IV.

RUDH' AN DUNAIN CHAMBERED CAIRN, SKYE. By W. LINDSAY SCOTT, D.S.C., B.A., F.S.A.Scot.

Situation of Cairn.

As the situation of this cairn is somewhat surprising and may throw light on the distribution of population in Neolithic times it seems desirable to deal with it before proceeding to a description of the cairn itself. The promontory of Rudh' an Dunain lies on the west coast of Skye at the apex of a triangle of uneven bog and moorland, some eight square miles in extent, broken by many small crags. The base of this triangle is formed by the precipitous line of the Cuillin Hills, its south side by the Sound of Soay, and its north-west side by the sea loch of Brittle. Just within the apex is the brackish lochan, Loch na h'Airde, which falls out into the Sound of Soay through a channel 100 yards in length which fills from the sea at equinoctial springs (fig. 1). A neck of land, 200 yards across, divides the head of the lochan from the small bay, Camas a'Mhurain, on the Loch Brittle side of the promontory. Apart from a narrow strip along the shore near the head of Loch Brittle, the only part of this area capable of cultivation is a shallow valley running west-south-west for something less than half a mile to Loch na h'Airde.

Owing to the formidable barrier of the Cuillins, beyond which lie Coruisk and the precipitous shores of the sea-loch of Scavaig, the only land access to this area not involving serious climbing is through its northern corner from Glen Brittle. This long and narrow

glen, with high hills on both its sides, is itself easy of approach only by a single pass from its head over to Drynoch at the head of Loch Harport.

Nor is access to Rudh' an Dunain easier by sea. A landing-place 3 miles to the east of the point is used in fair weather by the fishermen of Soay, but it offers no shelter and is impracticable in any sea. The head of Loch Brittle is shoal and sandy and attractive enough for flat-bottomed boats in off-shore winds, but it is unapproachable in

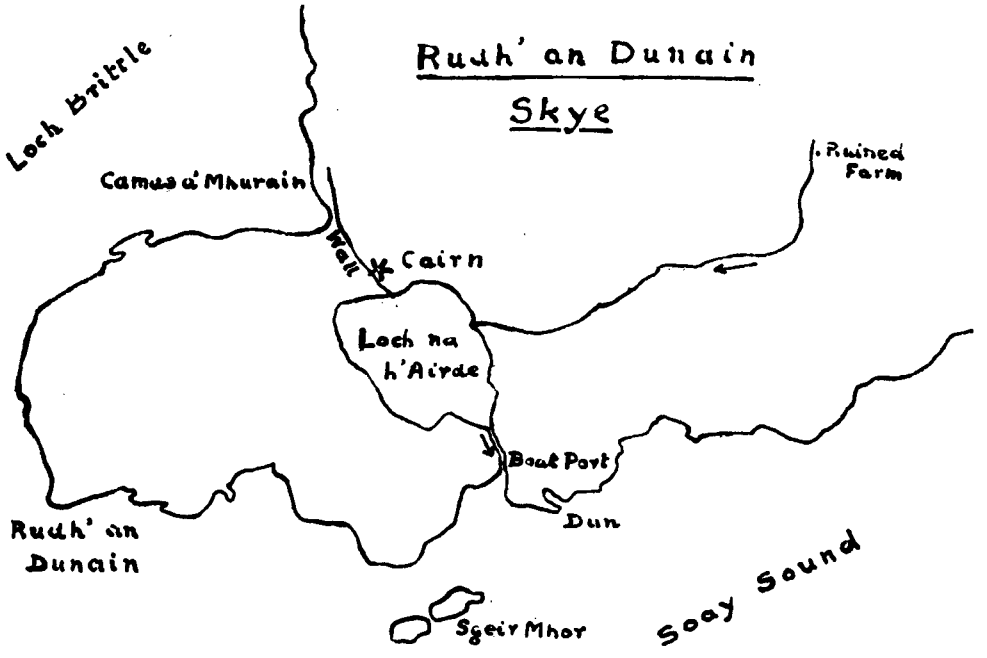


Fig. 1. Map of Rudh' an Dunain, Skye. (Scale 1 in.=1100 ft.)

winds between south and west. Camas a'Mhurain, the small bay already mentioned north-eastward of Rudh' an Dunain, is rocky, but can be used by small boats in calm weather. The outfall of Loch na h'Airde, though its sea approach is encumbered with rocks, is sheltered on the south-west by the islet of Sgeir Mhor, which is joined at low water to the shore. It has, in fact, been used at some past period as a boat port and boulders have been moved aside to make a runway, but it would be dangerous to approach in any swell. The higher level of the land in the Hebrides in late Neolithic times, as evidenced, for example, by the position of the chambered cairn of Geirisclett, in

North Uist,[1] would have improved the shelter provided by Sgeir Mhor, and in winds in which it was unusable resort might perhaps have been had to Camas a'Mhurain, but access to the promontory by sea can never have been satisfactory.

The triangular area described is now wholly uninhabited; Glen Brittle has eleven inhabited houses, but their number is diminishing. In the eighteenth and earlier nineteenth centuries there was a larger population, and remains of houses and cultivation extend both up the glen and a mile along the southern shore of the loch. Until the middle of last century Rudh' an Dunain was farmed separately from Glen Brittle by the family of Macaskill, and the ruined two-storied farmhouse stands at the head of the shallow valley running down to Loch na h'Airde. The grave of the last Macaskill, tacksman of Rudh' an Dunain, is in the churchyard of Kilmoruy, Loch Eynort.

There is no known evidence of ancient habitation in Glen Brittle. Apart from the cairn which is the subject of this paper, the only recorded evidence of ancient settlement in the triangle of moorland of which Rudh' an Dunain is the apex is the "galleried dun" of the same name.[2] This massively built structure defends the neck of a very small triangular promontory, the vertical sea cliffs of which command the outfall of Loch na h'Airde and the boat port described above. As neither it, nor any of its limited class, has been excavated, its date must be a matter of conjecture, but there is no *prima facie* reason for dating it otherwise than to the Early Iron Age with the brochs which it so closely resembles.[3]

Attention has been drawn to the situation of Rudh' an Dunain cairn because it appears remarkable that a chambered cairn should be found in this exceptionally remote and inhospitable spot. The cairn, as will be shown below, was an elaborate structure of its class and was used in Neolithic and in Beaker times. There is a small cairn at Kraiknish on Loch Eynort, 3 miles to the north of Glen Brittle, which was excavated by the writer, and found to cover a pentagonal cist containing two beakers and a flint button scraper.[4] This cist might possibly be

[1] The evidence has been collected by Dr J. G. Callander: *Proc. Soc. Ant. Scot.*, vol. lxiii. p. 319.

[2] Roy. Com. Hist. Mon. (Scot.), *Outer Hebrides, Skye, and Small Isles*, No. 483.

[3] For a discussion on "galleried duns" see A. O. Curle, *Antiquity*, vol. i. p. 296, and Roy. Com. Hist. Mon. (Scot.), *Outer Hebrides, Skye, and Small Isles*, pp. xxxv and xxxvi. It is tentatively suggested by the Commission that the simpler form of galleried dun may stand at the head of an evolutionary series of increasing complexity of which the broch is the culmination. So far as it can be investigated without excavation, however, Rudh' an Dunain appears no less complex than a broch, although it is, from the nature of its site, less extensive. The distinctive features of broch structure are identically reproduced, and the manner and quality of the workmanship present no features which would differentiate it from the finest Hebridean brochs. Professor V. G. Childe comments on this subject in *Proc. Roy. Soc. Edin.*, vol. l. part i. p. 77, note 45.

[4] Report in *Man*, October 1929.

regarded as transitional in type between the chambered cairn and the Bronze Age short cist. These two cairns provide the only evidence of habitation before the Iron Age in the mountainous area lying between the relatively fertile lands of Strathaird to the east and of Loch Bracadale to the north. The general distribution of chambered cairns in the Hebrides does not, however, suggest that they were ordinarily placed at great distances from the dwellings of the living, and the work of constructing them must have involved a substantial number of men. It seems necessary to suppose therefore that this region, which has never supported more than a sparse population in modern times, was moderately thickly inhabited in the Neolithic and Beaker periods. This is consistent with the view commonly held of the deterioration of climate and with the evidence for the growth of peat since that time;[1] freed of its covering of peat, the soil of the low ground immediately to the west and south-west of the Cuillins would support a far greater number of domestic animals than it now does.

Site of Cairn.

The cairn, which is not shown in the Ordnance Survey, stands at the highest point of the neck of land between Loch na h'Airde and Camas a'Mhurain, in lat. 57° 9′ 58″ N. and long. 6° 18′ 45″ W., at a height of some 30 feet above the sea. The site is approximately level, and is now covered with rough grass and heather over the solid basalt. Although higher land lies between it and the point of Rudh' an Dunain, the view from the cairn is wide and includes the Cuillins to the north-east, the coast of Skye to the north-west, and the islands of Eigg and Rum to seaward. It is customary to remark on the view from cairns, though I confess I know of no evidence that the dead have ever been regarded, or are anywhere now regarded, as being gratified by an extensive prospect.

