

II.

A NEOLITHIC DOUBLE-CHAMBERED CAIRN OF THE STALLED TYPE AND LATER STRUCTURES ON THE CALF OF EDAY, ORKNEY. BY CHARLES S. T. CALDER, A.R.I.A.S., F.S.A. SCOT.

The Calf of Eday in the Orkneys is a small uninhabited island separated from the main island of Eday by the waters of Calf Sound. Near Caithness Geos on its southern side is a group of seven prehistoric monuments lying from 50 to 250 yards off the shore (fig. 1). Three of them are marked on the O.S. Map, two as "Erd Houses" and one as "Standing Stones," but recent investigation has proved that each one represents a Stone Age chambered cairn. The largest of these, whose true character was previously unknown and which could be identified only by the standing stones, is connected with two of the other structures by a later wall. Together they constitute the most northerly and most prominent members of the group (fig. 2). Writing in the year 1855 Farrer recorded this particular complex as a site having standing stones within the line of an "Ancient Rampart of stones and earth somewhat resembling the letter S in form" and having at each end the "foundation-stones of towers."¹

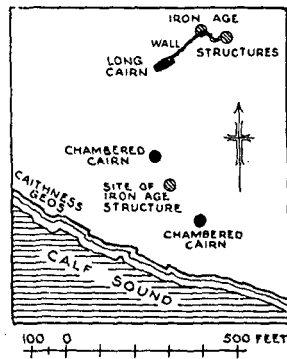


Fig. 1. Calf of Eday:
Key Map of Monuments.

¹ *Proc. Soc. Ant. Scot.*, vol. ii. p. 156.

THE WALL (1).

Little change has taken place since then, but what Farrer calls a rampart is merely a grass-covered stony ridge formed by the debris of a drystone wall. It is so ruinous that the original thickness is not ascertainable, but the spread is 6 feet wide. There are traces on the surface suggesting that the line, which is definite for a length of 85 yards, has extended southwards to the shore. With the exception of a short length at each of the ends, which return in opposite directions, the wall runs north-east and south-west (fig. 2). The northern extremity curves in a semi-circle around the south-western half of a shallow

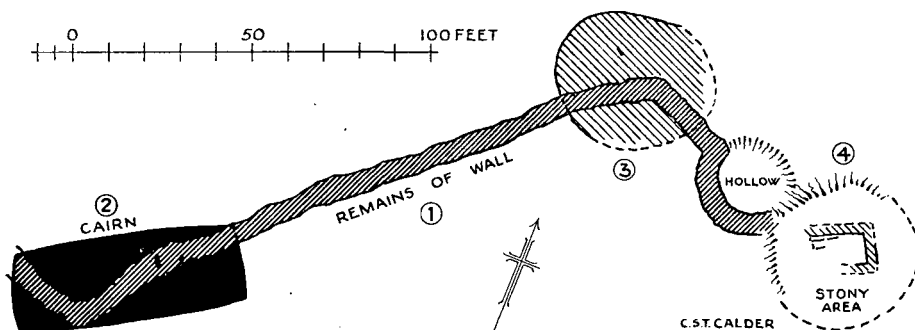


Fig. 2. Calf of Eday: Plan of Wall and Associated Structures.

depression, roughly 20 feet in diameter, before losing itself in a dilapidated stony mound. In its course the wall surmounts two other mounds, these being presumably the "towers" referred to by Farrer.

Its association with the mounds is the principal reason for the inclusion of the wall in this account, as, in itself, the ridge is of no more importance than the remains of any old dike which it resembles. The wall is certainly later than the mounds which were already heaps of ruins when it was built, and its relation to them is purely incidental.

THE CAIRN (2).

Towards the southern end of the ridge two erect slabs, S_1 and S_2 (fig. 3), stood parallel to each other 5 feet 6 inches apart, one just breaking the surface and the other rising to a height of 2 feet 6 inches above it; both, however, were reduced by weathering. From their position and general appearance it was felt that they did not fit into the category of Standing Stones to which they had been assigned. This

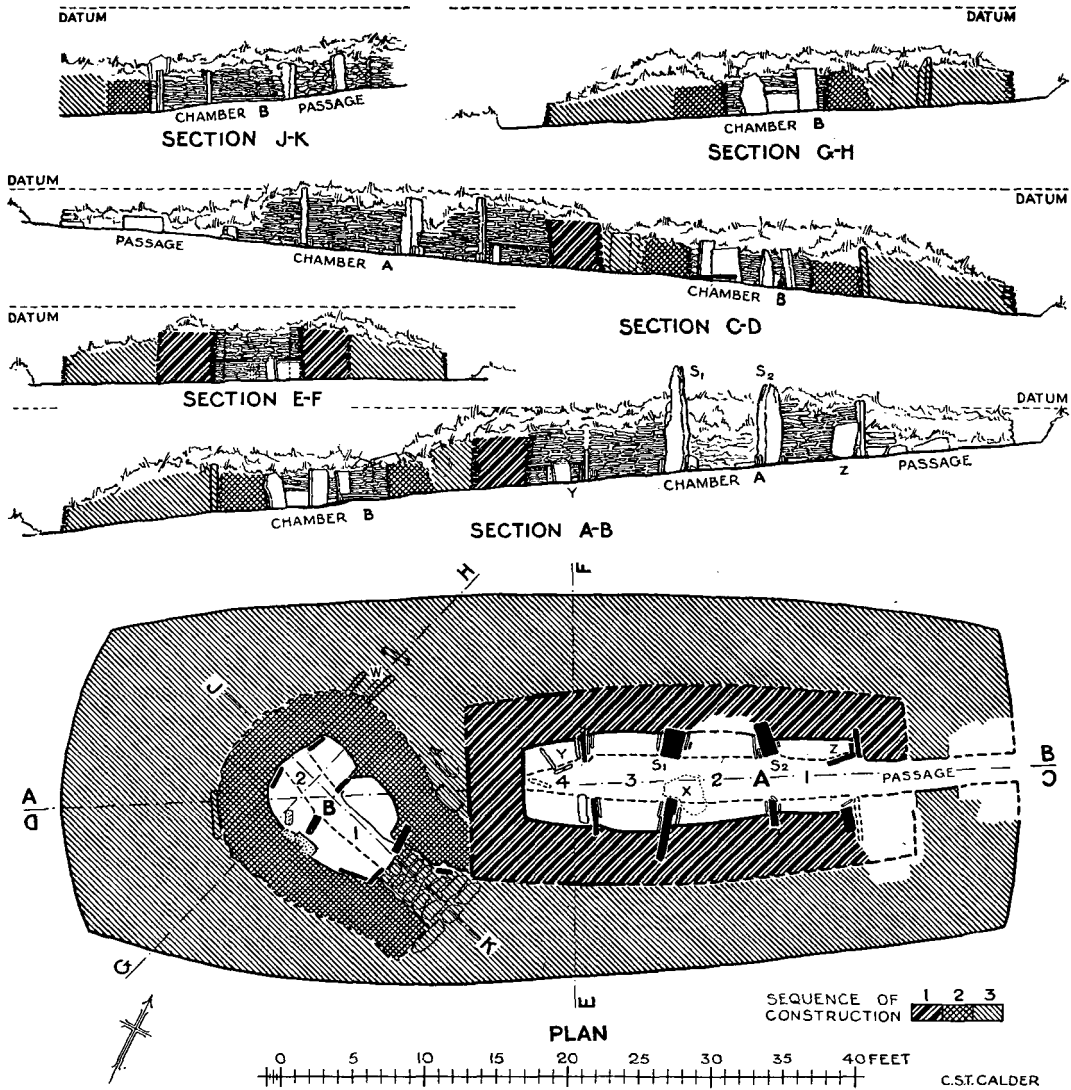


Fig. 3. Stalled Cairn, Calf of Eday: Plan and Sections.

idea led to a trial investigation which confirmed the view that they belonged to a structure underneath, from whose walls they projected as partitions.

Subsequent excavations disclosed the existence of a long, neolithic, chambered cairn of the stalled variety (fig. 3), the lay-out of which was identical in many respects with the Rousay cairns that have recently been placed on record by Mr Walter G. Grant and Dr J. Graham Callander.¹ In addition to four of the type excavated in Rousay, four others are supposed to exist there, but the cairn now being described is the first example to be examined outside that island in recent times. Eighty-two years ago, what seems to have been a cairn of the stalled type was excavated in the Holm of Papa Westray.² Our monument, however, is distinguished in its internal arrangement from the Rousay group by the occurrence of a most unusual combination of two differently designed chambers, A and B, lying in juxtaposition; one is long and high and the other round and low, but both contain stall-like compartments. Whether or not a single chamber was contemplated originally is a point that cannot be answered satisfactorily, but it is certain that the completed design allowed for the incorporation of both. This is made clear by a glance at the finished outline, where the sweep of each side wall runs in a sweep unbroken curve from one end of the cairn to the other with an obvious allowance for the presence of the second chamber. This contention is further strengthened by the fact that no outer wall has been built as part of either chamber on the line of contact between them. Other cairns containing two or more chambers are not unknown, but in this case, where two distinct types of chambers can be assigned to the same period, the chronological value of such a relationship is important.

Three successive stages of operations are apparent, but whatever length of time elapsed between them, it was not long enough to bring the last stage beyond the limit of the late Stone Age in Scotland. The long chamber, A, was the first part to be built; chamber B, which abutted against its back wall, was the next; and the massive outer wall encasing both chambers was the last. The addition of the latter created the double-wall feature which has been observed in the Rousay cairns and in other types elsewhere. The inner wall of chamber A, measuring from $3\frac{1}{2}$ to 4 feet thick at the sides and

¹ *Proc. Soc. Ant. Scot.*, vol. lxxviii, pp. 320-50; vol. lxxix, pp. 325-51; vol. lxxx, p. 407; another cairn of the type (Blackhammer, Rousay) will be recorded later in this volume.

² *Ibid.*, vol. ii, p. 62.

about 1 foot more at the inner end, was built of drystone masonry faced on both sides with horizontal courses of rubble. That of B, which was mainly 4 feet thick, was of similar construction but of inferior workmanship. This was most noticeable in the facing of the passage and in the very rough rubble of the outside face where it was exposed. The position of the outer faces of the inner walls was verified only so far as was thought necessary, the parts which were not examined being assumed and indicated on the plan by a



Fig. 4. Stalled Cairn, Calf of Eday: south-east corner of Outer Wall.

broken line. What remained of the outer casing wall varied in thickness from about 7 feet at the sides to 10 feet at the western end. It showed well-built horizontal stonework on the face without any projecting footings (fig. 4). The stones of the lowest course appeared to have been selected for their larger size and squareness and the quoins seemed to have been finely adjusted to suit the convexity of the sides and ends. At some places a batter was evident, but at others the wall-face was vertical, a circumstance which might be due to thrust. On the north, at a point almost in line with the outside of the back wall of chamber A, a slight change in the character of the masonry was noticed. The stonework, however, was well bonded and the face showed no more signs of

interruption than would be caused by a temporary stoppage in its erection.

The cairn measures 66 feet long and 27 feet wide; the walling survives to a general height of 2 feet on the outside and to 4 feet in places within the long chamber. On account of its following the slope of the ground one end is 6 feet higher in level than the other. The main axis lies north-east and south-west, and, unless there be a special significance in this particular orientation, it is difficult to explain why the cairn should have been built lengthwise with the slope when, by building across it, a more level foundation would have been obtained.

