

I.

NOTICE OF EXCAVATIONS AT STENABRECK AND HOWMAE, IN NORTH
RONALDSAY, ORKNEY. BY DR WILLIAM TRAILL OF WOODWICK
AND NORTH RONALDSAY, CORR. MEM. S.A. SCOT.

The Mound of Stenabreck is situated in North Ronaldsay, the most northerly of the Orkney Isles (known, I daresay, to many members of this Society as the island in which the Broch of Burrian was discovered). It is about a mile N.N.E. from Burrian, and like it, situated close to the sea-shore.

We had long suspected, from its appearance, and also from the presence of a layer of ashes exposed on the sea face of the mound, that it was an artificial one; and when walking one evening on the beach below, we were confirmed in this impression by finding a portion of the shank bone of a sheep, sawn across, as if for the purpose of making beads of it. We also observed many dead specimens of the *Helix nemoralis*, a land mollusc which is now extinct in the island, although its shells are found so abundantly in most of the prehistoric structures, as to suggest that it may have been used as an article of food by the occupants. We commenced operations on the 9th August 1883, by getting two men to dig a trench near the top of the mound towards the sea. This trench was dug about 24 feet long, 4 feet wide, and 2 feet

deep, but no sign of building was discovered, although we came upon numerous flat stones which looked like building stones.

The following day a new portion was dug to the south of this trench, but without finding anything.

The mound being more extensive to the north, we then dug a trench at right angles to the first one, and leading from it in a northern direction; we were rewarded, after two days' labour, by coming upon the face of the southern wall of room A. in the plan. The work of tracing out the rest of the building was then quite simple. The letters marked on the several chambers in the annexed ground plan (fig. 1), show the order in which they were excavated. The sections (figs. 2 and 3) on the lines indicated in the ground plan show the elevation of the walls. Room A. is nearly of a rectangular form, 11 feet long and 6 feet wide. In the southern wall are three square holes or presses; the eastern one is 1 foot 3 inches wide, 1 foot 5 inches high, and extends back into the wall 1 foot 3 inches. In this press was found a long polished bone of, I think, a deer. There are no actual signs of workmanship on it, but its articulating extremities are much worn or rubbed away, and the high polish on it points to its having been very considerably handled. What its use may have been, is of course a mere matter of conjecture; but its appearance, and the place in which it was found, leave no room for doubt as to its having been utilised as an implement of some sort. The next press was much smaller, being only 7 inches wide by 9 inches high, and extending 1 foot into the wall. In this we found one valve of a large mussel shell, and also of a fine specimen of the *Cyprina islandica*. From their position they had evidently been put aside for use—possibly as lamps or ladles. The third press was empty; it was 1 foot 5 inches wide, by 1 foot 9 inches high, and 1 foot 2 inches back into the wall; it differed from the others in having the sides and back built with stones *laid flat*, the others being lined by flat stones set on edge.

At the east end of the room was a long flat stone, placed as if for a seat. It was 3 feet long, 8 inches wide, and $1\frac{1}{2}$ inch thick, laid on its flat side, a few inches above the floor; below this stone we found some fragments of pottery and a rounded flat stone about 4 inches in diameter,