Condition before Excavation.

The cairn stands to a height of 11 feet above the solid rock on which the tomb is built. The northern side is disturbed, but is probably not substantially denuded; from the highest point, which is north of the centre of the cairn and of the chamber, it slopes away at a shallow angle and the south side has obviously been largely reduced. A wall joining Loch na h'Airde and Camas a'Mhurain and skirting the cairn

[1] *E.g.* in the report of the excavation of Callanish, *Proc. Soc. Ant. Scot.*, vol. iii.

is presumably built from cairn material; one substantial slab is incorporated in it and two others lie beside its base. Except on the steepest parts of the northern face there is a thick growth of turf and heather, and that this has long been so is evidenced by the infiltration of soil into the roofed antechamber and vestibule. Before excavation seven slabs of the peristalith appeared to heights varying up to 2 feet through the material of the cairn, but there was no visible indication of any other part of the structure. The boundary of the cairn is indefinite, but a circle 78 feet in diameter approximates to the apparent present periphery. No superficial evidence appears of an encircling ditch.

Extent of Excavations.

With the kind consent of Macleod of Macleod, excavations were carried out by my wife and myself in September 1931. The chamber was found to the south-east of the centre of the somewhat dubious circle mentioned in the last paragraph; its roof was fallen in and it was excavated from the top downwards to the solid rock. Opening out of the chamber was an antechamber, roofed and in perfect condition; this was excavated from the chamber. Opening out of this was a vestibule,[1] also roofed and in perfect condition; this was excavated from the antechamber. The vestibule communicated through a portal, of which the lintel had slipped slightly forward and one jamb had tilted, with a forecourt defined by a crescentic façade which continued round a "horn" to form a peristalith. The northern half of this forecourt was excavated, though not fully out to the limits of the cairn, and the peristalith was traced round the northern "horn." Time unfortunately did not allow of the peristalith being traced further or of the southern half of the forecourt being excavated. I hope to have the opportunity to do so in the present year; meanwhile nothing can be stated with certainty about the peristalith or any other possible features external to the chamber, antechamber, and vestibule.

A careful examination was made of all save the purely superficial material excavated from the chamber, antechamber, and vestibule, and also from the inner forecourt as defined by the prone slab to be mentioned below. The extremely sticky nature of the material did not allow of the use of a riddle and it had to be broken in the hand before being picked over. Labour was not available, and the only heavy gear which could be obtained and brought to this lonely spot consisted of large drift timber from the shore, a short length of chain, and such

[1] I have adopted the term "vestibule" to describe this part of the structure, which could alternatively be considered as a very short passage. The term should be understood as impartial between these two views.

grass rope as is used locally for tethering stirks. The moving of stones too heavy to be hauled or pushed up an inclined plane formed of drift timber had therefore to be effected by levering on round pebbles. Particular difficulty was met with in dealing with the fallen roof of the chamber, which, though considerably shattered, included two slabs, each more than half a ton in weight. The southern half of the roof had fallen in first and the cairn material which had fallen after it lay below and between these two large slabs from the northern half of the roof. All efforts to shift them with a derrick improvised from drift timber and grass ropes having failed, it was necessary to clear the southern half of the chamber to the solid rock and to lever the slabs on to the cleared area. I do not think that the work suffered from the primitive nature of the gear, and insight was undoubtedly obtained into the problems of megalithic building, but there were anxious as well as strenuous moments.

General Description of the Tomb.

The axis of chamber, antechamber, vestibule, and forecourt is east-south-east; for convenience of description it will be assumed to be east. The plan and elevations (Pls. VI. and VII.) will, I hope, render detailed description unnecessary. The chamber is polygonal on plan, approximating to a circle 7 feet 3 inches in diameter; the original height of the roof must have been about 7 feet above the solid basalt floor. The antechamber is trapezoid on plan, 4 feet 3 inches in length and 3 feet 9 inches in greatest width; its height is 5 feet 4 inches. The vestibule is pentagonal, the south wall showing a recess; it is 3 feet 3 inches in length, the same in greatest width, and 3 feet 10 inches in height. As the lintel has slipped forward and slightly down, the original opening of the portal is uncertain, but its probable width is 1 foot 8 inches, and its height, as judged from the partially displaced north jamb, 2 feet 6 inches.

The whole structure—chamber, antechamber, vestibule, forecourt façade, and peristalith, so far as traced—is built on the principle of half timbering with alternate orthostatic pillars and panels of dry stone masonry (fig. 2). The orthostats stand on the solid rock and are not wedged at their bases. The stability of the chamber depends on the principle of the arch, the horizontal pressure of the cairn acting to press pillars and panels more closely together. Except in the north-west corner, where the walling diverges somewhat from the circular plan and the panel between P.4 and P.5 has partially slipped down and inwards, the chamber is in excellent preservation. The majority of the courses of dry stone masonry consist of single slabs stretching the whole width

of the panel, so that there was no opportunity for the panels to buckle. The pillars of the chamber are of gabbro, basalt, or dolerite, all igneous rocks available locally. Two gabbro pillars, P. 3 and P. 6, show hollows capable of interpretation as cup-marks; by comparison with other hollows in the same rock these seem more likely to be natural.

Photograph by Mr W. L. Coats.

Fig. 2. Eastern part of Chamber showing Antechamber partly excavated.

The roof of the chamber has been formed of large slabs of a fine-grained basalt, which splits along a remarkably plane surface and is possibly a variety of basalt found elsewhere in Skye and named mugearite. There is no evidence of corbelling. A large slab lies over P. 3 and P. 4 and the panel P. 3/P. 4, and stretches into the body of the cairn for a distance of at least 3 feet; its outer edge does not oversail the west wall of the chamber, however, and it was probably designed merely to spread the weight of the roof. A moderate-sized slab overlying P. 3 and the panel P. 2/P. 3 probably served the same purpose.

The antechamber is approached from the chamber by a door of

which the jambs are pillars roughly square in section set diagonally (figs. 2 and 3). The door leading from the antechamber to the vestibule has similar jambs also set diagonally (figs. 5 and 6). The fine dry

Fig. 3. Doorway into Antechamber from Chamber.

stone walling of the antechamber will be seen from figs. 4 and 5. The roof of the antechamber and vestibule is composed of heavy slabs stretching into the mound on both sides. The antechamber roof slab overlaps the two slabs forming the roof of the vestibule; these two last are at the same level and join neatly. Attention may be drawn to the descending heights of chamber, antechamber, and vestibule.

The vestibule leads directly into the forecourt through a portal now partially ruined. The portal is most clearly seen in fig. 9, a photograph taken when the portal area was fully cleared; the heavy lintel is seen

Fig. 4. South Wall of Antechamber.

fallen forward and downward from the eastward roof slab of the vestibule. A large block, 3 feet 3 inches long, is shown in fig. 8 in the centre lying below the lintel in the position in which it was found; it was necessary to remove it from this position to examine the portal area. Its original purpose is obscure; it is possible that it formed part

of a superstructure to the lintel such as is found in some of the Mediterranean tombs with which comparison is made below, notably the Giants' Tombs of Sardinia.

Fig. 5. North Walls of Antechamber and Vestibule.

Between chamber and antechamber, antechamber and vestibule, and vestibule and forecourt are septal slabs or blocks standing on the rock floor and varying between 9 inches and 1 foot 3 inches in height. There is a similar block in the vestibule just east of the septal block dividing this from the antechamber; it rests on the rock floor, and its most probable purpose is to form, with the vestibule-antechamber

septum, a groove to hold a door to the antechamber. Grooves, rebates, and bar holes have been found in the rock-cut tombs and *navetas* of

Fig. 6. Antechamber, Vestibule, and Portal from Chamber, looking east.

the Balearic Islands, where they certainly served to hold in place stone or wooden door structures.[1]

The principle of the arch, which serves very well to secure the stability of a circular structure such as the chamber, is not available to maintain the forecourt façade, and this has been pressed outwards

[1] W. J. Hemp, *Archæologia*, vol. lxxvi. pp. 121–60; and *Antiquaries Journal*, vol. xii. pp. 126–35.

by the pressure of the cairn. Immediately south of the portal is a panel of which the lower courses are in good preservation (fig. 7). Beyond this is a large orthostatic block, Q.1; this has fallen forward, and its head has been broken off and lies beneath it (fig. 8). Its original height was probably about 6 feet 6 inches. To the north of the portal the first panel is completely collapsed; beyond that is an orthostatic slab, Q.2, 6 feet in height, complete and tilted slightly

Fig. 7. Portal, beginning of southern half of Façade and Prostrate Slab, looking south-west.

forward (figs. 9 and 10). The two succeeding orthostats, Q.3 and Q.4, are 5 feet and 3 feet 6 inches in height; the first is vertical and the second tilts slightly forward (fig. 10). The intervening panels, Q.2/Q.3 and Q.3/Q.4, are composed of large blocks of roughly rectangular section, but owing to the pressure of the cairn this walling is pressed outward and the upper courses are fallen (figs. 9 and 10). The panel beyond Q.4 stands vertical and to what may be its original height of 1 foot 9 inches, but the next succeeding orthostat, which stood at the extremity of the horn, is missing. The panel between this gap and the next following orthostat, Q.5, stands to a height of 1 foot 1 inch in a single course; no stones are fallen, and if a second course ever existed it must have been stolen with the orthostat at the point

of the horn. Q.5, the last orthostat reached by the excavations, stands vertical and 3 feet 4 inches in height. Some 4 feet beyond, another orthostat, about 3 feet 2 inches in height, protrudes through the cairn and is apparently vertical.