The entrance-passage of chamber A, measuring 11 feet long and 2 feet 2 inches wide, is situated in the middle of the higher end, but it is now without lintels and is much destroyed. There is no evidence that it had ever been sealed up. Only two or three courses of masonry remain in parts of the north side, while one large solitary block is all that is left on the south. The inner end of the passage passed through a gap between the inner edges of a pair of upright stones erected opposite each other to form the eastern end of the long chamber, but the southern slab is now missing. The chamber (fig. 5) extends almost half-way through the length of the monument; it measures 23 feet long and from 5 to 7 feet wide, while its original height had been considerably greater than that of the tallest upright stone still existing. This attains a height of 7 feet measuring from the floor to its weathered top, and it is identifiable with the taller of the two stones, S_1 and S_2 (fig. 3), which alone marked the position of the structure before our excavations began. A built wall, with an inward overhang of 10 inches in its present height of 3 feet 6 inches terminates the inner end of the chamber. The latter is divided somewhat irregularly into four communicating compartments by three more pairs of slabs set up opposite each other. The compartments range from 4 feet 6 inches to 6 feet long and from 5 feet to about 7 feet wide. Each upright slab is fixed edgewise into, and projects from, the side walls in a manner reminiscent of a row of stalls on either side of a central gangway or corridor. The intervals between the inner edges of each pair of stones vary from 2 feet 9 inches to 3 feet 6 inches. There is a very slight inward corbelling in the upper courses of the side walls. All the upright slabs are broken on the top. They range from 3 inches to 1 foot 5 inches in thickness, the latter size being that of the tallest stone. Against each side of the partition slabs, small stones set on edge, the highest rising 1 foot 4 inches above the floor, have served not only as packing for rigidity but as supports for stone shelves. A single shelf, it is assumed, may have been provided for each

stall since the presence of such was certain in the two inner compartments. A broken slab which had been used as a shelf was found in position, though loose, in the north stall of compartment No. 3, and leaning on edge against it was another, broken in two pieces. This, presumably, had been the slab originally in the corresponding stall on the south side. In compartment No. 4, each of the stalls contained a shelf, 2 feet wide and $1\frac{1}{2}$ inch thick, one end being built into the back wall, and the other supported by a slab on edge close to the upright. Both



Fig. 5. Stalled Cairn, Calf of Eday: Interior of Chamber A, looking west.

shelves were in such a shattered condition that they could not be preserved *in situ* after clearance. At right angles to the back wall, between the ends of the shelves, was a thin slab set on edge, but it had been dislodged. It may have been a low divisional stone similar to one, underneath the shelf in the north stall, which divided the space into two irregular parts. The eastern part, marked Y on plan, was boxed in by another slab covering half the front, the space so enclosed measuring 1 foot 10 inches long, 1 foot 8 inches wide, and 1 foot 4 inches high. On its floor lay a small quantity of broken and badly decomposed bones of a human being and of an otter, which are reported on later. A slab construction, Z, measuring 2 feet long, 1 foot 10 inches high, and from 9 inches to 1 foot 5 inches wide,

forms, along with the remaining upright at the entrance and the side wall of the compartment, a sort of recess which contained shell and bone refuse mixed with peat ash; opposite, on the south side, there were slight indications of a similar structural feature. Their purpose here was not apparent. The floor of the chamber, as well as that of the passage, sloped in keeping with the foundations, and from the entrance to the back wall the declination amounted to 2 feet 6 inches. The floor consisted of a layer of blue clay lying on the natural buff-coloured clay subsoil. It may be mentioned that the whole foundation of the cairn seemed to rest on the blue layer, the material of which, it is understood, does not occur nearer than the south end of Eday. In this connexion, too, may be cited a notice of a chambered cairn at Clady Halliday, Tyrone,¹ wherein it is stated that "Underneath the

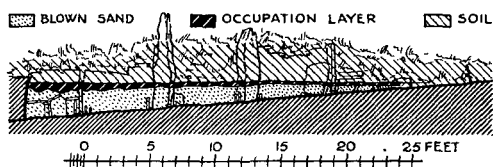


Fig. 6. Stalled Cairn, Calf of Eday: Section, on line A-B, of Chamber A, showing Occupation Level.

whole monument was a ritual clay floor which had been laid after the erection of the orthostats and peristalith." At a later period, when the chamber had become roofless and ruinous, the original clay floor was covered by a filling of blown sand. This was wedge-shaped in section, increasing in depth from zero at the entrance to 2 feet 6 inches at the inner end, while it maintained a fairly level surface throughout (fig. 6). On top of this there was an accumulation of refuse from 3 to 4 inches in general thickness, but with pockets of peat ash as much as 1 foot deep in the inmost compartment. This layer represented an occupation floor probably of the Early Iron Age. As well as the peat ash it contained, amongst peaty humus, broken pottery, animal and bird bones, and a large quantity of shells, mostly of limpets. All was covered by a growth of peat and heather, and throughout the respective layers there were many fallen stones.

The smaller chamber, B, which measures 10 feet long by almost 7 feet wide, was set with its main axis at an angle of 45° to the back wall of the larger, A, immediately adjoining the latter in such a manner as to leave the entrance just clear of its south-west corner. The purpose of this singular arrangement might have been concealment, which was successfully accomplished by placing the entrance in a position most unlikely to be looked for or found. Indeed, even in an exposed condition during the excavations, its

¹ Congress of Archaeological Societies. *Report for 1935*, p. 39.

situation was so unexpected that it was the last feature to be discovered, and that only after a close search. The entrance passage, which is somewhat irregular in shape and wider than normal, was deliberately closed up for the whole of its length by a well-laid infilling of stones, with some especially large blocks placed transversely outside its mouth. Moreover, it never extended outwards beyond the inner wall, and not only it but the entire chamber was further masked by the thick outer casing wall (fig. 7). The filling in of the passage



Fig. 7. Stalled Cairn, Calf of Eday: Outer Wall, and Chamber B, looking through Entrance-Passage.

may have preceded by some time the laying of the core of the outer wall, but under the circumstances it is more likely that both were done during the same operation. This entrance is 5 feet in length and from 3 to 4 feet in breadth, but, owing to the disappearance of the roofing slabs, its height is uncertain. It may be judged, however, to have been at least 2 feet $8\frac{1}{2}$ inches, which is the height of an upright slab leaning apparently *in situ* against the wall on the right-hand side near the mouth. Any corresponding slab that may have existed on the other side has been removed. The passage continues to the rear of chamber B, as a central corridor through two compartments with stalls on either side. The stalls are contained between three pairs of upright slabs in the same way as those in chamber A, with intervals

of 1 foot 9 inches to 2 feet 3 inches between their inner edges. The middle pair are free-standing, with packing or shelf-supporting stones at the base, the two next the entrance complete that end of the chamber, but those at the other end are set against the face of the back wall. These uprights have little floor- or wall-hold and they have depended for steadiness on the weight of the roofing-slabs, which no longer exist. Each stall has a recessed concave back wall in contrast with those in the other chamber which are straight.



Fig. 8. Stalled Cairn, Calf of Eday: Interior of Chamber B, showing north Stalls.

In respect of height the difference is more pronounced, the slabs in chamber B being only from 2 feet 2 inches to 2 feet 9½ inches high. Only in the northern stall of compartment No. 1 has the floor been left undisturbed, and it consists of a single slab or shelf, 2 inches thick, resting on the clay (fig. 8). No doubt, the other stalls had been furnished with similar slabs. Behind the mid-partition on the south there are indications that that part of the wall-face had been rebuilt, and on that side also, in the inner stall, an intrusive upright slab leans against the wall. It forms no structural part of the original work and may belong to the later reconstruction, though, alternatively, it may only be a fallen stone.

The floor of the chamber has a slope of 10 inches from front to back

and is composed of clay like that of the long chamber. The height from floor to roof may be reckoned as having been at least equal to that of the tallest upright, 2 feet 9½ inches, but the height may have been increased to a little over 3 feet by the thickness of an eke-stone on the top. Such an expedient would be necessary with the shorter uprights, but, in any case, the chamber has been exceedingly low in comparison with chamber A. This lowness, along with other characteristics, brings this particular structure into close affinity with the two other cairns of the main group noted on the key map (fig. 1). The chambers of the latter, however, are partially sunk in living rock below the surface of the ground.

An infiltration of sand was present throughout the core of the outer wall of the chamber, but the absence of blown sand in the chamber itself seemed to indicate that a low-set roof was still intact when the sand-drift occurred. The interior was filled with black peaty earth mixed with a quantity of peat ash, suggesting a later occupation. Outside the north wall of compartment No. 2 three slabs, W, set loosely on end and reaching down to the clay bed, were arranged in box-like fashion with the rough wall-face of the chamber closing one end. The slabs were not in contact with each other and the gaps between them, as well as the space inside, were completely filled with the stones from the core of the outer wall, a fact which made it appear that the formation was merely fortuitous. No doubt this was also the case with two or three single slabs leaning against the outer face of the inner wall, where they had probably been dumped in reserve during operations and afterwards left as part of the filling to save the trouble of their removal.

The yield of neolithic relics from the cairn, though falling short of expectations raised on the trial digging, was considerable. Portions of at least thirty-four vessels of clay have been identified by Dr Callander, who has described the pottery from this and from the other structures at the end of this paper. Nearly all of it was collected during the preliminary excavation from the original floor of compartment No. 2 of chamber A, in the small area within the dotted lines marked X on plan; the other compartments, cleared later, were disappointingly barren. It seems that the whole lot had been gathered together and thrown in a heap, where it was found below the sand amongst black, greasy, peaty humus and peat ash. Along with the pottery were found two leaf-shaped arrow-heads, one broken, and a possible third one damaged, a short knife, two scrapers, and several unworked flakes, all made of flint (fig. 9). The presence of fire in the mixture was attested by the peat ash, carbon, small pieces of calcined bones, and the calcination

of all the flints, while soot and ash adhered to the pottery. Two axes of sandstone were found on the shelf above the skeletal remains in



Fig. 9. Stalled Cairn, Calf of Eday: Flint Implements. 1, 3, 7, and 8, Scrapers; 7 is from occupation level; 2, Knife; 4 and 5, Arrow-heads; 6, a Flake. ($\frac{1}{2}$.)

compartment No. 4 (figs. 10 and 11). The larger measured $6\frac{1}{2}$ inches long and the smaller only $2\frac{3}{4}$ inches long. Mr Walter G. Grant has



Fig. 10. Stalled Cairn, Calf of Eday:
Axe of Sandstone. (†.)



Fig. 11. Stalled Cairn, Calf of Eday:
Axe of Sandstone. (†.)

pointed out to me that, up till now, the association of stone axes with Scottish neolithic burial structures is of rare occurrence. Only two instances had been recorded, one axe being found in a horned cairn at Lower Dounreay, Caithness, and the other in a cairn at Clachaig, Arran. To these have now to be added two others which Mr Grant found recently in cairns at Blackhammer and at Lairò, Rousay, two more recovered from cairns which I have excavated this year—one at Huntersquoy, Eday, and another near Caithness Geos on the Calf of Eday—and the two just described. The last two being from a single cairn, the total number of localities of such finds therefore amounts to seven.

A small flint scraper of indeterminate period was found in the thickness of the broken-down wall on the south side of the entrance-passage.

From the domestic level the yield included, from compartment No. 3, shards of a decorated pottery vessel, and, from No. 4, fragments of plain pottery, a calcined flint scraper (fig. 9, No. 7) and a broken implement of split bone. The latter measured $3\frac{1}{4}$ inches long and it was smoothed and rounded at one end. There were also skeletal remains of animals—ox and sheep—and of birds—cormorant, shag, sea-eagle, black-headed gull, and herring-gull. The bones have been examined by Miss Platt, whose report is appended.