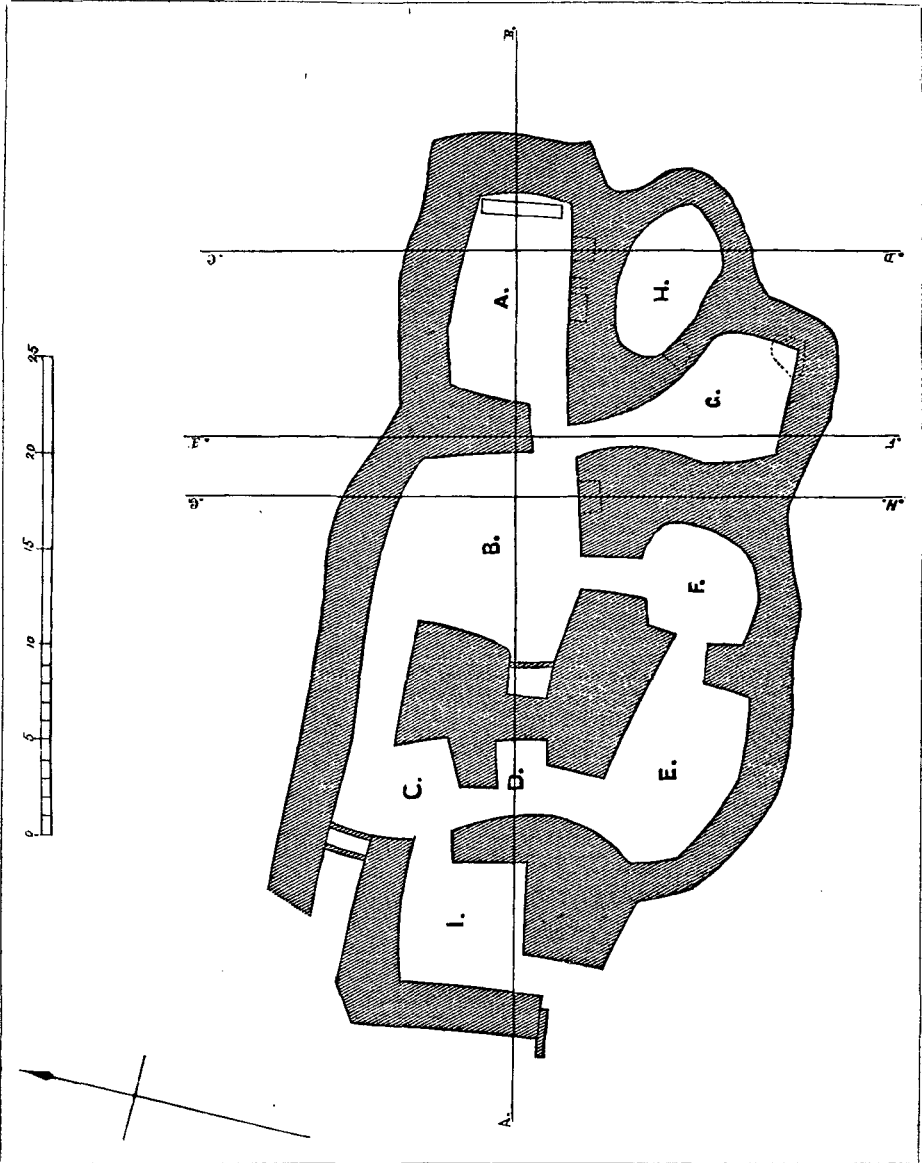


Fig. 1. Ground Plan of Ancient Structure at Stenabreck, North Ronaldsay.

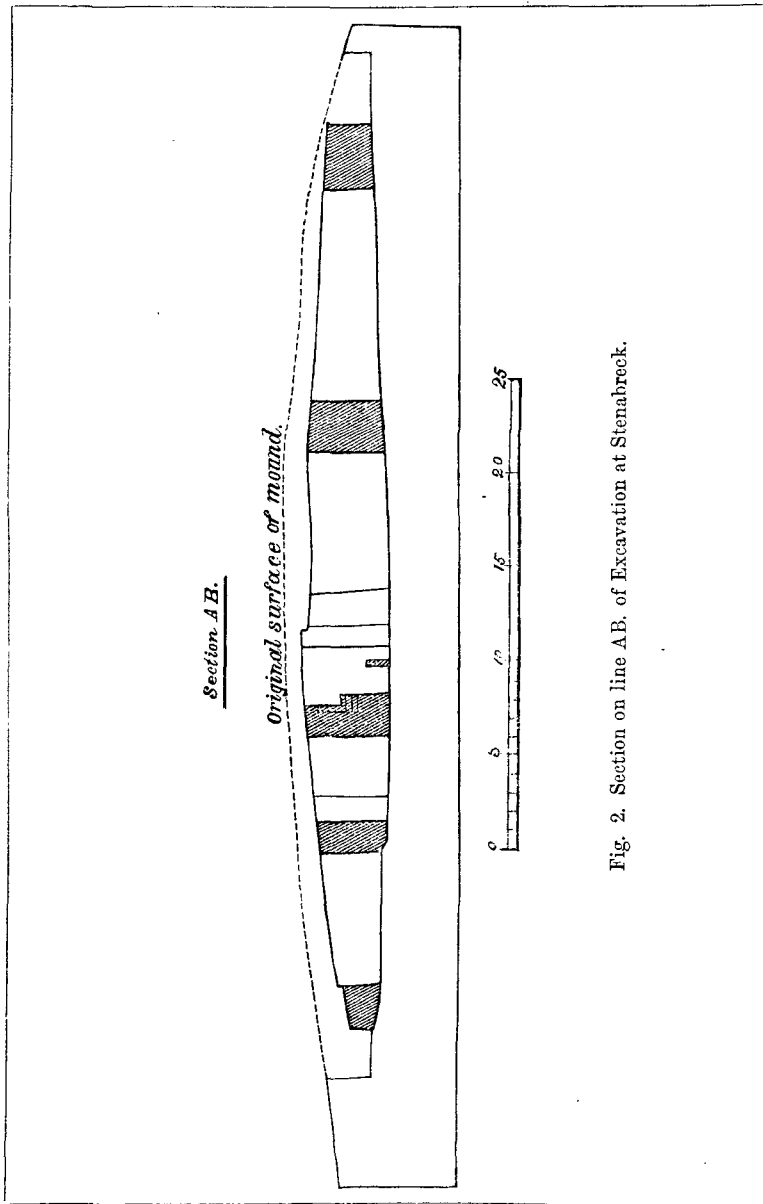


Fig. 2. Section on line AB. of Excavation at Stenabreck.