The forecourt façade thus appears as a structure crescentic in plan, with the portal at the centre of the concavity, curving round at its extremities to form rounded horns and continuous with the peristalith

Fig. 8. Portal area looking west, partly cleared.

which presumably surrounds the monument. In elevation the façade rises in height from the horns to the centre, but the portal is lower than the orthostats to north and south of it, although it is possible, as is suggested above, that it originally carried a superstructure which raised its height at least to that of these orthostats. The stability of the façade must have depended on the pressure of the cairn upon its outer as well as on its inner side, and it is to be noted that, while beyond Q.4 the orthostats and walling showed no signs, to the limited extent of the excavations, of being pressed outward, the façade of the forecourt was tilted forward and in part fallen. As this could only have occurred when the forecourt area was cleared of cairn material, it follows that such clearing had occurred at some period subsequent to the original

Fig. 9. Portal and beginning of north half of Façade, looking south-west.

Fig. 10. Northern half of Forecourt Façade, looking north.

construction. Numerous blocks similar to those of which the panels of the façade are constructed lie on ground-level or resting on one another at distances up to 3 feet from the façade (fig. 10), and they can hardly owe their presence here to the ravaging of the cairn for building material. They would, moreover, have provided particularly valuable building material, and would hardly have been left behind by people stealing stones if they had then been exposed. It occurred to me that they might have belonged to one of those stone ramps external to the peristalith, the existence of which has been discovered by Mr W. J. Hemp.[1] The blocks at Rudh' an Dunain, however, lie in no identifiable order, and nearly all flat on the ground. The only probable inference seems to be that the forecourt area was deliberately cleared to ground-level for some purpose connected with the use of the tomb.

Attention should be called to the prostrate slab, S. 5, 4 feet 9 inches in length and 1 foot 3 inches in width, which lies across the forecourt, but not quite at right angles to its axis, at a distance of 5 feet from the portal (fig. 7). This slab is not uniform in thickness, but it is wedged up so that its flat upper surface is horizontal. There seems little doubt, therefore, that its position is not accidental, and that it served some original purpose connected with the tomb.

Contents of the Tomb.

The upper part of the contents of the chamber consisted of cairn stones, earth, and broken roof slabs, and was entirely sterile down to a height of 3 feet from the floor. From 3 feet to 1 foot above the floor was a layer of brown earth mixed with fallen stones, which will be referred to as the "beaker stratum." From 1 foot above floor-level down to the solid basalt floor was a layer of black earth of an extremely slimy character containing only a few small stones; this will be referred to as the "neolithic stratum." The dividing plane between these two strata was sharply marked. The same strata were found at the same levels in the antechamber and vestibule, the latter of which was filled to its roof and the former to within about a foot of its roof; the black earth was, however, less slimy than in the chamber. No object of any sort was found in the vestibule, and it will be convenient to treat the chamber and antechamber together. Plans of these showing the finds in the beaker and neolithic strata respectively are on Pl. VIII.

[1] *E.g.* at Belas Knap long barrow, Gloucestershire (W. J. Hemp, *Trans. Bristol and Gloucestershire Arch. Soc.*, vol. li. p. 268), and at Plas Newydd Chambered Tomb, Anglesey (report not yet published). Such a ramp supports the peristalith of a chambered tomb which I have recently been excavating in Anglesey.

Beaker Stratum.

The only pottery found in the beaker stratum was the beaker at fig. 11. The greater part of this vessel lay scattered in the north-west corner of the chamber at a height of about 1 foot 6 inches above the floor; the remaining fragments were not discovered in any part of the area excavated. It has been restored at the British Museum. It is a large vessel, 7·8 inches in height, with a distinct foot, a round body, a somewhat high waist, and a straight slightly expanding neck. The paste is buff in colour, coarse, and mixed with a large quantity of grits of some dark grey stone. The waist and foot are plain; two similar bands of decoration cover the neck and the body. These bands are defined by three parallel lines above and below—four lines at the lower edge of the upper band—and divided into a series of panels by sets of four to six vertical lines. Each panel is decorated by a series of short diagonal lines extending inwards and downwards from its right and left side. A series of similar diagonal lines hangs from the lower edge of the lower band of decoration. The rim is flattened but not thickened, and is decorated with parallel diagonal lines on its edge. All the diagonal lines except those in the upper band of panels are impressed with a comb; the remainder of the decoration is incised.

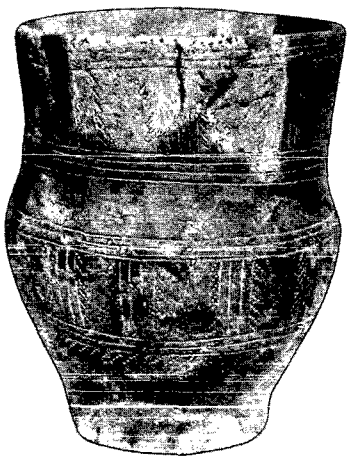


Fig. 11. Beaker as restored.

All the bones found in the beaker stratum were human. Their condition was extremely bad, and the majority of the traces of bone found consisted of no more than white slime mixed with the soil. A detailed report by Miss M. L. Tildesley of the Royal College of Surgeons' Museum on such fragments as it was possible to recover is in Appendix I. These include fragments of three skulls, and twenty-one teeth of a fourth individual; the remaining bones identifiable were consistent with belonging to these four persons. These were (1) a young man; (2) a broad-headed person aged about thirty to thirty-five, probably male; (3) a young adult; and (4) a young adult aged about eighteen to twenty. The leg bones probably associated with the broad-headed skull, showed the flattened shafts which are frequent in skeletons of this period.

The only other objects found in the beaker stratum were white quartz pebbles; four rounded pieces of pumice, which occurred both in the chamber and the antechamber; traces of charcoal; and a roughly shaped point of dark green chert 1·2 inch long.

Neolithic Stratum.

Fragments of pottery of Windmill Hill type were found scattered at varying depths within the stratum in the eastern part of the

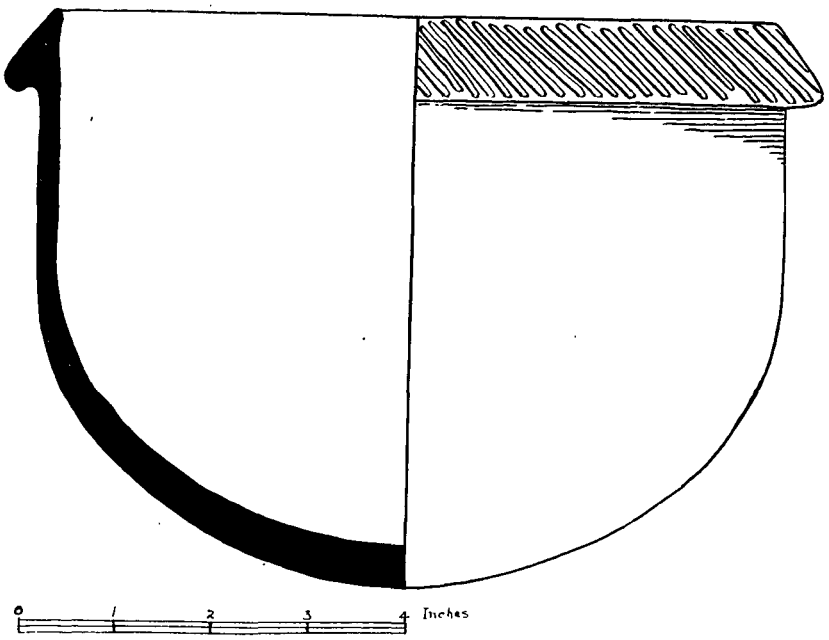


Fig. 12. Neolithic Bowl—conjectural restoration.

chamber and in the antechamber. They do not admit of restoration, but appear to represent parts of two bowls; fragments of the same vessel were found both in the chamber and the antechamber. I am indebted to Mr Stuart Piggott for the conjectural restoration of one vessel at fig. 12 and for the drawing of the rim section of the other at fig. 13. It will be seen that the first is a round-bottomed, vertical-sided bowl, some 7¾ inches in diameter and 6 inches in height, with a "ledge" rim heavily bevelled to the outside. It is composed of a fine dark grey paste containing in places pockets of a whitish substance and considerably pockmarked as a result apparently of this substance dissolving. The outer surface is burnished, and the only decoration is

close, diagonal fluting on the bevel of the rim. The second vessel, of which only a small part was found, has a straight side and a "ledge" rim slightly bevelled to the outside and was probably a round-bottomed bowl generally similar to the first. The paste is fine, grey-buff in colour, pockmarked like that of the first vessel and showing similar pockets of some foreign matter varying in colour between white and red. The outer surface is considerably shaled off, but where complete shows signs of burnishing. There is no sign of decoration, and two holes found at the same distance below the rim in two non-contiguous fragments were probably bored after firing.