In addition to the above relics from chamber A, a find of two deer-horn tines and some animal bones must be included tentatively as being within the domestic period. These were found by the proprietor, Major Harry H. Hebden, M.C., who had previously dug down in the space between the exposed uprights, S_1 and S_2 , in front of the line of the inside wall-face which at this part had been torn out. The actual depth of the find was not noted precisely at the time, but the shell-layer had been reached. One tine, measuring $8\frac{3}{4}$ inches long, still remains in possession of Major Hebden at Carrick House, and the other, along with the bones, was presented by him to the Stromness Museum.

The objects of the latter level belong to the Early Iron Age, which may also be the period of the comparatively few relics found in chamber B. These consisted of small bits of calcined bones, three flakes of flint, two of which were calcined, and broken pieces of thin-walled plain pottery. The pottery fragments were found throughout the debris down to the floor of the chamber and also amongst the stones which filled the passage. Pieces of eight different vessels were noted.

Outside the northmost corner of the cairn there were found pieces of plain pottery, and from other parts round about, a rough stone, measuring $9\frac{1}{4}$ inches by 6 inches by $3\frac{1}{4}$ inches, with a square dish-like

cavity pecked out on one side, two small angular stones, each with a pecked-out cup-like hollow on one face, and a few broken rude stone implements. These may also date from the late occupation.

STRUCTURE 3.

The third structure of the complex lies 33 yards from the last, underneath the north-eastern return angle of the ruined dike first described. Prior to investigation only the top of an upright stone, A, was to be seen. It measured 1 foot 10 inches wide by 5 inches thick, and stood 2 feet 6 inches above the surface to the north of the line of the dike, in a hollow scooped out of the top of a low grass-covered mound. Lack of time accounts for only a partial excavation being made, but even this extended to the digging of half the area before anything like a coherent scheme could be made out (fig. 12). The mound had accumulated over the ruins of an oval building which when complete might have measured approximately 41 by 38 feet in cross diameters. As far as could be made out, one chamber only was contained within the building. The outer face of a wall, discovered just under the turf, had been reduced to its lowest courses, and measured 1 foot 8 inches in height

above the natural clay. It followed the western curve of the oval outline for fully half its circumference, beyond which it could not be traced. The inner face of this wall was much broken down and parts were wanting. At the highest it stood only 3 feet 6 inches above a floor which, so far as uncovered, consisted of well-fitting paving-slabs laid on the clay subsoil. It was found that the slab A was built edge-wise into and flush with the wall and that it rose to a height of 5 feet 3 inches above the floor. Two deep and irregular recesses, R₁ and R₂, opening off the chamber were constructed in the main wall, which varied from 7 feet and 8 feet 3 inches in thickness behind them to 14 feet 6 inches in the solid between. The stumps of two thin slabs, B, remained in the western recess but appeared to have stood clear of

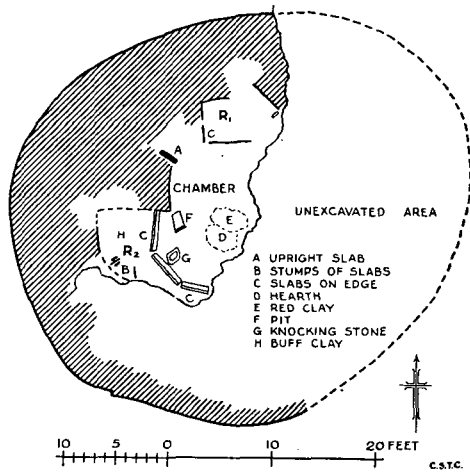


Fig. 12. Structure 3, Calf of Eday: Plan.

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the wall-face, which here was totally destroyed. The northmost slab had been kept erect, partly at least, by a packing-stone fixed on edge on either side. The surviving west side of recess R_1 was extended 1 foot 6 inches by a thin slab placed on edge and measuring 1 foot 9 inches high, and another measuring 4 feet 3 inches long, 1 foot $10\frac{1}{2}$ inches high and $2\frac{1}{2}$ inches thick was placed at right angles along the front. Three thin slabs also on edge, and measuring from 2 feet 9 inches to 4 feet long, were set end to end along the front of recess R_2 on lines conforming to three sides of an octagon. None of the slabs had a secure floor-hold and the latter three leaned over precariously; all are indicated on the plan by the letter C. On the floor at D a slab had suffered badly through use as a hearth. It was much shattered and fire-fractured, but it did not appear to be different from the rest of the pavement nor to have been laid specially as a fireplace. Impinging on its northern edge was a mass of reddish clay, E, covering an area of some 3 feet in diameter and overflowing from a small box-like arrangement formed of four, thin, loose stones roughly laid on bed on the floor. Three feet west of this, a small pit, F, measuring 2 feet long by 1 foot 2 inches wide at the south end and 10 inches at the other, had been sunk to a depth of 1 foot 4 inches in the floor. It had a stone-built lining and a paving-slab for a cover, while a loose flat stone leaned against and almost covered its south end. The pit (fig. 13), which had a layer of fine buff-coloured clay in the bottom, was half full of water and there was a small heap of pebbles in each of its two western corners. Before the mid-frontal slab of recess R_2 there was a mortar, G, which had an oval-shaped hollow measuring 10 inches by 8 inches by 4 inches deep. In the recess itself was a thin layer of local buff-coloured clay, H. Both mortar and clay appeared to be separated from the paved floor by a thin layer of black peaty soil. It may be mentioned that the recess was also paved with stones very closely fitted together.

The interior of the chamber north of the fireplace was filled with an accumulation of black peaty earth distributed through a mass of debris, but the area on the west, particularly in the recess, was solid with peat ash containing innumerable fragments of plain flat-bottomed pottery of red, buff, and black colour; in the higher level the bones of a large animal were found. The amount and variety of pottery from so small a space seems to me to be satisfactorily explained only by concluding that the building had been or had become a potter's workshop and that the fragments in the heap represented discarded pots. Thus also would the presence of different clays be accounted for. Further, it is possible that the pit had been used as a receptacle for the washing

of the clay, the coarse raw material being rubbed against the flat stone at its south end and the pebbles being freed and pushed aside. The pottery would have been baked in the fire on the hearth. The use as a potter's workshop, however, may have been a late adaptation of the chamber, and a few of the details would seem to support this idea. For instance, the hearth was not constructed specially as a fireplace, and also the wall-face of recess R_2 appeared to have been torn out before



Fig. 13. Structure 3, Calf of Eday: Interior of Chamber showing Pit, Mortar, and western Recess.

the peat ash and pottery had accumulated and the stumps of the uprights, B, had been covered over by the rubbish.

The ravages of time, as well as the damage caused by haphazard digging, has apparently robbed the mound of so much of its character that even after this latest investigation there is a feeling of uncertainty which may be dispelled only by a complete exposure of all the features. The evidence establishing its domestic nature is seen in the numerous stone implements¹ found in and about the building, which are suggestive of the Early Iron Age.

In addition to the mortar these include the following:—

Two small boat-shaped saddle-querns, of which one is slightly broken.

¹ For types of some of the implements see *Proc. Soc. Ant. Scot.*, vol. lxxvii. p. 97, fig. 13, p. 104, fig. 18, p. 106, fig. 21, and p. 107, fig. 22.

Each is rounded on the under side by pecking and the concavely rubbed face shows small pit-marks. The stones measure $12\frac{1}{8}$ inches by 5 inches by $2\frac{3}{4}$ inches, and $9\frac{1}{2}$ inches by $4\frac{3}{4}$ inches by 2 inches.

An exceptionally large rude stone implement which was found with a few pieces of pottery in the pit (fig. 14). It weighed 10 lbs. and

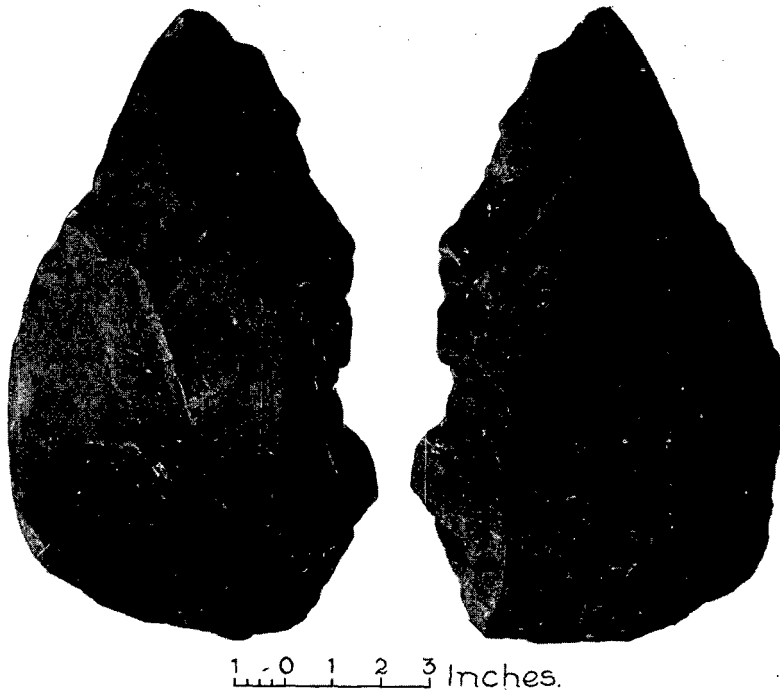


Fig. 14. Structure 3, Calf of Eday: Stone Implement.

measured 13 inches by 8 inches by $2\frac{3}{4}$ inches. The edges of the stone were flaked.

Half of a flat-sided heart-shaped stone broken through the middle of a biconical perforation which measures $2\frac{1}{8}$ inches in diameter on the outside and $1\frac{1}{2}$ inch in diameter in the middle. The object measures 6 inches across the break, 5 inches along each side, and it is 2 inches thick.

Three club-like implements with their sides converging to blunt-pointed butts and all shaped by chipping, measuring $11\frac{1}{4}$ inches by

$3\frac{1}{2}$ inches by 2 inches, 10 inches by 4 inches by $1\frac{1}{2}$ inch, and $8\frac{1}{4}$ inches by $3\frac{3}{4}$ inches by $1\frac{1}{2}$ inch.

Another club-like implement of oval section, tapering more sharply to a point at one end than the other so as to give a grip for the hand. The surface is finished with small pit-marks and the stone measures $9\frac{1}{2}$ inches by $1\frac{3}{4}$ inch by $1\frac{3}{8}$ inch; five broken tools of similar type.

Two flat triangular objects with chipped bases; each measures 6 inches long and $4\frac{1}{2}$ inches across the base, and $1\frac{7}{8}$ inch and $\frac{7}{8}$ inch thick respectively.

Four pounders of usual type, worked at each end; two of them are pecked on the sides, probably to give a better grip.

A spherical hammer-stone measuring $3\frac{1}{8}$ inches in diameter.

A rude cleaver made by chipping a flat stone all round and shouldered for a handle. It measures $8\frac{1}{2}$ inches by $5\frac{1}{2}$ inches by 1 inch.

A rectangular knife-like implement chipped on one edge and on one end; measuring $7\frac{3}{4}$ inches by 4 inches by $\frac{7}{8}$ inch.

Another of similar shape but chipped on the faces and round the edges; measuring $7\frac{3}{8}$ inches by $3\frac{1}{2}$ inches by 1 inch.

Seventy unworked flakes varying from $2\frac{1}{2}$ inches in diameter to 8 inches by $6\frac{1}{2}$ inches in cross diameters.

A scraper, made of a flake chipped round part of the edge on the smooth side, measuring $3\frac{1}{2}$ inches in diameter.

Six flat unworked discoid stones varying from $3\frac{1}{2}$ inches to 6 inches in diameter; another, worked on one side and measuring $4\frac{3}{4}$ inches in diameter, which may be a pot-lid.

Nearly all these objects have been made from water-worn beach-stones.

A scraper, a worked piece, and four flakes of flint.

Eight pieces of pumice-stone, one or two showing signs of wear.