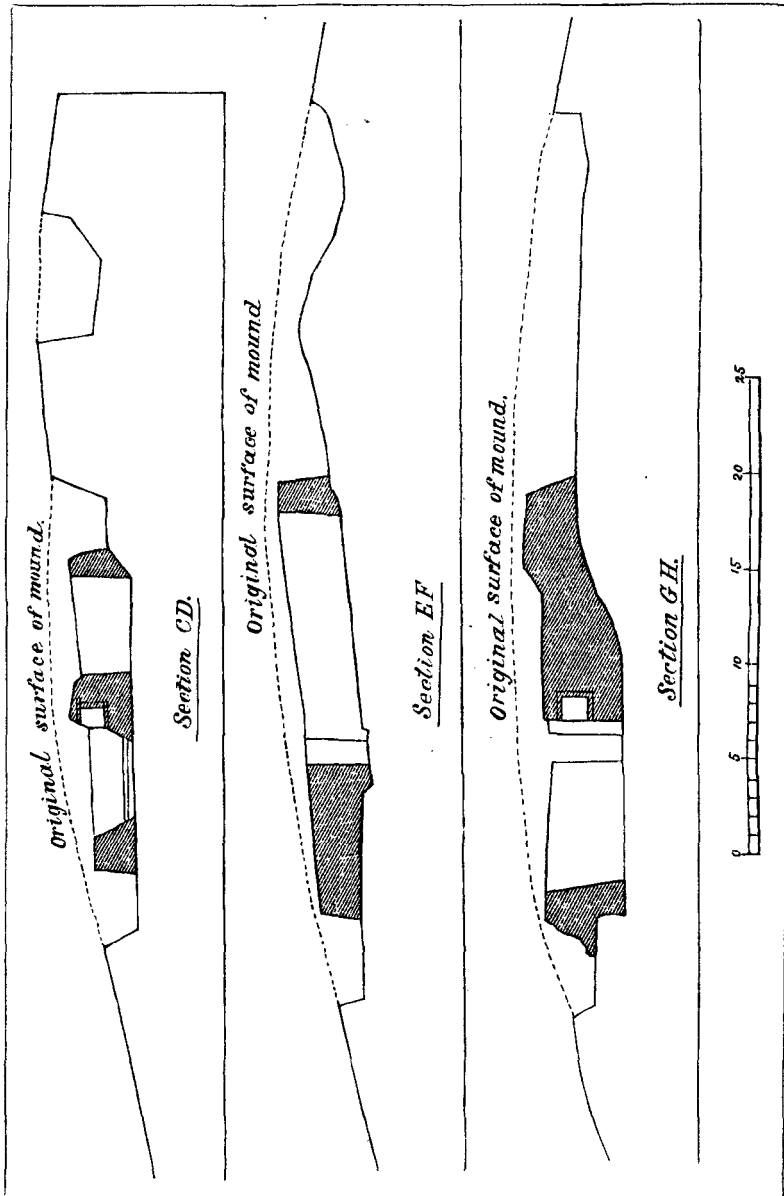


Fig. 3. Sections of Excavation at Stenabreck.

which has apparently been used as a cover for a pot; it is blackened round the edge as if by fire or smoke, and a small projection is left, perhaps intentionally, to serve the purpose of a handle. Portions of several clay vessels were found in this room, principally along the edges of the north and south walls, and close to the floor, which in this, as well as all the other rooms, was roughly paved with flat stones.

We also found a spindle whorl of stone, and two or three fragments of iron, so much oxidised as to render it almost impossible to say what they have been. One piece, however, much resembles the blade of a knife, of which the haft seems to have been inserted into a bone or horn handle, some remains of which may still be seen attached to the oxide. Another piece is shaped something like a hook. At the west end of room A. we found a doorway or passage leading into room B., which is about 10 feet square, and has three passages leading from it into rooms G., F., and C. respectively. The passage into C. is $6\frac{1}{2}$ feet long, and between 2 and 3 feet wide. In the portion of wall separating the passages into room G. and room F. there is a press similar to those already described in room A.; the dimensions are $1\frac{1}{4}$ foot square on the flat and 1 foot 7 inches high. At the south-west corner there is a recess about 2 feet square, which was perhaps a fireplace; it is partitioned off from the main room by a stone on edge rather more than a foot high. Nothing was found in this room except fragments of earthen cooking pots.