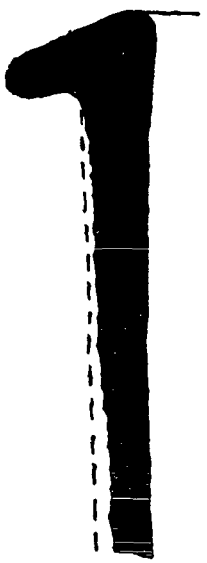


Fig. 13. Section of Rim of Neolithic Bowl. (½ approx.)

Traces of bone were found at a number of points in this stratum, but the only certainly human bones sufficiently preserved for identification were fragments of the left half of a mandible of a middle-aged individual, probably male, B.8. In addition, a negative impression of a jaw of which the bone had completely decayed was found in the slimy black earth; the attempt to preserve it was unsuccessful. Two other deposits of bones were found. The first, B.14, consisted of a single fragment of the cannon bone of a sheep or goat, completely burnt. The other, B.11, was of special interest, as it occurred alongside of and under the foot of one of the orthostats of the chamber, P.3, in such a manner as to suggest a foundation deposit. The foot of P.3 curves upward at its southern side, leaving a small cavity between itself and the panel P.2/P.3. The bones were found up to a distance of 6 inches inwards from the face of P.3, and it is unlikely that they reached such a position by accident. They were unburnt and consisted of skull fragments which cannot be identified with certainty; a piece of the cannon bone of a young ruminant, probably a calf; a piece of the scapula of a young animal, possibly a calf; and the head of the humerus of a bird, probably a water-fowl. In Miss Tildesley's opinion (see Appendix I.) the skull fragments are probably not human. Dr Wilfrid Jackson, who has also been good enough to examine them, reports as follows regarding them: "I am sorry they are so fragmentary. This makes it very difficult to identify them with absolute certainty. I have compared the skull fragments very closely, and there is the possibility that they might be human. They appear to agree very closely in texture and in the bit of suture which is visible."

The only other objects found in the neolithic stratum were charcoal; two oval scrapers of flint, 1·2 inch and 1·05 inch respectively in greatest dimension; seven points and chips of flint and two of quartz showing no secondary working and some very minute; and a lozenge-shaped object of quartz, 1·2 inch long, which might have been an incompletely worked arrow-head, but might possibly have been natural. The scrapers were made from flat beach pebbles of flint, with a considerable amount of polished white crust remaining.

Forecourt.

The material of the inner area of the forecourt, as defined by the prostrate slab, S.5, was examined fully. It consisted of a lower stratum, approximately a foot thick, of black earth—not slimy like that within the tomb—and above this brown earth. The lower stratum contained two small fragments of pottery belonging to the same vessel; the paste was coarse and reddish yellow in colour, and each fragment was decorated with parallel incised lines. The other finds were in the brown earth and consisted of three rounded pieces of pumice and a naturally shaped implement of a fine-textured dolerite, 7·3 inches long. This implement showed battering on its thicker end and also on a flattened surface near the point. The remaining material of the forecourt was examined only in the course of its excavation, and the only objects found, apart from a minute trace of charcoal at one point, were a number of blocks and large pebbles of white quartz. It is to be noted that two of these pieces of quartz were found in the material of the cairn vertically above the forecourt façade.

Comments.

Structure. The Crescentic Façade.—While the crescentic forecourt is present in all horned cairns, the crescentic façade is found in Britain in only a few examples in Pembrokeshire, the Isle of Man, western Galloway, Arran, Sutherland, and Caithness.

The great burial chamber of Pentre Ifan, Pembrokeshire, once had a crescentic setting of orthostats in front of it, described in Fenton's *Tour*, p. 560, as "seven stones that doe stand circle wise, like in form to the new moon"; no record appears to exist of the form of the mound.[1]

The Isle of Man example is the long cairn of Ballachrink, of which

[1] Mr W. J. Hemp, who has given me this reference, tells me that two standing and two fallen orthostats of this façade still remain and that near by there is an unrecorded tomb, Garn Turne, which has an irregular, deeply concave setting of orthostats of which five are still standing.

a plan and partial elevation exist in the *Reliquary*, 1884–5, p. 165, pl. xix.[1] On this evidence, which appears fairly trustworthy, the cairn had a long, tripartite (presumably segmented) chamber opening directly upon a semicircular forecourt defined by a façade of orthostats set at intervals round it. Two smaller orthostats set transversely to the axis of the chamber appear to have formed a portal.

The Galloway examples all lie in the valleys of the Luce or the Cree and are Mid-Gleniron,[2] Cairnholy,[3] and Boreland.[4] The best preserved of these, Cairnholy, shows a façade of orthostats, ascending in height to the centre, very similar to that at Rudh' an Dunain, but differing in that the two highest pillars seem themselves to have formed the portal (though no lintel now remains), whereas in the latter tomb the portal was a separate structure set between the highest orthostats. Probably the same form of portal existed at the other two cairns. In the present state of all these three cairns the exact shapes of their forecourts cannot be seen. All are long cairns with oblong (long cist) chambers of the general type of the Arran cairns. There is also a round cairn at Cairnholy[5] which shows the same portal as the long cairn of the same name, but there appears no adequate reason to assume that this formed part of a crescentic façade.

Among the long cairns of Arran[6] definite evidence of a crescentic façade exists in Cairn Ban and East Bennan and can with fair certainty be inferred in the Giants' Graves and Moinechoill. These appear to have resembled the Galloway examples in that the central orthostats of the façade themselves formed the portal. The shape of the forecourt seems to have been approximately semicircular, the façade joining at right angles the peristalith, which, after a short distance, turned again at right angles along the more or less parallel sides of the cairn. The chambers are in all cases of the oblong or long-cist type.

In Sutherland, the southern of the two long cairns in line with one another at Coille na Borgie,[7] Strathnaver, shows a crescentic façade at each end. That at the north end, in the centre of which is the portal, appears from the plan and sketch given to have been semicircular, and the portal would seem to have been a distinct structure. As is noted below,

[1] I am indebted for this reference to Mr Stuart Piggott, who tells me that he has examined the pottery from this tomb preserved in the Manx Museum and ascertained that it is of neolithic type.

[2] Roy. Com. Hist. Mon. (Scot.), *Wigtown*, No. 261.

[3] *Ibid.*, *Kirkcudbright*, No. 228.

[4] *Ibid.*, No. 362.

[5] *Ibid.*, No. 287.

[6] Professor T. H. Bryce in the *Book of Arran*, vol. i. pp. 33–155.

[7] *Proc. Soc. Ant. Scot.*, vol. xviii. pp. 228–33, and J. Anderson, *Scotland in Pagan Times*, vol. i. pp. 260–3.

the internal structure of this tomb closely resembles Rudh' an Dunain. There is a more or less round cairn at Achany[1] in eastern Sutherland which shows a continuous kerb round the periphery from which branches a shallow crescentic setting of slabs of which the axis coincides with the assumed position of the passage; the chamber is bipartite and oblong. It can also be inferred from Anderson's account of his excavation of one of the long-horned cairns at Yarrows, Caithness, that this had a façade rising in height to the portal. This façade was constructed of dry walling, the method of building characteristic of the Caithness cairns generally.[2]

With the exception of Achany, which shows marked signs of degeneracy, Rudh' an Dunain is the first short cairn to be found with a crescentic façade, although of course crescentic forecourts exist in the short-horned cairns of Caithness, and these may originally have had façades ascending in height to the portal. The façade forms an arc somewhat less than a semicircle and curves smoothly into the peristalith. This follows almost inevitably from the round form of the cairn and perhaps represents a transition on the way to the slight insetting of the peristalith in the portal area shown in round cairns such as Cairn T at Loughcrew, Co. Meath.[3] A certain analogy exists with those long barrows of western England and Wales[4] which show a sharp incurving of the enclosing wall to a true or false portal, but in these the forecourt is narrow and cuspidal and not in the shape of a crescent.[5] If, as may well be, they represent a development of the same idea it is quite a separate development.