A fragment of the wall of a steatitic pot with the mark of a perforation across one of its broken edges.

STRUCTURE 4.

The fourth construction (fig. 2) at the end of the dike need only be alluded to briefly as it was left practically untouched. It lies between 30 feet and 40 feet south-east of the last in a stony grass-covered mound which is now so low that there can be little structure left in it. In the middle of the mound are the foundations of an oblong chamber which is set with its main axis lying east-north-east and west-south-west. The western end is missing but the chamber has measured at least

14 feet long by 8 feet 6 inches wide, within walls 3 feet thick. The masonry has been reduced to 1 foot 6 inches in height at most and it rests on 1 foot of black earth above the natural clay. There was no sign of a paved floor, but only a very small area was examined at the south-east corner. Appearing above the surface just inside the broken end of the northern wall four slabs were set on edge so as to form three sides of an open-ended box, two of the slabs being in alignment on one side.

No relics were found, but judging from what little evidence there is, a probable date for the erection is also the Early Iron Age. The circular depression adjoining may well be contemporary in view of the fact that the later supposed dike makes a detour round it.

I have to express my gratitude to Major Harry H. Hebden, M.C., who readily consented to the examination of the monuments and gave me an entirely free hand in their excavation. The Society is indebted to him for the presentation of the most important relics to the National Museum. I should also like to acknowledge my appreciation of other privileges accorded me, Sir George Macdonald having defrayed part of the travelling expenses and our Society having met the expenses of the workmen, thereby enabling me to undertake a more extensive and a more exhaustive exploration than would otherwise have been possible. Thanks, too, are herewith expressed to Dr J. Graham Callander for his report on the pottery and to Professor Alexander Low and Miss Margery I. Platt for their reports on the human, animal, and bird bones. Finally, I should like to mention my indebtedness to my friend, Bailie W. M. Ritchie, Johnstone, for valuable assistance in the course of the excavations and to all the workmen whose enthusiasm and unsparing labour helped so much to lighten my task of supervision.

REPORT ON THE POTTERY. BY J. GRAHAM CALLANDER,
LL.D., F.S.A. SCOT.

While excavating the two monuments on the Calf of Eday, just described, Mr Calder found a considerable quantity of pottery in each. The pottery from the long, stalled cairn belongs to two distinct periods, the Neolithic and Early Iron Ages of Scotland, but the shards from the other building, which he considers may have been used, at least ultimately, as a potter's workshop, belong to the later time. This, it may be mentioned, is the period of our brochs, earth-houses, and crannogs,

and many of the kitchen-middens in the Hebrides, all of which may be considered roughly contemporary with Romano-British times.

THE STALLED CAIRN—CHAMBER A.

Neolithic Pottery.

This pottery, like all the rest which was recovered, is so terribly smashed up that it has not been found possible to restore, and that only partially, the mouths of more than four vessels, though at least thirty-four are represented amongst the shards. After eliminating the pieces of rims over 17 lbs. of broken pottery remain, but although there is such a large quantity to work upon, the edges of the shards are so irregular, the size of many is so small, and the variation in colour of single pots so great, that only a few pieces have been fitted together. Still, from the curves on many of the fragments it was clear, even though there had been no tell-tale rim pieces present, that we had to deal with round-based vessels which pointed to a Neolithic date.

Carinated Urns.

1. Rim and wall fragments of a bowl of hard brown ware, the largest piece measuring $3\frac{1}{4}$ inches long and $2\frac{1}{16}$ inches deep (fig. 18, No. 1). About $1\frac{5}{8}$ inch below the rim, that is bevelled downwards on the inside, is a low moulding under which the wall curves into a rounded base. The space between the lip and the moulding, which is slightly convex, is occupied by reversed hatched triangles bordered by a single horizontal line above. The marginal line and those forming the triangles have been lightly incised by the steady pull of a sharp-pointed tool, but those filling the triangles display a stab-and-drag pattern made by unusually short and light strokes (fig. 15, No. 1). The wall is only $\frac{1}{4}$ inch thick.

2. Rim and wall fragments of a bowl of good hard ware, in parts black with a skin of brown colour on the outside, and at other places red both on the outside and inside with a black core (figs. 16 and 18, No. 2). The upper part between the lip and the shoulder, which is $1\frac{1}{2}$ inch high, is concave and entirely occupied with decoration, and the lower part turns in towards the base in a fairly quick curve. The vessel has been about $9\frac{1}{2}$ inches in diameter at the mouth¹ and about 10 inches at the shoulder. The top of the rim, though rounded, is flattish in places, and measures $\frac{5}{16}$ inch in thickness. The lower part of the vessel is also $\frac{5}{16}$ inch thick. As for the decoration, there are three lines encircling the

¹ The diameters of the mouths of the vessels are measured externally.

urn immediately under the brim, the spaces between them being filled with short lines, those above slanting from left to right and those below in the opposite direction so as to form a herring-bone pattern. Under-

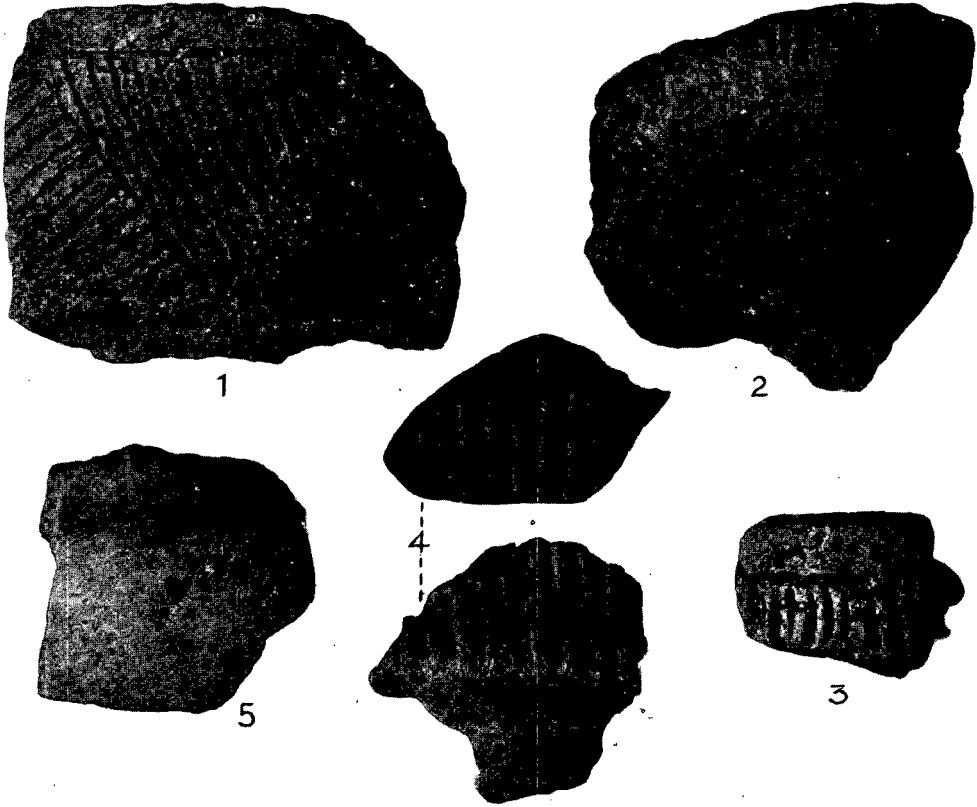


Fig. 15. Fragments of Carinated Neolithic Pottery from Calf of Eday. (†.)

neath are panels in the form of reversed truncated triangles hatched with straight lines alternately sloping in opposite directions. All the lines are sharply incised and have been made by a pointed tool (fig. 16).

3. Rim and wall fragments of about three-quarters of the upper part of an urn of hard red clay, which fit only in one or two places. But for the herring-bone pattern sloping in the opposite direction the scheme

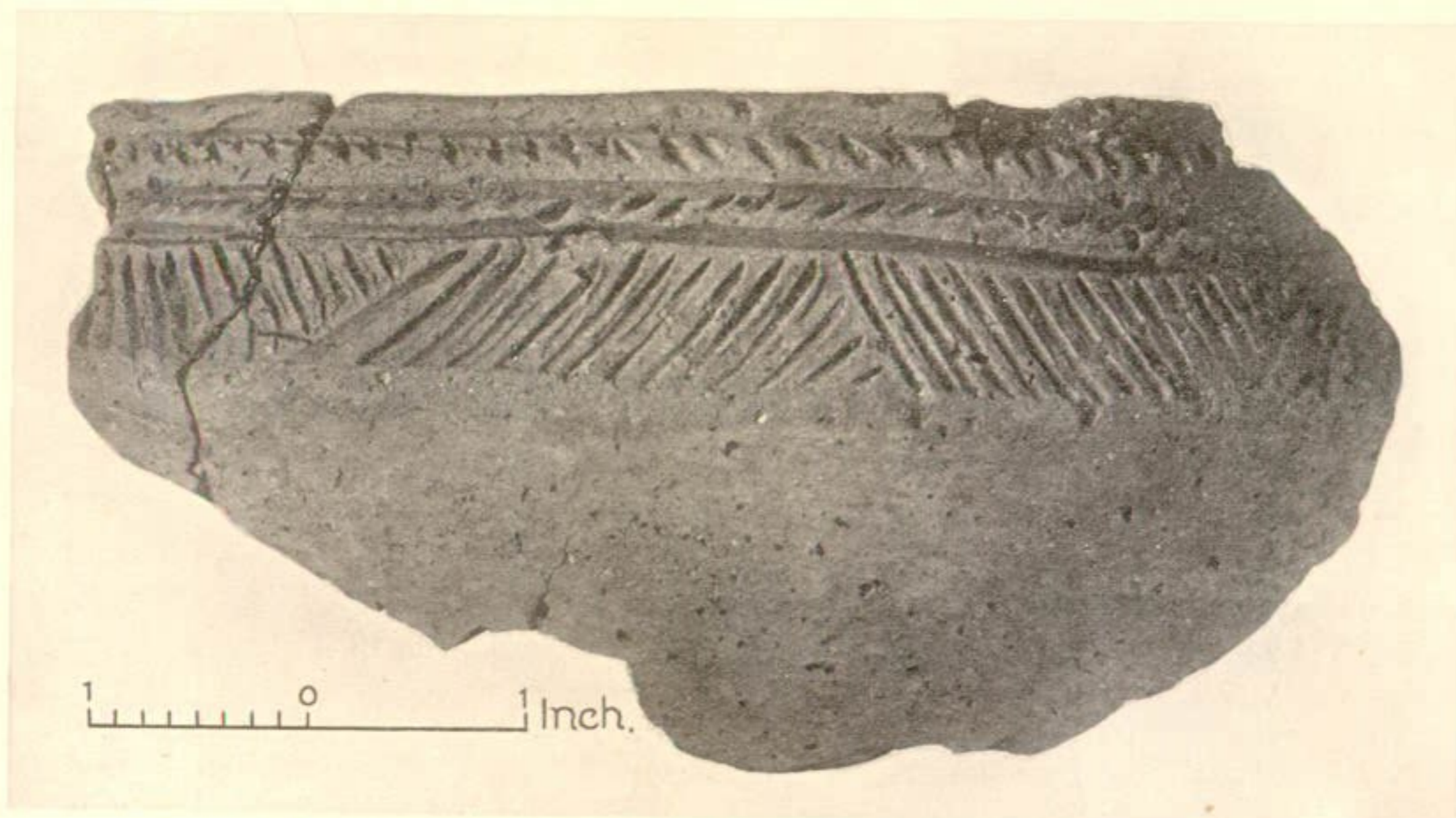


Fig. 16. Fragment of Carinated Neolithic Urn from Calf of Eday.