Room C., which was 6 feet long by 5 feet wide, has four entrances—(1) from the east, (2) from D. on the south, (3) from room I. on the west, and (4) from the outside, also on the west. This last appears to have been the main entrance to the building, and we have every reason for believing that it was closed by a wooden door. A flat stone on edge with its upper surface nearly level with the floor defines the position of the doorway, and at the north end of this stone, touching it and at the inner side of it, was a water-worn boulder of red freestone embedded in the earth. This stone was a flattish oval; long diameter about $7\frac{1}{2}$ inches, and short diameter about 5 inches, and had near the centre of it a hollow about $1\frac{1}{2}$ inch deep, and the same or rather more in diameter. Round about the hollow there were concentric marks and

scratches, occupying about a quadrant of a circle, and corresponding exactly with the marks which would be made by the swinging of a heavy rough door of hard wood if the door-post were embedded in the hollow of the soft freestone. This idea is strengthened by the discovery, within a few feet of the place, of a rough key (fig. 4) made of the bone of a whale. Few persons perhaps would recognise a key in this curiously carved specimen of bone, but a comparison of it with a wooden key of oak belonging to a modern North Ronaldsay lock will satisfy any one of the identity of their uses. To make this as clear as possible, I cannot do better than quote the following description of a wooden lock from North Ronaldsay, now in the Museum:¹—

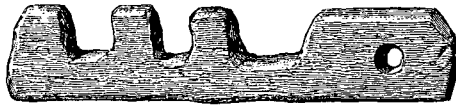


Fig. 4. Key made of the Bone of a Whale.

This lock consists of the following combination of fixed and movable parts. In the first place, there is the fixed frame, which is fastened to the outside of the door by means of four stout wooden pins. The shape of the frame will be best understood by the perspective view shown in fig. 5. It is a solid block of wood, 1 foot long by $4\frac{1}{2}$ inches broad by 2 inches thick, which is hollowed out to receive the movable parts thus; four vertical grooves, 1 inch deep and $\frac{1}{2}$ inch wide, are cut to receive the tumblers at equal distances apart. A horizontal groove, 2 inches broad by 1 inch deep, is formed at the bottom of the tumbler grooves, to receive the bolt. There is a second horizontal groove, $1\frac{1}{4}$ inch broad by $\frac{3}{8}$ inch deep, higher up, just large enough to allow the key to be inserted. Now come the movable parts. The bolt is 1 foot long by 2 inches by 1 inch, and has four notches cut in its upper surface for the ends of the tumblers to fall into. The key is 6 inches long by 1 inch by $\frac{1}{4}$ inch, and has four lifting teeth on the top corresponding to each of the four tumblers. The tumblers are rectangular pieces of wood, 6 inches long by 1 inch by $\frac{1}{2}$ inch, having notches cut in the sides to enable them to be lifted by means of the key. The working of the lock is as follows:—When the tumblers are resting by their own weight in the notches of the bolt it is impossible to move it.

¹ This extract is taken from an admirable paper on Wooden Locks, by Mr J. Romilly Allen, in the *Proceedings* of this Society, vol. xiv.

The tumblers are lifted by means of the key, each tooth of which when it is inserted comes just under each one of the notches before described. The key is held with one hand and pushed first forwards as far as it will go, and then moved vertically upwards to the extent of the depth of the teeth of the key (which is equal to the throw of the tumblers). When this has been done the bolt is drawn with the other hand.

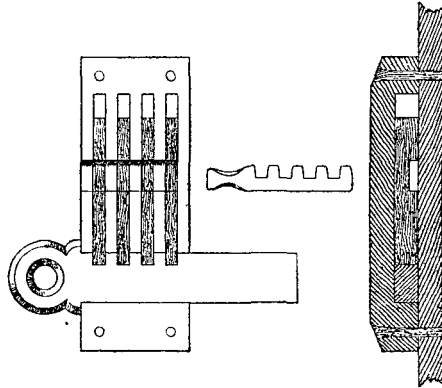


Fig. 5. Wooden Lock and Key, from North Ronaldsay.

These locks are known to be of considerable antiquity; they are now as far as Orkney, or I believe Scotland, is concerned, peculiar to the island, and they have in all probability been in use in North Ronaldsay with hardly any modifications or improvement since the time that they were invented or introduced by the primitive inhabitants of the place.

Room D. is hardly more than a recess in the eastern side of the passage connecting C. with E. Room E. is about 10 feet long by 5 or 6 wide, and has a passage into F. which is of a very irregular shape, neither round nor square, but from 5 to 6 feet across, whichever way it is measured.

On lifting the pavement of this room just where it emerges from room E., we came across a mass of consolidated sand, which seems to have been stuck together by some cementing material which had run

down the crevices between the paving stones. I may here mention that we found dry *shell* sand almost immediately below the paving stones in all the rooms. The stones were all lifted, and digging continued as long as ashes or black earth was found, but this seldom extended more than a few inches below the pavement. The only entrance to room G. is from the passage connecting A. and B.