In its more perfect state of preservation Rudh' an Dunain shows better than any other chambered tomb in Britain the crescentic façade rising in height to a portal. It alone has its panels of masonry joining the orthostatic pillars, and it shows more clearly than any other the relation of the façade to the portal on the one hand and to the peristalith on the other. The close similarity with the crescentic façade of the western Mediterranean will be noticed. It has been argued[6] that this form originated in southern Spain, where examples are found at Los Millares, and thence spread to the Balearic Islands, where the feature is shown in some of the *navetas*; to Sardinia, where magnifi-

[1] Roy. Com. Hist. Mon. (Scot.), *Sutherland*, No. 447.

[2] J. Anderson, *Scotland in Pagan Times*, vol. i. p. 238, and *Proc. Soc. Ant. Scot.*, vol. vi. pp. 442–51.

[3] G. Coffey, *New Grange*, p. 86.

[4] *E.g.* Hetty Pegler's Tump, Rodmarton, and Belas Knap, Gloucestershire, and Capel Garmon, Denbighshire.

[5] West Tump, Gloucestershire, shows a very shallow crescent.

[6] By E. T. Leeds, *Annals of Archæology and Anthropology*, vol. ix. pp. 29–40.

cent façades rising to an impressive portal are seen in the Tombs of the Giants; and finally to Malta, where the so-called temples show massive crescentic façades. Despite the distance between Los Millares and Pembrokeshire, and the absence of geographically intermediate forms,[1] it is difficult to resist the conclusion that the British façade derives ultimately from that of southern Spain. The fact that the British sites are all on the west or north coasts and close to the sea renders such dissemination of the type by the Atlantic route plausible, and the fact that the Spanish examples belong to the Copper Age involves no anachronism considering the late arrival of copper in the north.

It is only proper to point out that, unless we can derive Windmill Hill pottery from the pottery of the Portuguese dolmens,[2] these similarities of tomb form between Iberia and Scotland are not paralleled by any corresponding similarity in tomb furniture. In the light of the latest researches of Professor V. G. Childe[3] this difficulty is one which may possibly have to be accepted as extending to the megaliths of north-west Europe as a whole. If Windmill Hill pottery represents a British development of a premegalith type common to western Europe, the megaliths are left without any distinctive pottery; although, as Professor Childe points out, there is an important connection as regards decoration between Beacharra pottery and certain types from megalithic tombs in Brittany. On this view we are left to draw the uncomfortable inference that the megaliths are the tombs of raiding chiefs from the Atlantic coasts of the Continent, who, on settling in Britain, adopted alike the women and the pottery of the country.

Other Structural Features.—In its general internal structure—vestibule, antechamber, and chamber ascending in height—Rudh' an Dunain is in marked contrast to the narrow oblong chambers of Galloway, Arran, and Argyll. It resembles certain of these, however, in the absence of a passage and the presence of septal slabs. Except in its large, polygonal main chamber, it has little resemblance to the common Hebridean type of a single chamber with a long, low passage and little or no sign of antechamber. Its closest analogy is again with the Sutherland long cairn of Coille na Borgie mentioned above and with the neighbouring

[1] It would be possible to cite the megalithic structures of Annaclochmullin and Newbliss as Irish forms, but the accounts available (summarised in W. C. Borlase, *The Dolmens of Ireland*) leave some doubt both as to the plans and the purpose of these monuments.

[2] As argued, for example, by E. T. Leeds in the *Antiquaries Journal*, vol. vii. pp. 456–62.

[3] V. G. Childe, "The Continental Affinities of British Neolithic Pottery," a paper which I have had the privilege of studying in advance of publication. It will be published in the *Archæological Journal*, vol. lxxxviii.

long cairn of Skelpick.[1] Both these have three chambers increasing in size and apparently also in height, but they have also fairly long passages. (As has been pointed out above, it would be possible to regard the vestibule of Rudh' an Dunain as a very short passage.) The method of construction at Rudh' an Dunain, which I have compared to half timbering, is found at Skelpick, and apparently also in the main chamber at Coille na Borgie. This type, which appears to me to represent a distinct structural method, is elsewhere rare[2]—there is a Welsh example in the Capel Garmon tomb already mentioned—although of course dry walling was widely used to fill interstices in buildings whose stability depended upon their orthostats alone. The typical Caithness cairn is essentially a dry-walled building, with orthostats set transversely to give rigidity. Rudh' an Dunain therefore corresponds most closely in structure with these Sutherland long cairns, but the presence in it of septal slabs seems to be unique among Scottish cairns of the large, polygonal chamber type. The septal slab, however, appears in Ireland in a group of cairns on Carrowkeel Mountain, Co. Sligo, which contained food-vessels and had chambers of complicated, but principally cruciform, plan.[3]

The recess in the southern wall of the vestibule has a close parallel in the recess[4] just within the door checks of the passage of Maes Howe, Orkney, but does not appear to be found elsewhere in Britain. A vague analogy exists with the small recesses on each side of the passage just within the portal at Bryn Celli Ddu, though these Mr Hemp regards as the vestiges of an antechamber,[5] and with the square recesses opening off the passage in Stoney Littleton long barrow, Somersetshire. Examples of small chambers or recesses off a passage can be given from chambered tombs in the western Mediterranean area, and the well-known tomb with crescentic façade at Los Millares has a round recess in the left-hand side of its short passage just within the portal. Nothing was found in the recess at Rudh' an Dunain, and I am not aware of any evidence from other examples to indicate any ritual purpose. It is possible from their presence behind the portal that they represent merely some feature in the nature of a guard chamber inherited from

[1] *Proc. Soc. Ant. Scot.*, vol. vii. pp. 273–4, and J. Anderson, *Scotland in Pagan Times*, vol. i. p. 263–4 with plan.

[2] Mr W. J. Hemp has suggested to me that this method of construction could be considered typical of those dolmens which now show only separate orthostatic pillars if it could be assumed that the spaces between these were originally filled by panels of masonry.

[3] *Proc. Roy. Irish Acad.*, vol. xxix., Section C, pp. 311–47.

[4] Mr Stuart Piggott has very kindly shown me a large-scale plan and elevation of this from "*Notice of Runic Inscriptions discovered in Recent Excavations in the Orkneys*, made by James Farrer, M.P. Printed for private circulation, 1862."

[5] *Archæologia*, vol. lxxx. p. 191.

domestic architecture. I have mentioned above (page 192) the possible inference from the position of a block of stone in the vestibule that this, with the vestibule-antechamber septum, formed a groove to support some stone or timber door structure to the antechamber. Apart from this no evidence existed at Rudh' an Dunain that the portal was blocked otherwise than by the stones of the cairn; a very large rounded stone was indeed found just within the portal, but this was not sufficiently much larger than other stones of the cairn to justify an inference that it had not fallen there from above.

Attention must also be drawn to the prostrate slab in the forecourt which, being chocked level, may be assumed to have served some ritual purpose. Since the close investigation of the forecourts of chambered tombs had hardly been attempted before Mr W. J. Hemp called attention to its importance by his study of Bryn Celli Ddu, it is not surprising that no analogies to this slab can be quoted. In the forecourt of that tomb, however, about 10 feet from the entrance, there was a structure[1] some 10 feet by 7 feet defined by two short parallel stone walls with a line of post-holes joining their inner ends, and it is to be noticed that this, like the prostrate slab at Rudh' an Dunain, was set slightly askew with the axis of the monument. If conjecture may be permitted where nothing is known, both these features represented arrangements for the use of the relatives of the dead who may be expected, on the analogy of primitive modern practice, to have watched the tomb for a prescribed period after the burial.

The Burials.—The facts available for the consideration of the period and method of use of the tomb are: (1) the definite stratification of the burials in a lower black-earth stratum marked by neolithic pottery, and an upper brown-earth stratum marked by beaker pottery; (2) that there were not less that two burials in the neolithic stratum and not less than four in the beaker stratum; (3) that the only skull complete enough to allow of classification was broad-headed, and was from the beaker level; (4) that the beaker was of a typically British shape common in north-east Scotland (*cf.* page 208); (5) that parts of the same neolithic bowl were found in the chamber and the antechamber on opposite sides of the septal slab; (6) that a deposit of unburnt bones was found beside and under the foot of one of the orthostats of the chamber in the neolithic level; (7) that fallen walling blocks lay on the floor of the forecourt below the stones of the cairn in such a position as to make it virtually certain that their presence was not due to a modern clearing of the forecourt in quarrying the cairn for stones.

[1] *Archæologia*, vol. lxxx. pp. 194–6. An ox's carcass was found in a pit in the centre of this structure, but it was not possible to ascertain certainly that this was an ancient burial.