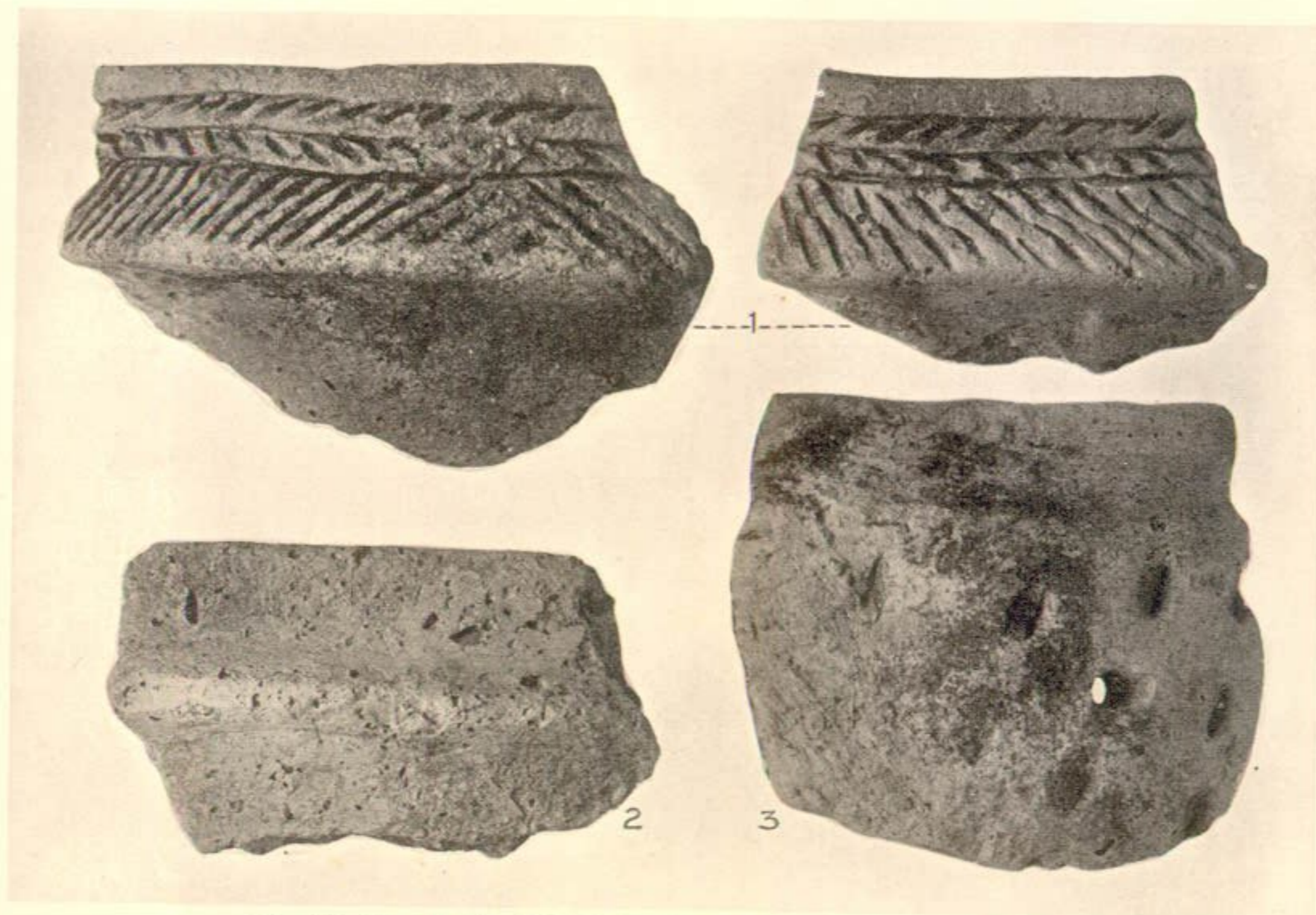


Fig. 17. Fragments of Neolithic Pottery from Calf of Eday. (3).

of decoration is the same as that seen in the last. The incised lines are generally made by a steady pull of a pointed implement, but at one place the point has been lifted at the middle of the line so as to form two short ones (figs. 17, No. 1, and 18, No. 3). The form also is very similar, though the carination is more pronounced and rather nearer the lip. The diameter at the mouth has been about 8 inches, and the wall, of which a height of only $3\frac{1}{2}$ inches survives, at most is $\frac{1}{4}$ inch thick.

4. Fragment of the wall of a vessel of dark ware, measuring $2\frac{1}{4}$ inches by 2 inches, showing a small part of the carination and of the wall below, the latter being $\frac{3}{8}$ inch thick. Doubtless it has been of the same form as the last two. On the upper side of the keel it is decorated with vertical incised lines (fig. 15, No. 2).

5 to 9. Rim and wall fragments of four, probably five, carinated urns of hard buff or red ware with no decoration. The vessels have all been of large size, possibly having a diameter at the mouth up to 13 inches. In some pieces the wall is $\frac{9}{16}$ inch and $\frac{5}{8}$ inch thick. Figs. 17, No. 2, and 18, Nos. 4, 5, and 6, show the form of the rims and upper parts of the wall, and fig. 17, No. 2, the vesicular character of the ware.

10 to 13. Small fragments of the carinated part of the wall of four different urns, three of dark-coloured ware and one buff-coloured on the outside. Three have been decorated above the keel with oblique incised lines and one seems to have been plain.

14. Fragment of a rim of bright red-coloured ware measuring only $1\frac{1}{4}$ inch long by 1 inch deep at most. The top of the rim is flat and measures $\frac{5}{16}$ inch thick. Immediately under the lip is a transverse line with vertical lines depending from it all incised with a narrow pointed tool (fig. 15, No. 3). Although so little of the urn remains, the ornamentation which it bears points to its having been of the carinated variety.

Urns not Carinated.

15. Rim and wall fragment of an urn of hard buff-coloured ware measuring $5\frac{1}{2}$ inches in length and 3 inches in breadth. The wall is vertically convex on the outside and shows a deep hollow moulding under the lip (fig. 18, No. 12). The top of the rim is flat and bevelled downwards towards the inside; it measures $\frac{5}{8}$ inch in width. The diameter of the mouth seems to have been at least 10 inches. What remains of the wall and the top of the brim are ornamented with finger-nail markings set obliquely. The nail has been inserted into the damp clay and a small piece dragged out, leaving a vesica-shaped hollow steeper on the one side than the other and the mark of the nail in the

bottom (fig. 17, No. 3). There is a small perforation $1\frac{1}{2}$ inch below the brim.

16. Rim and wall fragments representing rather more than half of the mouth of a vessel of very fine hard dark ware with a tinge of brown in places and rubbed smooth until it shows a gloss. At least only $2\frac{1}{4}$ inches of the wall below the lip is preserved. The urn has measured about $8\frac{1}{2}$ inches in diameter at the mouth, and the wall, which has a rounded lip measuring $\frac{1}{4}$ inch thick, increases to $\frac{3}{8}$ inch at a depth of $2\frac{1}{4}$ inches from the rim. There is a very faint suggestion of a hollow moulding just under the lip (fig. 18, No. 11).

17. Rim fragments of a large, plain, coarsely made bowl of dark brown ware extending to about one-third of the circumference of the mouth. At one place a piece of the wall measuring $4\frac{1}{2}$ inches in depth remains, but for the most part there is less than 2 inches. The rim is slightly rounded on the top with a gentle slant downwards towards the interior and a distinct curve on the outside. It projects both on the exterior and interior, in some places showing an undercut roll (fig. 18, No. 7). It has measured about 13 inches in diameter at the mouth, the rim being $1\frac{1}{8}$ inch broad and the wall $\frac{1}{16}$ inch thick.

18 to 30. Thirteen vessels, each represented by a small solitary fragment of the rim. None of the pieces measures more than $2\frac{1}{2}$ inches along the lip and $2\frac{1}{2}$ inches in depth, except one of bright red colour which is $2\frac{3}{4}$ inches and $3\frac{3}{4}$ inches in greatest length and depth. The surviving shards show that the upper part of the wall in every one had been vertical, the thickness varying from $\frac{3}{8}$ inch to $\frac{9}{16}$ inch. In seven the top of the lip is rounded, in one its inner edge is bevelled downwards, in four it projects slightly outwards, and in one it is flat (fig. 18, Nos. 8 to 11 and 13 to 15). Several of the vessels are buff-coloured, others dirty grey and black, and two bright red on the exterior. One of the smallest pieces, which is only $1\frac{7}{16}$ inch long and $1\frac{3}{8}$ inch deep, has a hole bored through it $\frac{5}{8}$ inch below the lip, and the largest fragment has a perforation $\frac{1}{2}$ inch down. Only one of the shards from these thirteen vessels gives an indication of the shape of the base, and this is the last one mentioned. The lower part of this fragment curves in distinctly, so that there is no dubiety about the bottom having been round (fig. 18, No. 13). It is more than possible that the other pots had the same peculiarity, especially the thicker pieces. Amongst the large collection of urns found in the chambered cairn at Unstan, also in Orkney, which is really of the stalled variety, there are fragments of several with vertical walls which we can claim were rounded below, although there is only one vessel of which enough remains to show the

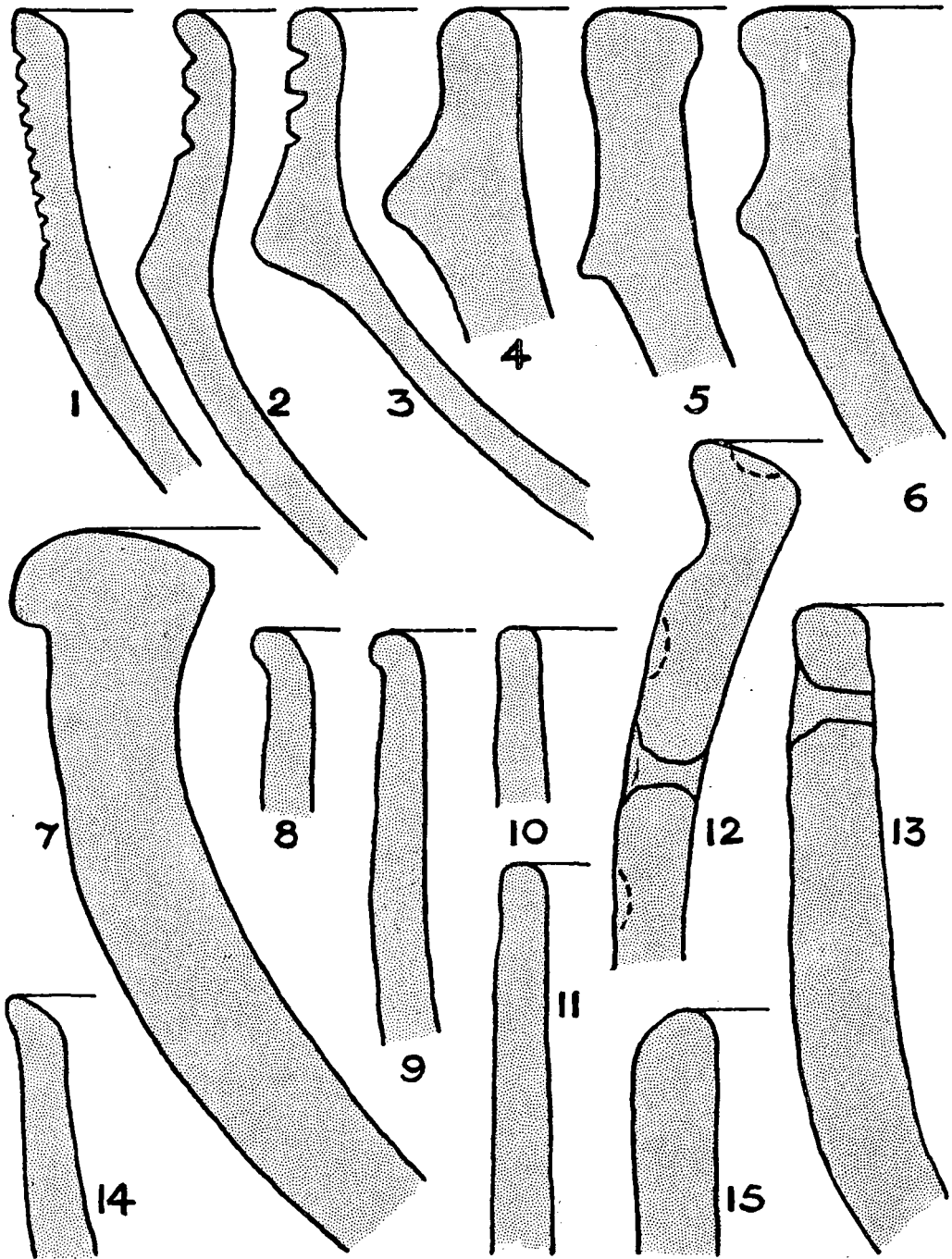


Fig. 18. Sections of Neolithic Pottery from Calf of Eday. (+)

ingoing curve at the base.¹ None of these thirteen Eday pots is ornamented, neither are any of those with vertical walls from Unstan.