It will be seen from the section C. D. that this floor was not level, but sloped upwards from the entrance to the room. It is not easy to say either where the passage ends and the room begins, as the former gradually widens out into a sort of pear-shaped room.

In the doorway of the room we picked up a rough bone pin, the only one found during the excavations. The rooms remaining to be described

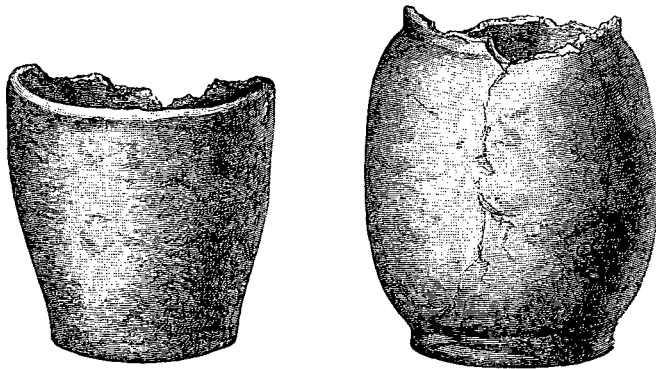


Fig. 6. Vessels of burnt Clay, found in the Chambers at Stenabreck (4 and $5\frac{1}{2}$ inches high).

are H. and I. The former is curious, as having no apparent entrance; it is in shape an irregular oval, 8 feet long by $4\frac{1}{2}$ wide; and in the wall dividing it from G. there is a press, 1 foot 2 inches wide, 1 foot high, and 1 foot 6 inches deep. Room I. is a sort of porch to the building; it is nearly square, being $6\frac{1}{2}$ feet long by 7 feet wide. It has one entrance from the outside, and a passage into C.

Having thus described each chamber in detail, it may be as well to notice some peculiarities of the building as a whole. A glance at the

plan will show the extraordinary thickness and massiveness of the walls, not so much of the outside walls as some of the division walls, and other bits of building altogether detached from the outer walls. In fact, the walls take up more space than the chambers, the area occupied by the walls of the building being 501 square feet, whereas the total area of all the rooms does not exceed 463 square feet. I may add, that although the *inner* face of the outside wall was comparatively smooth, its *outer* surface was so roughly put together as to lead us to infer that it had originally been supported or banked up with earth and turf.

From the fragments of the pottery found in the floors of the chambers, eight vessels have been partially reconstructed. Two of the most entire of these are shown in fig. 6. They are coarsely made and imperfectly fired, and appear to belong rather to the more recent varieties of home-made pottery, of which examples are still to be found in the Western Isles, than to the class of vessels and style of manufacture commonly found in the brochs. The whole circumstances of the structure and its contents indicate that it belongs to a period less remote than that of the brochs. In point of fact, it seems to present the typical characteristics of the old Orkney house.

II. HOWMAE.

This mound, known locally as Howmae, is situated in the island of North Ronaldsay, about 5 furlongs N.N.W. from Burrian, and about $1\frac{3}{4}$ mile in a south-westerly direction from Stenabreck. The sketch map of the island now before you will show the relative positions of the three tumuli. Like both Burrian and Stenabreck, this mound is close to the sea-beach, the top being about 20 feet above the sea-level at ordinary high water, and about 10 feet above the general level of the links in which it is situated. It extends about 250 feet N. and S., and about 150 feet E. and W.

We commenced the excavations on the 22nd July 1884 by digging a trench in a direction running E. and W. through about the highest part of the mound. After a couple of days we came upon a number of flat stones on edge, fixed in the sand by means of others driven in alongside of them, one or two on each side. The stones resembled rude gravestones; and it will be seen from the plan (fig. 7) that most of them