There is an almost complete absence of record of stratified deposits in other English and Scottish chambered tombs to compare with the stratified deposits in dwelling sites, such as the ditches at Windmill Hill, which showed Windmill Hill pottery under Peterborough pottery under beakers. There is a fair amount of evidence of the prevailing dolichocephalic character of the neolithic inhabitants of western Scotland. There is also a good deal of evidence that vessels deposited in megalithic tombs were normally deposited whole and not strewn about as sherds.[1] With these premises the inferences suggested below are drawn in respect of Rudh' an Dunain; the degree of probability attaching to each must be judged from the facts listed in the preceding paragraph.

The tomb appears to have been in use for successive burials[2] during a period long enough to account for the thickness of the neolithic and beaker strata. During that period "beaker folk" entered Skye from the mainland and became sufficiently absorbed into the native population to allow of their being buried in a native tomb. Their arrival, however, involved some change in burial customs, as evidenced by the difference between the black earth of the neolithic and the brown earth of the beaker stratum, though exactly what this difference was is obscure. When later burials were made the vessels belonging to earlier burials were thrown out from the chamber, and the forecourt area was cleared to its floor of cairn material—no doubt for the proper performance of the ritual of the dead. Finally, and subject to the remarks made below, a foundation deposit was made at the foot of one of the orthostats when the chamber was erected.

It is unfortunate that the skull fragments included in this deposit admit of no certain determination as to whether they are human or animal. Even, however, if the latter were the true view, it would be difficult to interpret the deposit as one of food made in connection with a burial, because the skull fragments were placed up to 6 inches under the orthostatic pillar and the bones identified belong mainly to parts of a carcass which are not edible. Despite the complete absence of record of foundation burials under chambered tombs,[3] the probability that such sacrifices were made is not negligible; since the

[1] Compare, however, Thurnam's statement that the sherds in the chamber of West Kennet long barrow, Wilts, were deposited in separate heaps and did not represent complete vessels (*Archæologia*, vol. xxviii. p. 417).

[2] Mr W. J. Hemp has stated the argument for supposing that some chambered tombs were not used, or at least were not intended, for successive burials, in a recent paper in *Arch. Camb.* (December 1931), p. 253.

[3] At Bryn Celli Ddu there was a deposit of a burnt, human ear-bone, an unburnt piece of hazel, and charcoal fragments in a slab-covered pit, three feet outside the west wall of the chamber and exactly at the centre of the monument. This was clearly in some sense a foundation deposit connected with the erection of the tombs. (*Archæologia*, vol. lxxx. p. 196.)

bases of the orthostats are normally some feet below the floor of these tombs and have very rarely been reached by excavation the negative evidence proves nothing. The practice of burying a human being or an animal under, or actually clasping, the post of a house, or under a wall or foundation-stone, is spread all over the world and can be shown to be of great antiquity.[1] It still survives in modern Greece, where a cock, ram, or lamb is buried under the foundation-stone of a building; in Transylvania, where human shadows are buried and the owner of the shadow is expected to die within forty days;[2] and Mr Stuart Piggott tells me that in Hampshire in recent years a parson was held in talk by a mason while the latter, after ascertaining by discreet inquiry that the parson was a first-born son, built his shadow into the foundation of a churchyard wall. The foundation burial of two women beneath the wall of a hut at Skara Brae gives evidence of the practice in Scotland in late Bronze times.[3] There were cremations in all but six of the thirty-two holes so far excavated in the "Aubrey" circle at Stonehenge,[4] and it is highly probable—though it does not appear previously to have been suggested—that these represented sacrifices of human beings whose souls were intended to hold up the wooden pillars which these holes contained.[5] The same purpose may explain some of the burials at the foot of standing stones, whether isolated stones or members of stone circles, and particular attention may be called, since these belong to a chambered tomb, to the cremations at the foot of monoliths of the inmost circle surrounding Bryn Celli Ddu.[6]

Pottery.—In our present knowledge of British neolithic pottery it is not possible to say more of the two neolithic bowls than that they are of Windmill Hill type and that they do not show the decorative motives of those vessels classified by Professor Childe as the Beacharra group. The holes below the rim in the second vessel are not likely to be rivet holes and may well have been bored for purposes of suspension; being made after firing they are not likely to have been for decorative purposes as in some neolithic vessels from the south of England. Judged by its shape, the beaker is of a late British type particularly common in N.E. Scotland. Its decoration is apparently unique, the nearest parallel in Abercromby being No. 290, probably

[1] V. G. Childe, *Skara Brae*, p. 142.

[2] Sir J. G. Frazer, *The Golden Bough*, abridged edition, p. 191.

[3] Dr J. G. Callander, on the other hand, argues that Skara Brae dates from the Early Iron Age, *Proc. Soc. Ant. Scot.*, vol. lxv. pp. 103–14.

[4] Lt.-Col. R. H. Cunnington, *Wiltshire Archæological Magazine*, vol. xliv. p. 338 (July 1929).

[5] That this is an original belief from which foundation burials arise is shown by Sir J. G. Frazer, *The Belief in Immortality and the Worship of the Dead*, vol. i. p. 446.

[6] *Archæologia*, vol. lxxx. pp. 201–4.

from Ross and now in the Scottish National Museum. This shows the same arrangement as does the Rudh' an Dunain beaker of simple decoration in rectangular panels arranged in two horizontal bands and shows also the same edge decoration. Metopic decoration is, of course, fairly common on British beakers and derives from central Europe, being unknown on Spanish or Breton beakers. Edge decoration as on the Rudh' an Dunain beaker is rare in England outside Yorkshire,[1] but it is not uncommon in Scotland and may be due to the influence of neolithic pottery. It may accordingly be inferred that the maker of this beaker reached Skye from the mainland.[2]

Quartz.—The presence of white quartz near the surface of the mound over the forecourt façade shows that pebbles and blocks of this rock were spread over the mound and not merely distributed round the periphery. No quartz was found in the neolithic stratum within the tomb, and that found in the beaker stratum, though probably a funerary deposit, might possibly have fallen in with the material of the cairn.

Pumice.—The finding of seven lumps of pumice in the beaker level in the chamber and antechamber, and in brown earth in the forecourt, raises a question which does not seem previously to have been discussed. These lumps varied in greatest dimension from $1\frac{3}{4}$ inch to 3 inches and showed no signs of use. Dr H. O'Neill Hencken has very kindly given me the following information: "About thirty years ago the late George Bonsor found a piece of pumice in a passage grave on St Mary's Island in Scilly. With it were pieces of pot like those of the earliest Bronze Age in Cornwall and Brittany. Bonsor subsequently told me that he had also found pumice in some megaliths in southern Spain, and that he supposed the people used it instead of soap. I don't know whether he ever published these finds." The Scilly find is in the British Museum and is a small rounded lump, pierced near one end. I have myself found a large piece in a chambered tomb in North Uist at which I have been working; this had a flat face and had presumably been used for rubbing down wood or skins. A number of references to the finding of pumice in sandhill sites will be found in Erskine Beveridge's *North Uist*, but slag is also found in these sites, and in the absence of

[1] Mr T. D. Kendrick kindly informs me that, of the beakers in the British Museum, three, or possibly four, from Yorkshire have some ornament inside the lip, and one from the Thames at Mortlake.

[2] It has been argued by Miss Margaret Mitchell in *Antiquity* (March 1932) that it is necessary to postulate sea-borne invasion from the south-west to account for the "B beakers on the western Scottish seaboard as well as for the more northerly 'A and C' group in Lewis, Uist, and Skye." I agree with Mr J. G. D. Clark in the same number of *Antiquity* that the latter group, to which the Rudh' an Dunain beaker belongs, derive from the English A beaker by movement up the east coast of Britain.