All the above pottery was found in a single mass in the Neolithic layer at the foot of the inner edge of the western divisional slab, on the south side of stall No. 2, at the place marked X on the plan (fig. 3). But a large handful of small broken fragments, the largest measuring only 2 inches by $1\frac{3}{4}$ inch, was found in the middle of the same compartment at its eastern end. This pottery was devoid of ornamentation and there were no fragments of rims amongst it. Close to this deposit, but in the adjoining compartment, No. 1, was a rather smaller quantity of pottery, in which were single small rim pieces of six different vessels, one bearing ornamentation and another coming from a carinated bowl broken off in the middle of the keel; in addition there were pieces of two decorated carinated urns broken off above and below the moulding. Among this lot were fragments from four urns which could not be matched in the big selection of pottery from compartment No. 2, so this number has to be added to the previous total of vessels identified, bringing it up to thirty-four at least.

Carinated Urns.

31. Very small rim fragment of a vessel of fine, dark brown ware, measuring only $1\frac{1}{8}$ inch long, $\frac{5}{8}$ inch deep, and $\frac{7}{32}$ inch thick. The top of the lip is rounded, and just below it are three incised horizontal lines which have encircled the urn.

32. Small rim fragment of buff-coloured ware with a reddish tinge, of good texture, measuring $1\frac{3}{8}$ inch by $1\frac{5}{8}$ inch. It shows a piece of the keel with the outer skin scaled off on the under side, the distance between it and the lip measuring $\frac{7}{8}$ inch. The top of the rim is flat and measures $\frac{9}{16}$ inch in thickness.

33. Small wall fragment of a vessel of fine, dark brown ware, glossy in places, measuring $1\frac{3}{8}$ inch by $1\frac{9}{16}$ inch, and showing a small part of the keel. The upper side of the carination is decorated with incised vertical lines. The wall is only $\frac{7}{32}$ inch thick.

34. Several fragments of fine, pinkish ware, with a black core, showing small portions of the carination with parts of the wall above and below it. The largest piece measures only $1\frac{1}{2}$ inch by $1\frac{1}{2}$ inch, and the wall is only $\frac{1}{4}$ inch thick. What remains of the ornamentation consists of a horizontal line with vertical lines, depending from it as far as the keel,

¹ *Proc. Soc. Ant. Scot.*, vol. lxiii. p. 45, fig. 14, No. 1.

all incised. None of the rim survives, and it is impossible to complete the decoration between it and the horizontal line (fig. 15, No. 4).

Generally the pottery is hard and of good quality, but the firing is uneven. Buff-coloured pieces often show the same tint all through; reddish pieces may have a skin of that colour on the outside only, or on the inside as well, the remainder being black; and in some single pots parts of the wall are burnt red or black through and through. The thickness of the walls varies from $\frac{11}{16}$ inch in the larger vessels to no more than $\frac{3}{16}$ inch in the smaller. In much of our Scottish Bronze and Iron Age pottery crushed stone has been added to the clay in varying quantities before the dishes were made, but this practice does not seem generally to have found favour with the Orkney potter of the Stone Age. In the larger pots crushed stone can hardly be detected, but in these some small pieces of stone, sometimes water-worn, are to be seen, as if clay containing very little grit had been selected. The clay from which the smaller vessels have been made has the appearance of having been washed. Some of the pottery is slightly vesicular in texture, and this applies even to the finest and thinnest shards. In the thick shards the cavities are much larger than in the thinner pieces. The vesicles are quite apparent in figs. 15, 16, and 17. A few of the shards have a gloss on the surface which is not a slip but which was probably formed by rubbing. Three pieces have a hole bored through the wall not far from the lip. All these peculiarities are to be seen in other Orkney ware of the Neolithic period—on urns from Unstan and the Rousay cairns.

When we compare the forms and decoration of the vessels from Eday with those from the other places in Orkney mentioned, we shall find that there are also striking resemblances. Wide-mouthed, shallow, carinated bowls, with or without ornamentation between the keel and the rim, and cylindrical pots with plain vertical walls and rounded bottoms prevail. Only two of the Eday vessels, of which enough survives to give an accurate idea of their form, are different in shape from any recorded from the other Orkney sites. These are No. 15 (fig. 18, No. 12) and No. 17 (fig. 18, No. 7), the first showing a deep groove under the lip, and the second a broad, projecting, rounded rim. Regarding the decoration, hatched reversed triangles are a favourite motive, and though only one solitary vessel from Eday, No. 1 (fig. 15, No. 1), exhibits the stab-and-drag process, it is an interesting piece because of the lightness and delicacy of the lines. Also only one vessel, No. 15, shows finger-nail markings (fig. 17, No. 3), but this style of decoration is rare on the other sites.

Considered as a whole it would be impossible to mistake this collection of pottery as coming from any place outside the Orkney Islands.

When Mr Calder made his trial examination of the cairn, in 1935, and discovered this hoard of Neolithic pottery it was expected that a complete excavation of the monument would be rewarded by the discovery of more vessels and human remains of the period, but this hope was doomed to disappointment, as very little more pottery was recovered and skeletal remains were scanty and in poor condition. However, if the results in the matter of finding such relics were not what was desired, there arises the question why so much broken pottery should be concentrated in one spot.

We know from Mr Walter G. Grant's excavations of stalled cairns in the island of Rousay that these tombs had been entered after the time of the first burials, possibly when later ones took place. It would appear that pottery previously deposited had received scant attention from newcomers, as not only did vessels get broken but fragments of them were tramped into the floor. This happened in the Midhowe cairn, where human remains were very plentiful and pottery scarce.¹ It may be that something similar had happened in the Calf of Eday cairn. Certainly the pottery found in the cairn must have been heaped together before the roof of the chamber collapsed, and, as the greater part of most of the vessels was wanting, it looks as if most of the pottery had been thrown out of the chamber altogether. It might be suggested that the vessels had been removed from their original positions to make way for the reception of later burials. If this were so, it would seem to indicate a want of reverence, if not for the dead, for the grave furnishings that had been deposited with them. But we have no indication of how many bodies were buried in the cairn, nor of how they were placed, although more than thirty urns were represented by the shards, and so we cannot offer a satisfactory explanation for such treatment of the pottery.

Iron Age Pottery.

After the roof of the burial chamber had disappeared and the interior had been partially filled up, judging from the pottery found at the higher level the chamber had been occupied by people of the Iron Age. While the Neolithic floor, following the slope of the site, slanted down from east to west, the Iron Age layer was nearly level, so that while it

¹ *Proc. Soc. Ant. Scot.*, vol. lxxviii. p. 339.

was only 6 inches higher than the earlier at the east it was $2\frac{1}{2}$ feet higher at the west or inner end of what originally was the burial chamber.

The fragments of pottery found on this occupational level lay near the inner end of the structure. The edges were crumbly and very few of the pieces could be fitted together. The ware was hard, and contained a considerable quantity of crushed stone mixed with the clay. It was

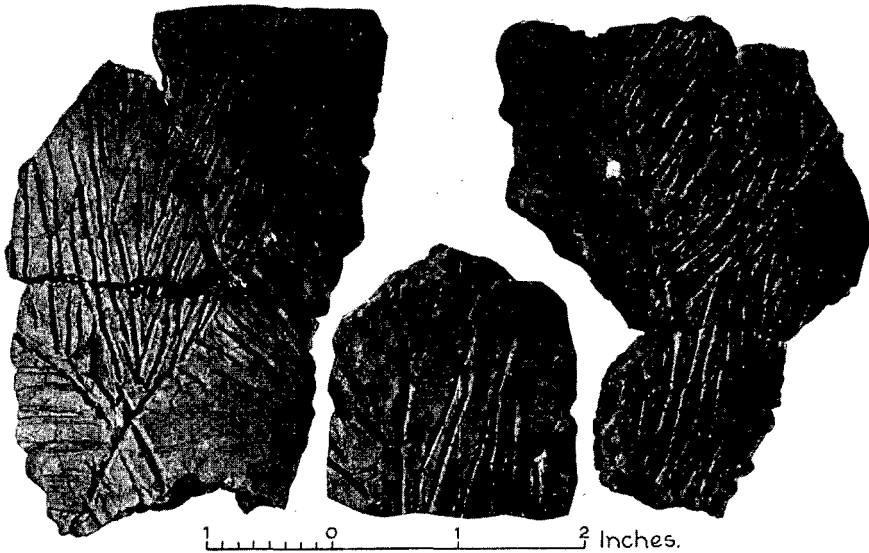


Fig. 19. Iron Age Pottery from Calf of Eday.

black in colour, but owing to the unevenness of the firing the exterior was black, brown, and red in places. There had been only one vessel, which seems to have been bucket-shaped with a straight, sloping wall. From a single surviving rim fragment the mouth appears to have been about 8 inches in diameter. The rim has a gentle downward bevel towards the inside and measures $\frac{3}{8}$ inch in thickness, while the wall is $\frac{1}{16}$ inch more. All the shards are decorated by incised filled triangles and lattice designs, irregularly and carelessly drawn (figs. 19 and 20, No. 1).

