult female statures. It is difficult to determine the upper limit of female stature, as in a population where both sexes were powerful in their muscular development the taller women can hardly be distinguished from the shorter men. But although both sexes were robustly built, it seems that these people were probably medium-statured rather than tall.

There is not much evidence of joint disease in the limb bones, but at least two individuals had suffered very severely from arthritis in the vertebral column. In one of them the body of a lower thoracic vertebra is strikingly flattened. This might possibly be the aftermath of a crush fracture resulting from a heavy fall, but it is perhaps more likely to have resulted from softening of the bone as a direct result of the arthritic process. No other evidences of bony injury have been detected. One specimen shows a congenital deficiency (*spina bifida*) in the neural arch of the first sacral vertebra.

These fragments afford no evidence of the racial affinities of this population. Thurnam seems to have found considerable diversity of skull form in the remains examined by him. It seems worth while to remark, however, that the limb-bones from the MacArthur and Mackay Caves at Oban are very much the same in both size and character as the Quoyness material, and I should not be surprised if a relationship could be proved to exist between these two populations.

REPORT ON SHEEP'S SKULL.

By F. E. ZEUNER, Professor of Environmental Archæology,
University of London.

The remains found in Section II, layer II, and submitted to me for study comprise a fragmentary cranium, an isolated horn core, a right mandible, twelve fragments of jaw and isolated teeth. The most useful information is provided by the cranium, on which part of the left horn core is preserved.

The cranium agrees closely with that of several races of semi-wild sheep and undeveloped breeds. In particular it resembles the Soay sheep, but differs in the steeper rise of the horns, their axes being, in the lateral view, at right angles to the parietal plane. This may be no more than an individual feature. If it is a racial character, it should be regarded as primitive, since the angle is less than 90° in most domesticated sheep, the anterior margin of the horns continuing the frontal plane, whilst in the mouflon and the specimen from Quoyness they form an angle with the frontal plane.

The cross-section of the horn is oblong-oval, without prominent keels, and it is not flattened on the medial side. In this respect the Quoyness specimen differs from other primitive races, such as the Soay sheep and even the Scottish Blackface, which all have horn cores, flattened medially with a more distinct

RE-EXCAVATION OF CHAMBERED CAIRN OF QUOYNESS. 139

anterior keel. The rugosity of the horn core starts very nearly at its base, which is a primitive character.

The parietal is about as long as the minimum distance between the temporal ridges, which makes the parieto-occipital portion appear long. This feature is enhanced by the very open angle of the occipital measured from the parietal across the occipital crest down to the foramen magnum, and to the broad and compressed shape of the condyles, which is unlike that of domesticated races at my disposal, but resembling that of the mouflon.

The Quoyness sheep thus appears to be a primitive race with some mouflon characters, but perhaps not identical with the surviving Soay and Shetland races. It remains to be seen whether other specimens have the same oval section and upright position of the horn cores.

The size of the Quoyness sheep has been calculated with the aid of the following measurements: median length of parietal, width of supra occipital, height of foramen magnum, width across occipital condyles, width across mastoid processes and length of the row of alveoli of the lower jaw. These figures were compared in a developed breed of 25-in. shoulder height and in the Scottish Blackface sheep as shown in the following table:

	(1) Quoyness.		(2) Blackface.		(3) Developed Polled Race.	
	mm.	Percentage of No. 3.	mm.	Percentage of No. 3.	mm.	Percentage.
Width of supra occipital . . .	46.4	89	49.8	95	52.0	100
Median length of parietal . . .	31.9	81	30.8	78	39.5	100
Height of foramen magnum . . .	16.0	90	17.1	96	17.8	100
Width across occipital condyles .	48.8	92	44.2	84	52.9	100
Width across mastoid processes .	66.4	93	64.6	91	71.1	100
Length of row of alveoli of lower jaw	71.0	83	65.6	77	85.5	100
Mean per cent. of No. 3		88		87		

In size, therefore, the Quoyness sheep agrees with the Scottish Blackface sheep, the ewes standing about 22 ins. at the shoulder.