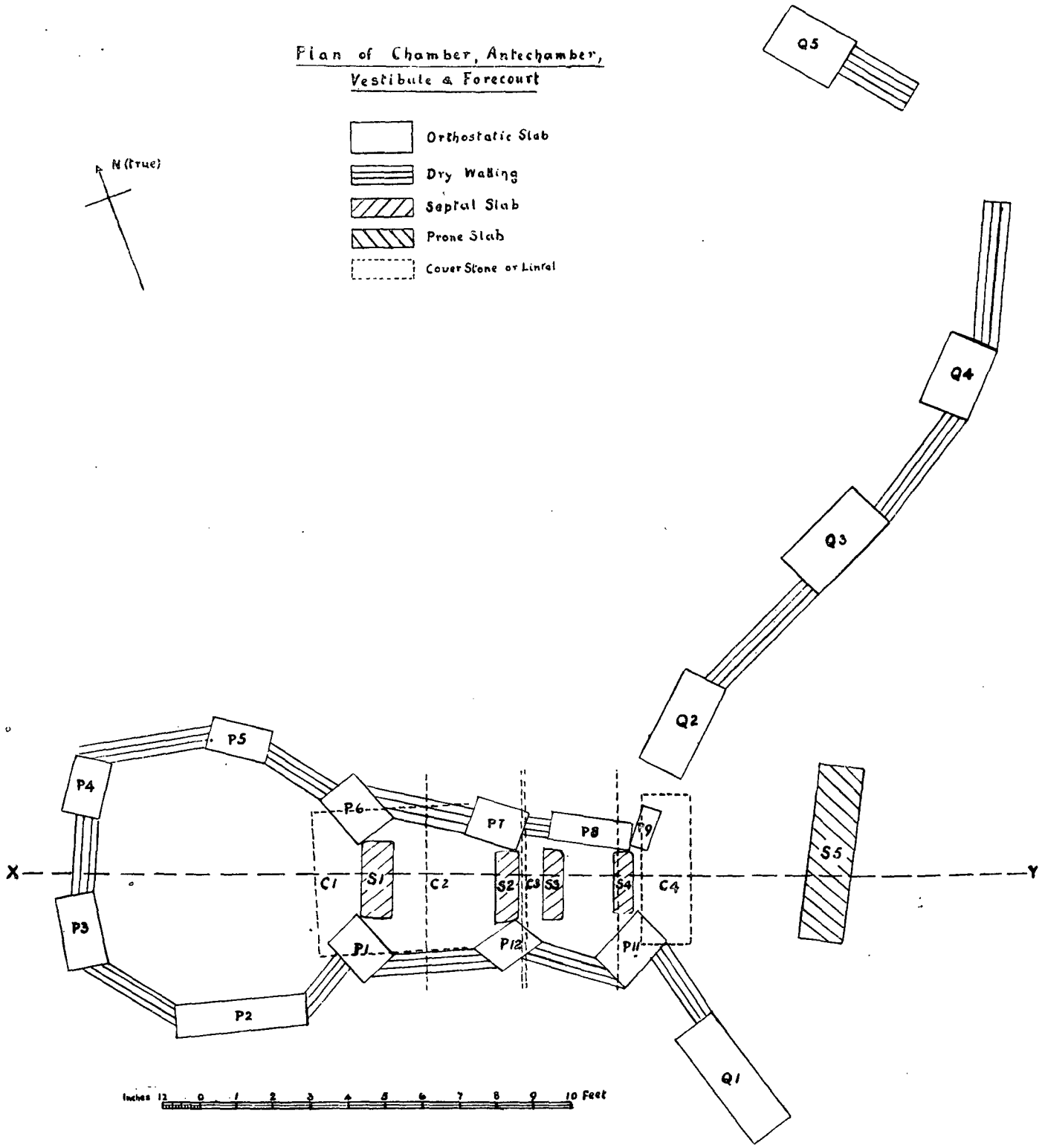
microscopic examination this appears not always to be distinguishable from pumice.[1]

I am indebted to Dr H. H. Thomas of the Geological Survey for the full investigation of the origin of this pumice which is published in Appendix II. It will be seen that the pumice is basaltic and probably of West Indian origin, carried to Hebridean shores by ocean currents; it is definitely not of Mediterranean origin, and it is not necessary to suppose that it was brought by human agency. Present information does not allow of a conclusion as to whether it was designed for the practical use of the dead or for some magical purpose; the North Uist example suggests the former and the Scilly example the latter, though the mere fact of being pierced for suspension is not conclusive against domestic use. The Rudh' an Dunain finds, being unworked, are more suggestive of a magical use and, though those in the forecourt may have been thrown out of the chamber on the occasion of a later burial, it is more likely that they were not a funerary deposit.

The most probable view seems to be that pieces of pumice, like quartz pebbles and shells, served as receptacles for souls and therefore, at a later stage of development, as charms. The fact that pumice is full of holes may be significant as allowing the entry of a soul without the necessity of breaking the lump, as was frequently done with quartz pebbles. It may also be significant that pumice floats, having regard to the widespread desire to provide a boat for the dead to enable him to reach his ultimate resting-place. A modern Serbian ritual performed on the anniversary of death may throw some light on this. The wife or daughter of the dead man takes wet pebbles from a river, places them on the bank with food upon them and, when the soul is attracted to the stones by the food, makes circles round them to enclose it in the stones. These are then placed on small planks with lighted candles and sent floating down the stream. The purpose is clearly to facilitate the soul's departure by water to its last home.

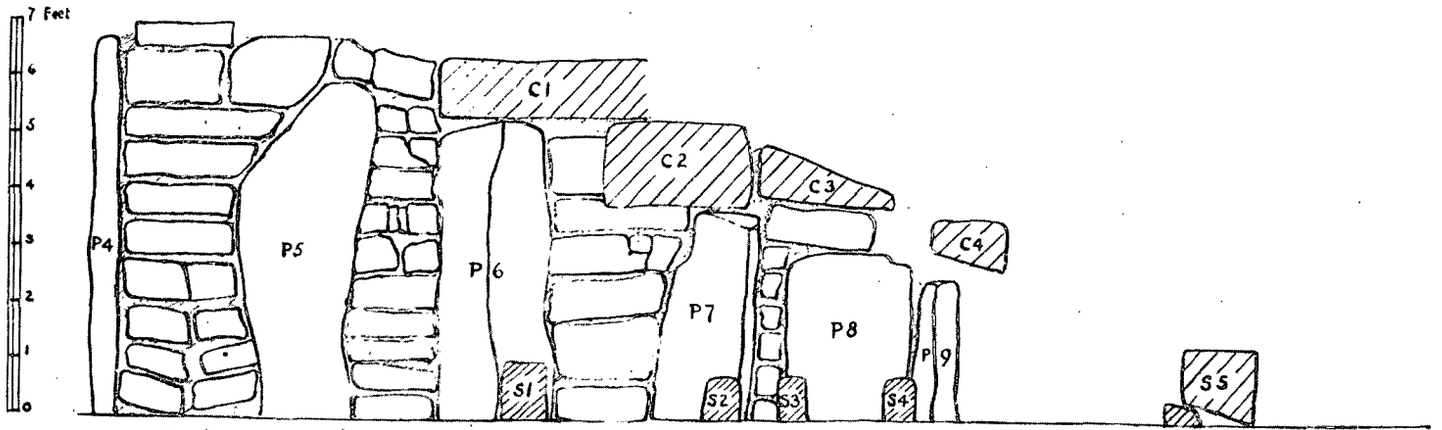
I desire, in conclusion, to acknowledge with gratitude my indebtedness to Macleod of Macleod for permission to excavate the cairn and to the Council of the Society of Antiquaries of Scotland for approaching him to that end; to Mr Macrae, the tenant of Glen Brittle, for his interest in the work and the loan of tools; to Miss M. L. Tildesley of the Royal College of Surgeons' Museum for the report on the bones; to Dr J. Wilfrid Jackson of Manchester University for a supplementary report on some of the bones; to Dr H. L. Riley of the Imperial College

[1] Dr J. G. Callander cites a number of finds of pumice from earth-house sites of the Early Iron Age, and from brochs in the Hebrides and Orkney, and one from an inhabited site in the Firth of Forth. He suggests use for rubbing down bone.—*Proc. Soc. Ant. Scot.*, vol. lxv. p. 350.