Fragments of another vessel, of soft red ware containing a small admixture of broken stones, were found outside the north wall of the cairn, 2 feet under the present surface of the ground, opposite the north-

west corner of the burial chamber. The pieces of pottery are too small to give any indication of the size of the pot, which had a slightly convex

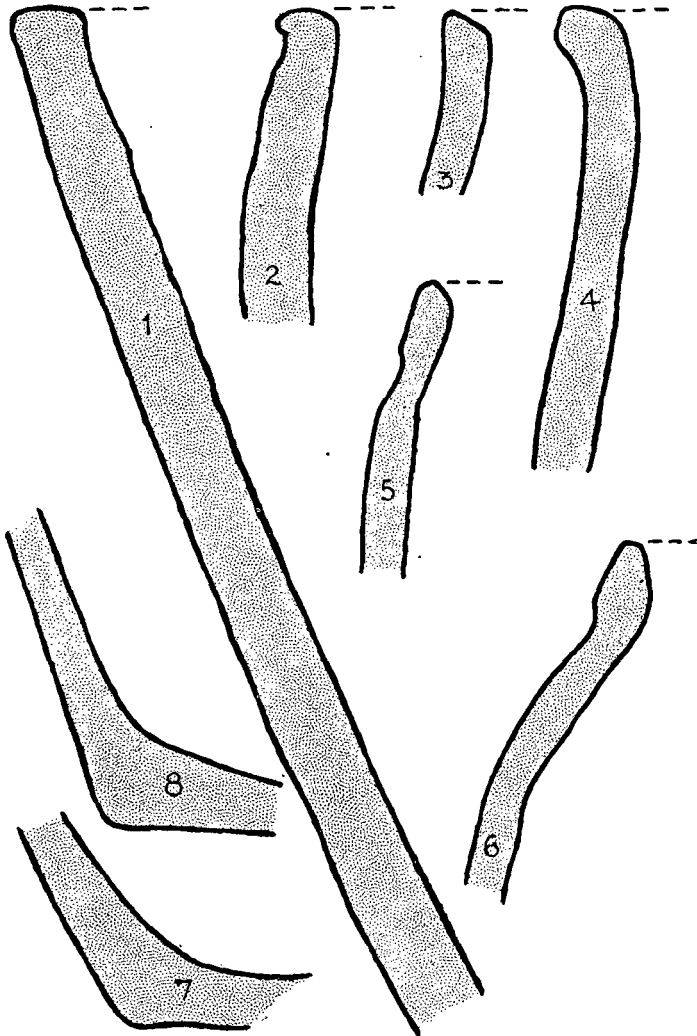


Fig. 20. Sections of Iron Age Pottery from Calf of Eday. (1.)

wall, $\frac{1}{2}$ inch thick, devoid of ornamentation. Only one very small piece of the rim, which was rounded on the top and projected outwards, was recovered.

THE STALLED CAIRN—CHAMBER B.

Iron Age Pottery.

This chamber, though certainly built during Neolithic times, had suffered so much damage later on that no relics, even pottery, of the period were discovered in it. But $3\frac{1}{2}$ lbs. weight of shards were found distributed through a thickness of about 2 feet of fallen stones and soil with which the chamber was filled. Fragments of eight vessels were counted, none of the pieces being ornamented.

The pottery included:—

1. A rim fragment, $4\frac{1}{2}$ inches long and $2\frac{1}{8}$ inches deep, and a few wall pieces of a pot of hard, black, thin ware, which seems to have had a globular body with an upright rim rounded on the top and bevelled on the inside (fig. 20, No. 6). Under the rim is a shallow moulding. The mouth has been 6 inches in diameter, and the wall is $\frac{1}{4}$ inch thick.
2. Two small rim fragments of another vessel, which seems to have been almost similar in shape and texture to the last (fig. 20, No. 5).
3. Rim and wall fragment of fine, hard, black ware with a brown exterior. The rim is flattened on the top and is everted in a fine graceful curve. The mouth has been $7\frac{1}{2}$ inches in diameter and the wall is $\frac{5}{16}$ inch thick (fig. 20, No. 4).
4. Small rim fragment of good, hard, grey pottery, the lip everted and bevelled on the top, measuring $\frac{1}{4}$ inch thick (fig. 20, No. 3).
5. Small rim fragment of a vessel of light brown, vesicular ware, the brim everted and with a slight roll on the outside (fig. 20, No. 2).
6. Piece of the flat bottom and fragments of the wall amounting to less than a quarter of a globular pot of very fine, hard, brown ware with a black core. The wall is $\frac{1}{4}$ inch thick, and the vessel has been at least 8 inches in diameter internally about the widest part and about 5 inches across the base (fig. 20, No. 8).
7. Small basal fragment of a vessel which resembles the last in form, but which has been smaller. The pottery is hard and black with a brownish exterior (fig. 20, No. 7).
8. A few wall fragments of dark ware with red exterior, measuring $\frac{3}{8}$ inch thick.
9. A double handful of small pieces of very coarse, crumbling ware, which contains a large proportion of crushed stone. Amongst the shards is a small bit of the base of a flat-bottomed vessel.

POTTER'S WORKSHOP—MOUND No. 3.

Iron Age Pottery.

Although the pottery from this structure differs entirely from that found in chamber B of the stalled cairn which has just been described, we have to assign it to the same period, the Iron Age. Most of the shards from chamber B were thin and of good hard texture, while those from Mound No. 3 are coarse and thick, and many contain a much greater amount of crushed stone among the clay. Again the pots have been thoroughly smashed up, and it is very doubtful if a complete section of the wall of a single vessel could be pieced together although there are 42 lbs. weight of fragments. Most of the ware is black, sometimes with the outer surface burnt red, a few pieces are red through and through, and occasionally they are buff-coloured or yellow with or without a black core. The walls seem to have been nearly vertical, and none of them shows any traces of ornamentation. There is nothing to suggest that any of the vessels were other than domestic.

The thickness of the wall fragments varies from $\frac{3}{8}$ inch to $\frac{3}{16}$ inch, and the thickness of the bases from $\frac{3}{4}$ inch to $1\frac{1}{4}$ inch, but few pieces indeed are of the smaller dimensions. Though there are twenty fragments of rims it is impossible to say how many pots are represented. These pieces show such a short length of rim that only in three cases is it possible to ascertain the probable diameter of the mouth; these three fragments seem to have come from vessels measuring $5\frac{1}{2}$ inches, 7 inches, and $8\frac{1}{2}$ inches. Basal fragments of at least ten pots, all flat, measuring from a shade less than 3 inches to $5\frac{1}{2}$ inches in diameter can be counted. As we have not been able to correlate any of them with any rim pieces we cannot venture any suggestion as to the height of the vessels. In some the wall has curved in nicely towards the base, but in others it curves slightly outwards forming a splayed foot. Figs. 21 and 23, Nos. 1 to 4, show the form and thickness of some of the rims and bases.

A fragment of the splayed base of a pot of coarse ware, with a wall $\frac{1}{2}$ inch thick and a basal diameter of nearly 5 inches, seems to be part of a "waster." The clay is burnt very red all through, and among the broken stone which has been added to it is a piece measuring $\frac{7}{8}$ inch by $\frac{1}{2}$ inch by $\frac{1}{4}$ inch, the largest that I have ever seen in a Scottish prehistoric pottery vessel.

Although at the first glance this seems a most disappointing collection of broken dishes, some of the pieces demonstrate very clearly how several of them were fashioned, and the general appearance of the shards requires some explanation.

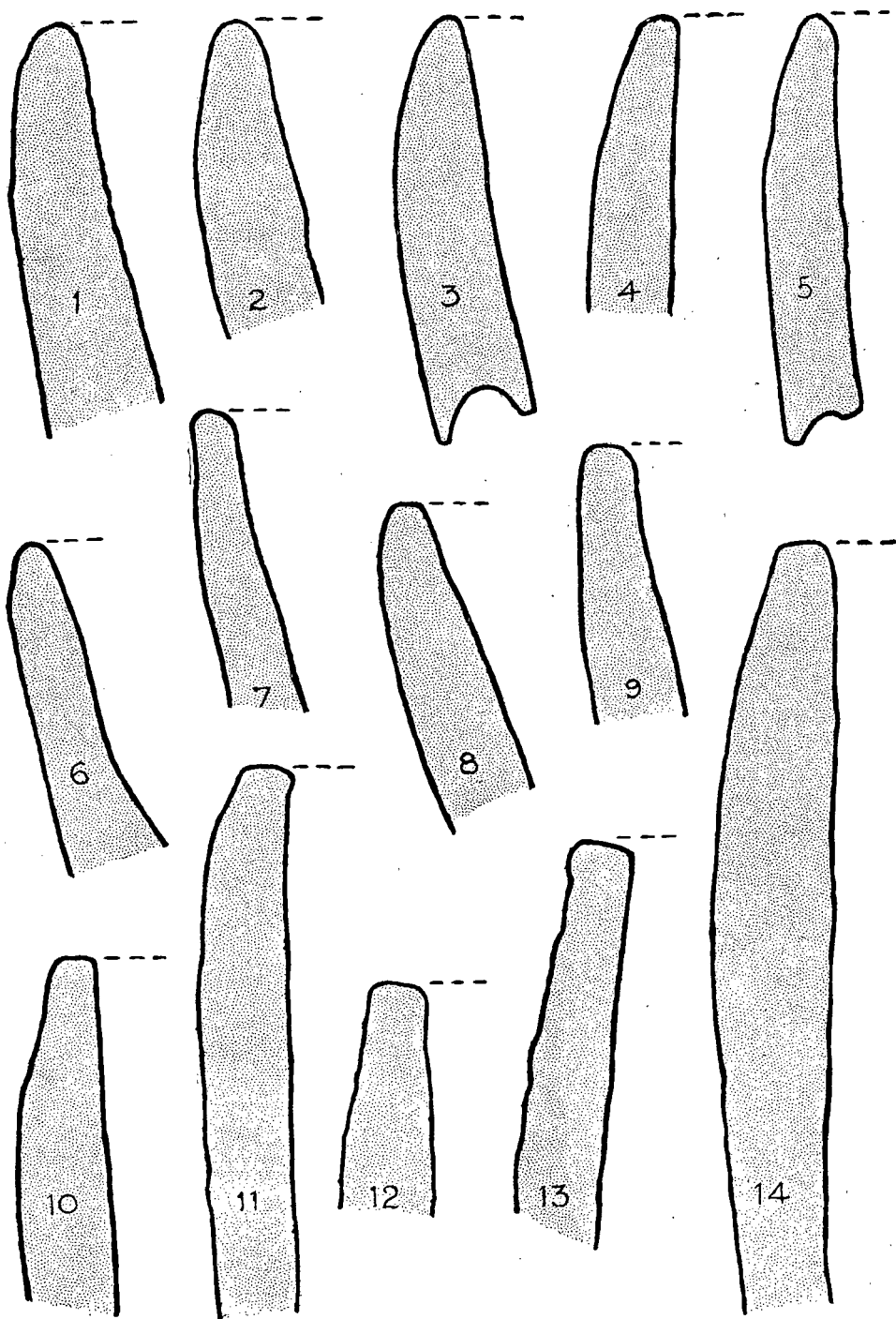


Fig. 21. Sections of Rims of Iron Age Pottery from Calf of Eday. (†.)