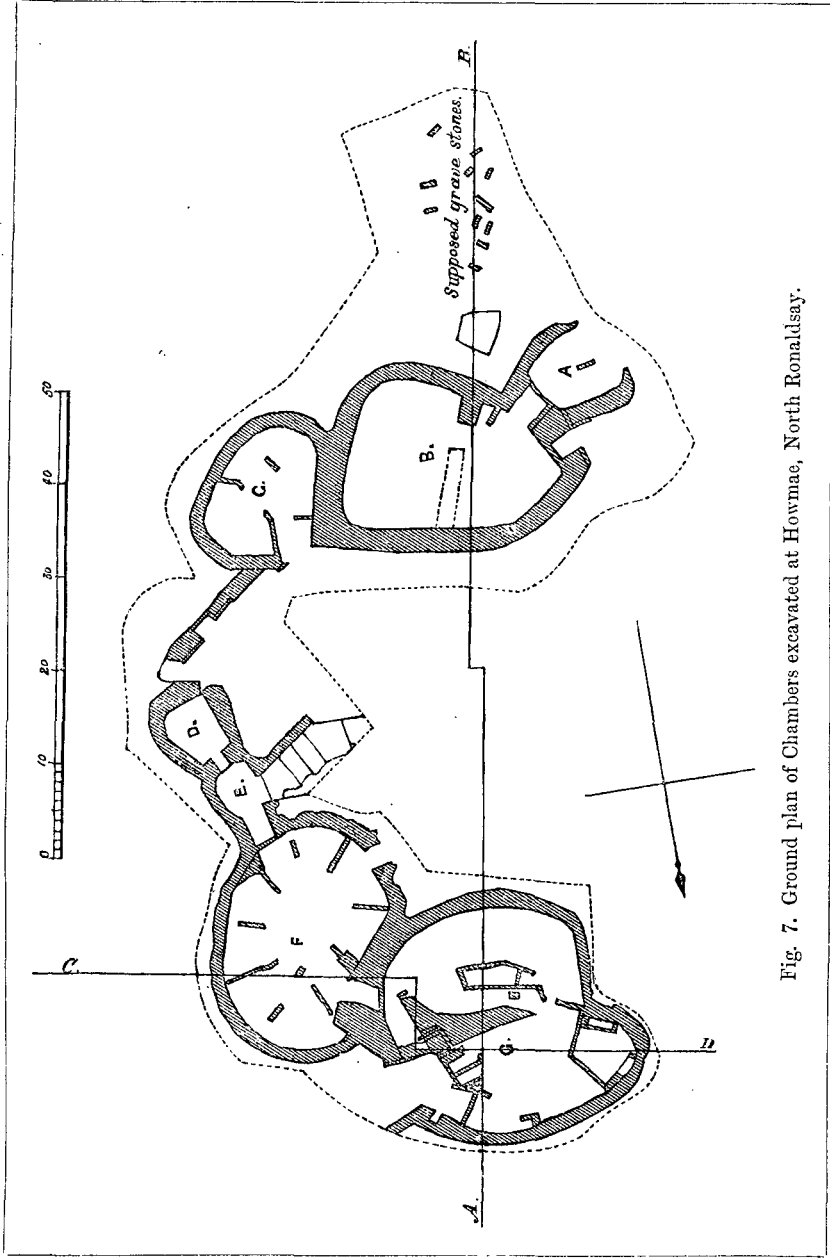


Fig. 7. Ground plan of Chambers excavated at Howmae, North Ronaldsay.

were in pairs, one opposite the other, and 2 or 3 feet apart. They measured from 1 to 3 feet or rather more in height, 1 to 2 feet wide, and 2 to $3\frac{1}{2}$ inches thick. The soil in which they stood seemed almost pure shell sand, and on digging underneath a few of the stones we found a thin layer of a whitish substance, resembling lime or wood ashes, of which a small portion is on the table for examination.

Changing the direction of our digging now to a northerly one, we came in a few days upon the outside curve of room B., having found amongst the ashes outside several bone pins and borers, a quantity of pottery in fragments coarse and unornamented, several stone pounders, and one or two pieces of pumice-stone. We then proceeded to clear out room B., finding in it little of interest except broken pottery, which was in considerable quantity.

The room is of an irregular shape, difficult to describe, and reference to the plan will be necessary. I have marked in dotted lines the position of a *partition* which I believe existed, though the wall, if it really did exist, was in ruins. A small piece of building will be seen to project about 3 feet from the south wall of the room, and opposite to it the north wall showed by some gaps and projections that a wall had been built into it. There is a small recess at the S.W. end of the room about 3 feet square, probably a fireplace; the back of it is a large stone on edge about 3 feet high, which forms one side of the small room A. The south wall of this room was partly faced on the inside by two large stones on edge, built into the wall.

There was a stone on end about $1\frac{1}{2}$ foot high in the centre of the room, for what purpose it is not apparent, unless it had originally been much higher, and used for supporting the roof. Proceeding to trace out the back or outside of room B., we came upon C., and cleared it out, finding it partitioned off by flat stones on edge 2 to 3 feet high, as shown on the plan. Several bone pins and a quantity of broken pottery were found here. For some days after this we had our labour for nothing, finding only detached pieces of wall or nothing at all. Eventually, however, we struck upon room D., the floor of which was 7 or 8 feet below the surface of the mound. This chamber was $6\frac{1}{2}$ feet long, by 4 or 5 wide, two of the sides being faced by entire stones on edge,