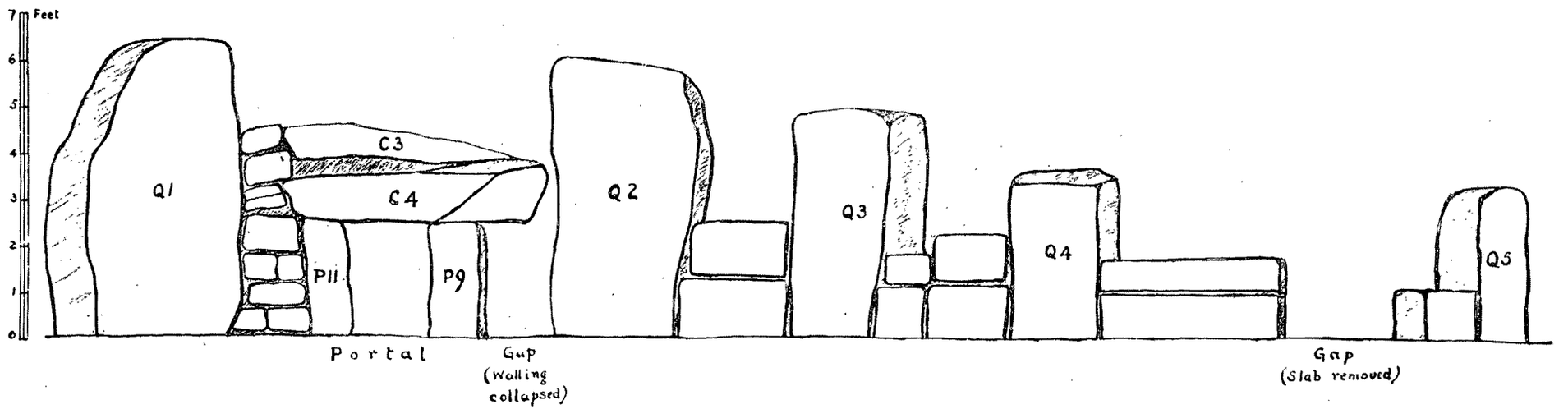


W. LINDSAY SCOTT. PLATE VI.

Section along Line XY

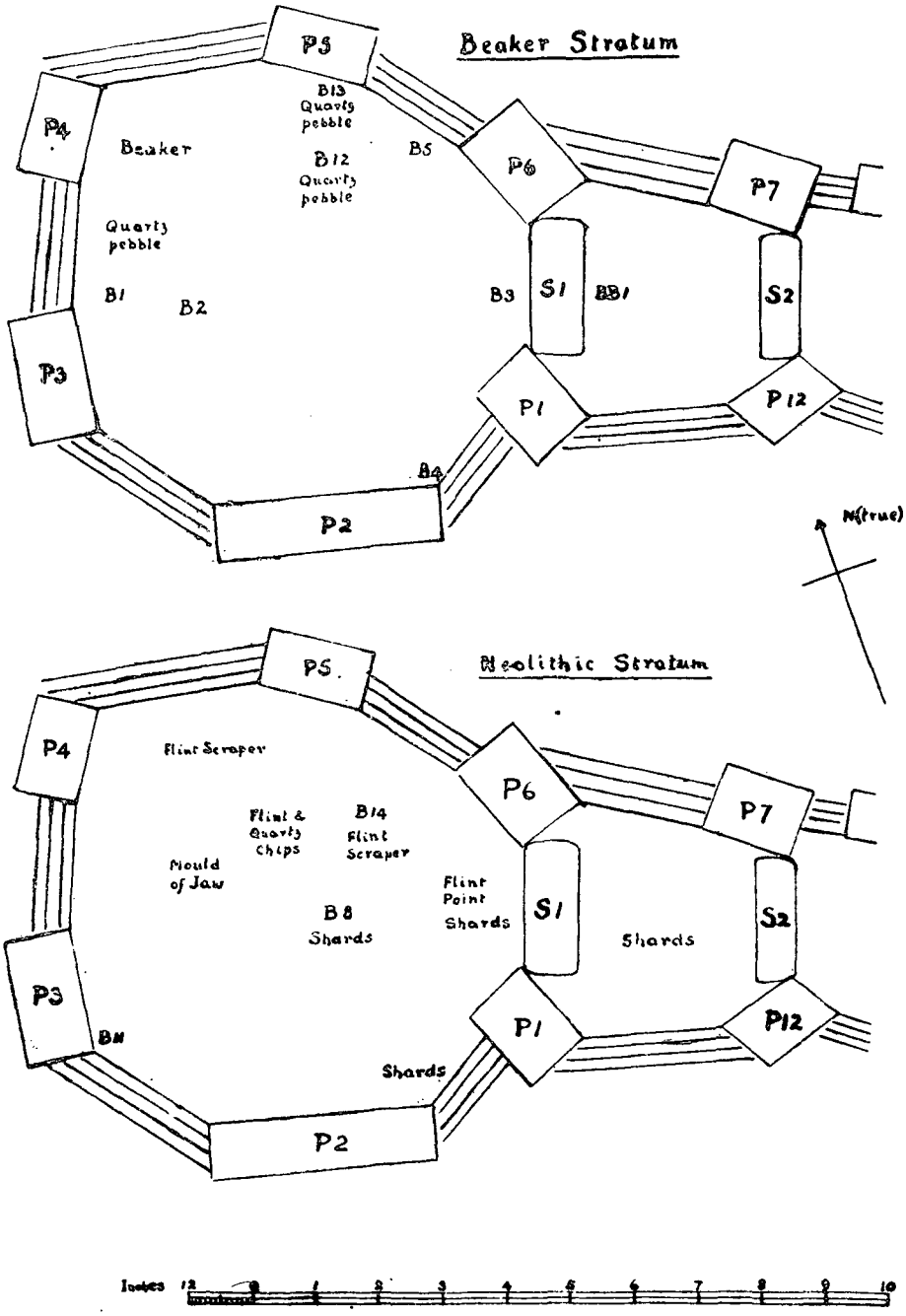


Elevation of Portal and Forecourt Facade (Q1 restored)



Excavation Plans of Chamber & Antechamber

(For details of some deposits, B1, B2, etc. see App. I)



of Science and Technology for a chemical report on certain bones; to Dr H. H. Thomas of the Geological Survey for the report on the pumice; to Dr H. O'Neill Hencken of Harvard for information about other finds of pumice in megalithic tombs; to Mr Stuart Piggott for drawings of the neolithic bowls and for other assistance; to Mr W. L. Coats of Glasgow for two photographs of the chamber, one of which is here reproduced; and finally to Professor V. G. Childe and Mr W. J. Hemp for their very valuable assistance on many points arising in the preparation of this paper.

Sir Reginald Macleod of Macleod has approved of the pottery being preserved in the National Museum of Antiquities at Edinburgh.

APPENDIX I.

REPORT ON BONE FRAGMENTS. By M. L. TILDESLEY, Curator of Human Osteological Section, Royal College of Surgeons' Museum.

NEOLITHIC LEVEL.

Site B.8.—Four fragments comprising left half of mandible; no teeth lost pre-mortem, all three molars up and all worn. Middle-aged individual, probably male.

Site B.11.—The bone fragments include a fragment of the upper end of the cannon bone of a young ruminant, probably a calf. Fragment of scapula of a young animal—could be a calf, but fragment too imperfect to determine. Head of humerus of bird, probably a waterfowl. Skull fragments which cannot be identified, but probably not human.

Site 14.—Burnt fragment of the lower end of a cannon bone of sheep or goat.

BEAKER LEVEL.

Site B.2.—Fragments of the skeleton of a young man, including parts of skull, thigh bone, upper arm bone, rib.

Site B.1.—Fragments of human long bones only, the identifiable fragments being from the legs.

Bones from Sites 1 and 2 may belong to the same individual.

Site B.12.—Parts of human leg bones. Also heel bone and fragment of pelvis. Tibia platycnemic; individual adult, probably male.

Site B.13.—Fragments of skull and one fragment each of humerus and radius. The skull was that of a broad-headed individual, aged *c.* 30-35, probably male.

Site B.5.—Parts of thigh bone and upper arm bone and many small unidentifiable fragments. Femur platymeric.

Bones from sites B. 12, B. 13, and B. 5 may all belong to one individual.

Site B.3.—Skull fragments of young adult individual, together with the enamel crown of four upper molars, viz. 1st, 2nd, and 3rd molar on right, and 3rd molar on left.

Site B.4.—Twenty-one teeth—including all twelve molars—of a young adult aged *c.* 18–20. Only the enamel crowns remain in many cases, but a root of one 3rd molar remains apparently intact, and still somewhat open, showing that this tooth was not completely up.

Site BB.1.—Some fragments of very much decayed bone with chalky deposit[1] on outside.

APPENDIX II.

REPORT ON PUMICE. By HERBERT H. THOMAS, Sc.D., F.R.S., Petrographer to the Geological Survey.

I have examined the sections and specimens of your material from Skye and find that it is definitely a pumice of basaltic character, and all of the same type.

It consists of a brownish glass with abundant vesicular cavities. The glass contains microlites of greenish augite and felspar, and there are occasional small rounded phenocrysts of basic placioclase. These facts, and the general character of the glass (low refractive index) indicate without question that it is not an artificial slag but a basic volcanic product. As such, its presence is of great interest as it seems to indicate a volcanic eruption of considerable magnitude at or about the period of the site.

As to the source, it is probable that volcanoes were erupting basic material in the Mediterranean, Iceland, and the West Indies, but the character of the pumice is quite different from that of the Mediterranean volcanoes of Stromboli, Vesuvius, and Etna. Of the other seaboard sources Iceland is the less likely, because a southerly drift from

[1] Dr H. L. Riley, A.R.C.S., D.I.C., D.Sc., Lecturer in Chemistry, Imperial College of Science and Technology, reports as follows on this chalky deposit:—

"The white deposit on the bones from Skye contains alumina and phosphoric acid together with small quantities of ferric oxide, silica, water-soluble sulphate, chloride, and organic matter. It is probably a basic aluminium phosphate which has been formed by the slow interaction of the calcium phosphate of the bone with aluminium silicate present in the soil in which the bones were buried. This latter could be present either as clay or as kaolinised felspar from the granite. Fossilised bones have been reported to contain ferric phosphate, which had probably been formed in a similar manner."

Icelandic waters is contrary to the known direction of currents, whereas a drift from the West Indies would be in accordance with what we know takes place. I therefore incline to the view that the pumice is of West Indian origin, and that your site may be contemporaneous with some great paroxysmal eruption in that region, during which much pumiceous material was ejected into the sea and carried eastwards by the prevailing winds and currents.