In making the sepulchral and domestic vessels of the Stone, Bronze, and Early Iron Ages in Scotland, generally it was the practice to work up the clay from the base to the lip so that the wall was homogeneous, just as it is in wheel-turned pottery. But, as I have already pointed out in our *Proceedings*, vol. lxiv. p. 195, fig. 2, another method was occasionally employed both in the Bronze and Iron Ages. The clay was formed

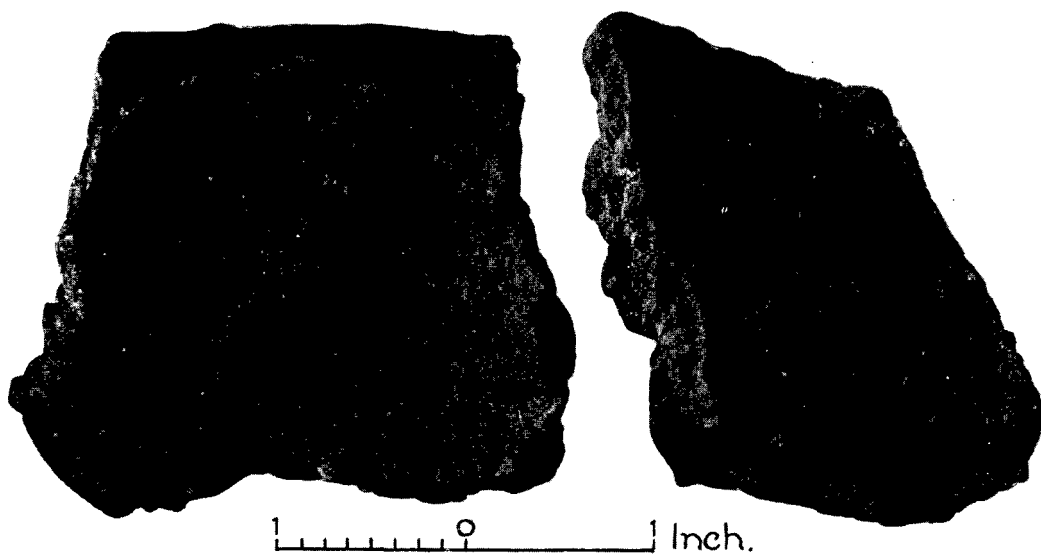


Fig. 22. Iron Age Pottery, showing method of building up the vessel, from Calf of Eday. (1.)

into strips or bands and these were superimposed edgewise on one another. The upper edge was squeezed into wedge-form usually rounded at the apex, and the lower side of the higher strip was pressed on to the arris of the lower so as to form a groove on the under side of the higher. The clay was then worked down on both the inside and outside of the pot so as to form an overlap on both sides. This naturally made a weak joint, and when pots got fractured they often broke at this part. Three of the Eday pots have been built up in this way, and the strips of clay, measuring from the apex above to the bottom of the hollow below, are $1\frac{7}{8}$ inch, $2\frac{1}{8}$ inches, and $2\frac{1}{4}$ inches in breadth (fig. 21, Nos. 3 and 5, fig. 22, and fig. 23, Nos. 4 to 9). Some pieces must have been broader. In a food-vessel from Kilspindie, East Lothian, which measured $3\frac{1}{4}$ inches in height, there were two strips above the basal one, so they must

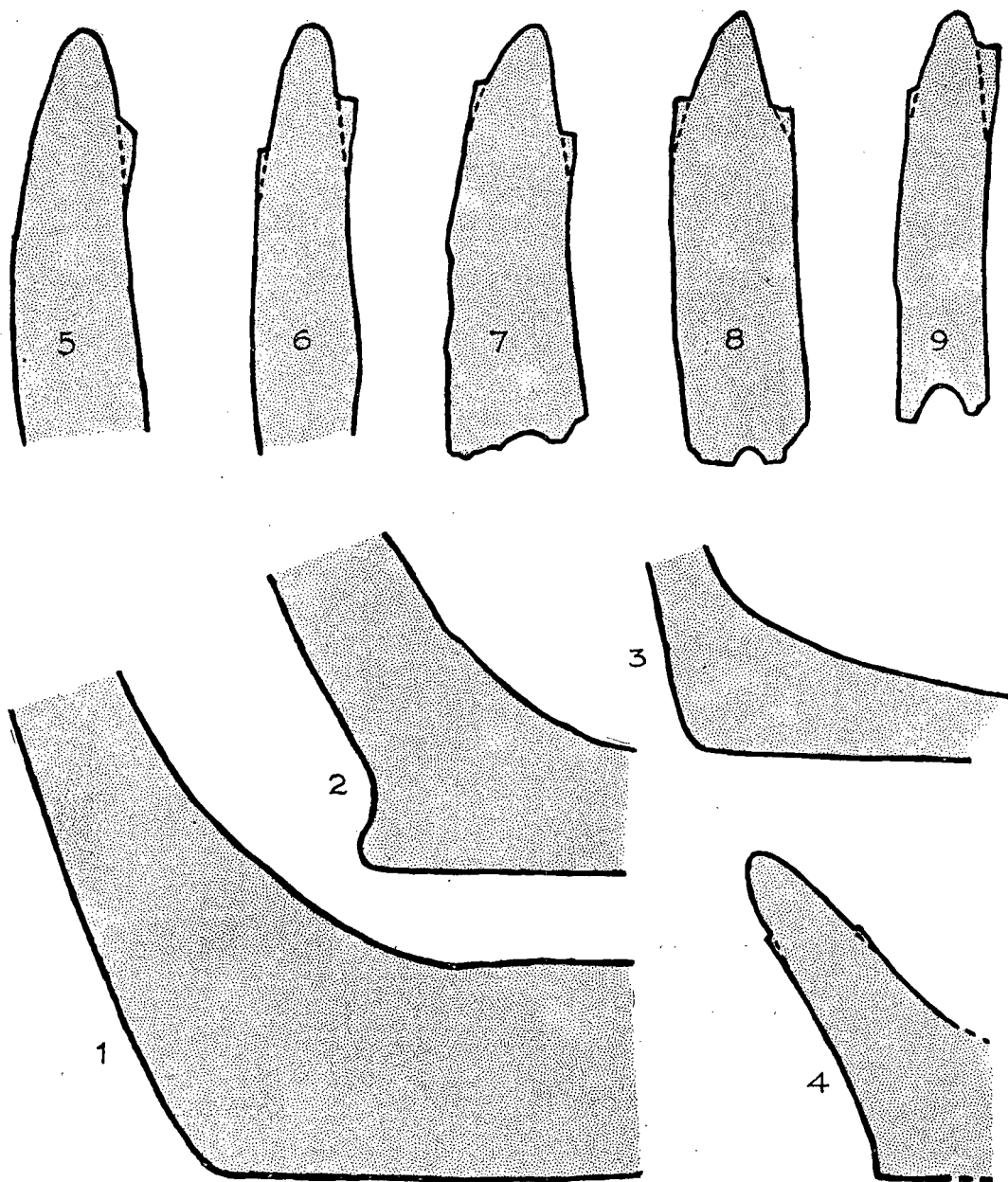


Fig. 23. Sections of Bases (1 to 4) and Wall Portions showing method of building up the vessels (4 to 9), from Calf of Eday. (†.)

have been less than 1 inch broad. In a cinerary urn from Longniddry, East Lothian, a strip $1\frac{3}{4}$ inch broad was noted. Professor Childe discovered fragments of pots built up in the same way at Skara Brae in Orkney, and Dr A. O. Curle at Jarlshof in Shetland. In all the pieces from the Calf of Eday, and in those from the two East Lothian sites, the bands of clay had been laid horizontally; but in an Iron Age vessel found in the Bishop's Loch crannog, near Glasgow, they were built up spirally, and the junction between them formed a bevel from the outside to the inside of the pot.

The pottery does not look like a haphazard lot of broken dishes such as would have been in general use in a dwelling of the period, as there are so few fragments of fine, thin-walled vessels. It looks as if the shards retained had been selected because of their thickness and coarseness, and that for a specific purpose. Outside the principal buildings of the broch of Midhowe, in Rousay, what might be called a stone chest was found nearly full of broken pots. These evidently had been specially laid aside, as the sea inlet, the Stanchna Geo, is only 6 yards distant, and we may be sure that it would be utilised as a dump for broken dishes and kitchen-midden refuse. These shards were believed to have been kept for being pounded down to mix with fresh clay when a new batch of pottery was being made (*Proceedings*, vol. lxxviii. pp. 483 and 508). Possibly we may have a similar collection at the Calf of Eday, and if this explanation is correct it strengthens Mr Calder's claim that the building was a potter's workshop. The occurrence of a waster among the shards may be considered further evidence in support of this.

I am much indebted to Mr A. J. H. Edwards, Assistant Keeper of the Museum, for assistance in sorting out the pottery.

REPORT ON THE SKELETAL REMAINS.

By Professor ALEX. LOW, M.A., M.D., F.S.A.Scot.

Among the fragmentary human skeletal remains from the stalled cairn on the Calf of Eday are identified: Lower jaw represented by piece of body of right side and fragment of left ramus; two cervical and two thoracic vertebrae; *of hand*, a scaphoid, piece of third metacarpal, and three middle phalanges of fingers; fragment of head of tibia; *of foot*, an imperfect right talus and a left navicular.

REPORT ON THE ANIMAL BONES.

By MARGERY I. PLATT, M.Sc., Royal Scottish Museum, Edinburgh.

This collection of animal remains found by Mr C. S. T. Calder last summer (1936) in a long stalled cairn on the remote island of the Calf of Eday, Orkney, is extremely interesting, since the relics of domestic animals form an insignificant part of the remains and undomesticated species such as red deer are equally sparse. The condition of the bones is as usual very decayed and fragmentary. A bone implement formed from the metatarsal of an ox is markedly different in texture from the majority of the remains. It is hard, heavy, apparently well impregnated with mineral salts, and suggests that it was originally derived from a different locality than the bones in the cairn itself. Throughout all parts of the excavation the bones give evidence of the use of fire. The various species are recorded below with reference to that part of the structure from which they are taken.

Neolithic.—Associated with the human bones occurring at the original neolithic level are the fragmentary remains of an otter (*Lutra lutra*) including the left ramus of a lower jaw; parts of the skull (a fragmentary parietal and three teeth); a lumbar vertebra and the remnant of a thoracic vertebra; and an incomplete right femur.

Iron Age, Chamber A.

Shell-layer, 1st Compartment.—A few small fragments of an ox (breed indeterminable) and a horned sheep occur here. Although from the title it is evident that shells probably of many kinds were present only those of winkles (*Littorina littorea*) were sent to me. Remains of birds were very plentiful. At least five cormorants (*Phalacrocorax c. carbo*) are represented, and although most parts of the skeleton are included, leg and wing bones are the best preserved, and from these some idea of the number of birds present have been calculated. One cormorant was especially large, the others of average adult size. The coracoid of a sea- or white-tailed eagle (*Haliaeetus a. albicilla*) also occurs.

From small Slab Construction, 1st Compartment.—Here is included a single mammalian remain—the fragmentary jaw-bone of an ox. The remainder are all bird bones, excluding innumerable fish bones of minute size which were present in the soil and refuse, and in all probability represent the stomach contents of the birds. The relics indicate the

presence of two cormorants (*Phalacrocorax c. carbo*) and a shag (*Phalacrocorax a. aristotelis*).

Shell-layer, 2nd Compartment.—Two fragments of mammalian bone occur, probably of bovine nature, and the remains of three cormorants.

Shell-layer, 3rd Compartment.—A few remains of sheep, mostly immature, and an ox bone occur here. There was also included a limpet shell (*Patella vulgaris*), probably one of the many comprising the shell layer. Bird remains are again most numerous. At least eight cormorants (*Phalacrocorax c. carbo*) were present, a greater black-headed gull (*Larus marinus*), a herring gull (*Larus a. argentatus*), and a shag (*Phalacrocorax a. aristotelis*).

Shell-layer, 4th Compartment.—In this section the hard ox-bone implement occurs. A few other bovine remains are present, together with the molar tooth of a sheep, and a small long bone (probably foetal) of the same species. There are the relics of six cormorants (*Phalacrocorax c. carbo*), two of very large size, and four medium-sized adults.

Chamber B.

In this section a number of sheep remains all from young animals, including small horn cores, occur. There is also a terminal phalange and a bone from the sternum of a red deer (*Cervus elaphus*). There is only one avian remain, the wing-bone of a merlin (*Falco columbarius cesalon*). Lastly, several bones from the head of a cod (*Gadus virens*) are present.

Potter's Workshop ; from small Pit F.

Here occur again many bones of the cormorant, representing two birds. A few calcined bones of ox and sheep are also evident.

Potter's Workshop ; 2 feet 6 inches above Floor.

In addition to a few bovine remains, a single fragment of the metacarpal of a red deer (*Cervus elaphus*) also occurs.

It will be seen from the foregoing that the species of paramount importance occurring in the domestic level of the cairn and the potter's workshop is the cormorant. The remains of twenty-eight birds could be counted and probably there were many more originally. Other birds appear, but not in such great numbers and therefore of minor importance. It is possible in consequence that these primitive islanders were using the flesh of the cormorant as an article of diet, in the same

way that St Kildans and other inhabitants of the Western Islands have been known to subsist comparatively recently on the solan goose as their staple food.

I wish to record my sincere thanks to Mr Calder for kindly forwarding to me the animal bones for identification and report.

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