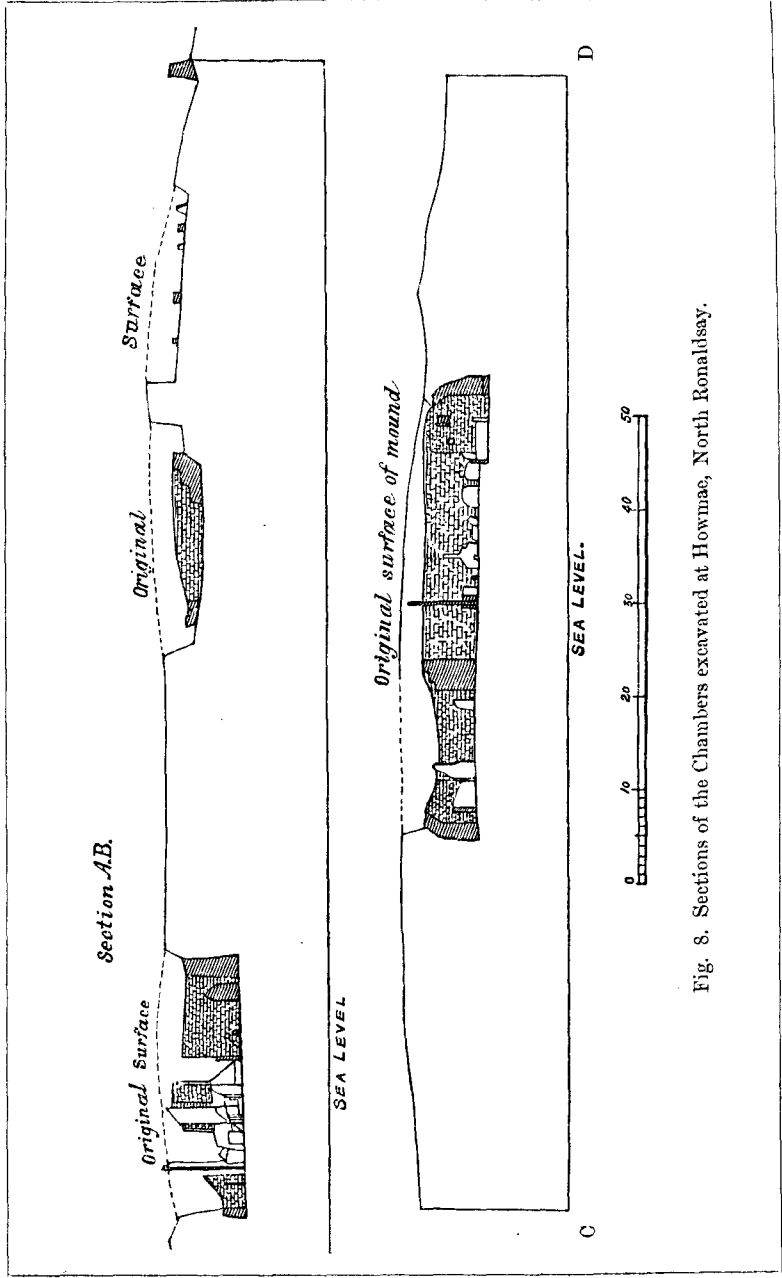


Fig. 8. Sections of the Chambers excavated at Howmae, North Ronaldsay.

running the whole length of the walls, and extending upwards from the floor for about 2 feet. Above this the building was in the ordinary fashion, the stones being laid flat. In this room we found a good specimen of a long-handled comb, made of the bone of a whale. It was shaped something like a human hand, and was almost perfect, having 13 teeth left out of the original 14. Its length was nearly 5 inches, its width $2\frac{1}{2}$ inches, the teeth ranging from $\frac{3}{4}$ inch to $1\frac{1}{3}$ inch in length. It was slightly ornamented, a curved groove being cut on the handle, just below the teeth, with its convexity towards the teeth, and two diagonal lines from the extreme end of the comb were drawn from the corners till they met and slightly crossed each other near the middle of the comb. We also found in this room a leg bone, apparently of a

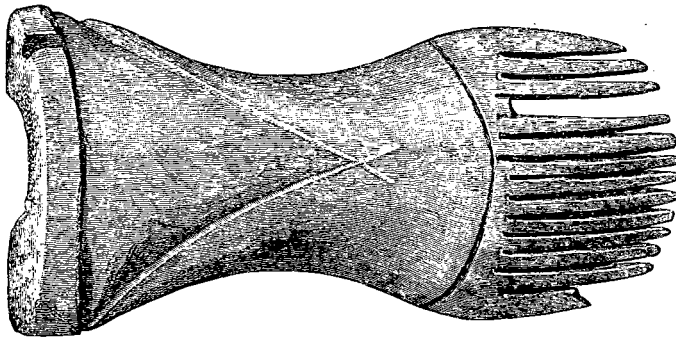


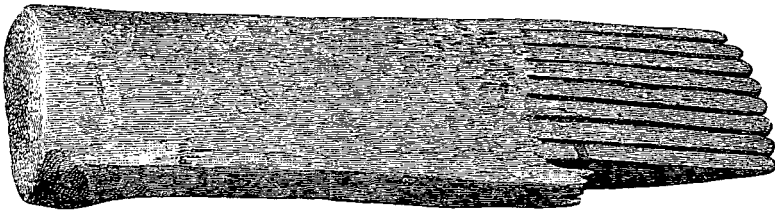
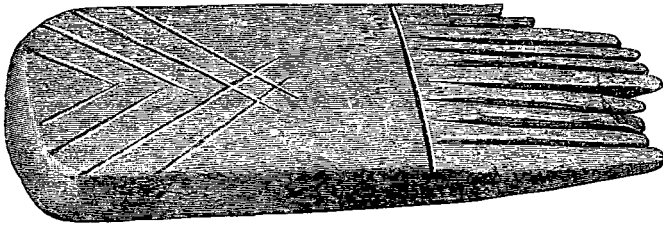
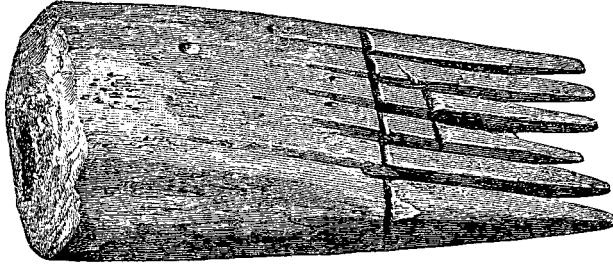
Fig. 9. Long-handled Comb, found in Chamber D. at Howmae.
($5\frac{1}{4}$ inches in length).

pig, sawn across for some purpose or other, a small round bone about $1\frac{3}{4}$ inch in diameter, perforated nearly through by a round hole about $\frac{1}{4}$ inch in diameter, and much polished on one side as if by constant rubbing. The use of this bone is unknown. There was also a small bone of a whale about $6\frac{1}{2}$ inches long, perforated at one end with a hole about $\frac{1}{3}$ inch in diameter. In the same chamber we found, lying side by side, as if they had been tied up in a bundle, seven shank bones of a small kind of sheep. This was a favourite bone for making boring implements of, and it was probably with that intention that they had been laid

together. Passing from chamber D. we proceeded to clear out E. This work was very tedious, owing to the depth of the floor level below the surface of the mound being nearly 10 feet. About 2 or 3 feet down from the surface the soil was sandy, but below that it was rubbish, consisting of stones that had fallen from the upper part of the walls, ashes, and black earth. The chamber was only about $5\frac{1}{2}$ feet by 4. There was a drop of about $1\frac{1}{2}$ foot into E. from D. A doorway led from the south-west into some chamber not explored till afterwards, and then but partially; another led into F. by a passage about 4 feet long and $2\frac{1}{2}$ feet wide. On lifting one of the paving stones in E. we found what appeared to be a built drain running across the chamber from below the wall on north-east side in direction of the passage to the south-west.

We could not thoroughly explore this drain, as some of the paving stones were fixed in below the walls of the chamber, and could only have been removed by breaking them, we therefore left this alone in the meantime, but I shall have more to say concerning it further on. We found in this room a bone needle or bodkin 4 inches long—broken across at the eye; a fine pointed awl of bone, 5 inches in length; and two other awls or borers of the same kind of sheep shank bones, described as having been found in chamber D. We also found a skull of an otter in good preservation, and several rat skulls. This latter discovery is of some interest, as there are now no rats on the island. We then passed into room F., the floor of which is on the same level as E. It is an irregular oval, 24 feet long and 15 broad, and, as will be seen from the plan, is divided off into stalls by partitions of flagstones set on edge. These stones were from 2 to 4 feet in height, but some of them had been higher and were broken; they all seemed to have been rudely dressed on the edges, which were also smoothed considerably as if by cattle rubbing against them. Two of them had holes bored through them about $1\frac{1}{2}$ inch in diameter, and about $1\frac{1}{2}$ foot from the ground. In this room we found some fragments of pottery, several rude stone flakes or knives made of flagstone, four bone awls and a bit of a fifth, and seven small bone pins, also portions of several otter skulls and one skull of a crow. The walls of the room averaged about $6\frac{1}{2}$ feet in height, their tops being about $2\frac{1}{2}$ feet below the surface of the mound.

The curved walls were built with the stones gradually overlapping those below them so as to converge inwards. This convergence was at about the rate of $1\frac{1}{2}$ foot in 6 feet of height. A doorway led from the south-west end of this room, but we did not explore to see where it led, having, more by chance than for any particular reason, selected the passage into apartment G. This room proved to be the most interesting of the whole, both from the greater number and variety of the implements found, and from the fact of a secondary occupation of it being clearly established. We at first thought that there was a partition wall running nearly east and west, and dividing the room into two almost equal parts; but on digging down along the sides of it for about 4 feet we ascertained that it was founded upon rubbish, probably the ruins of the part of the walls of room G. which had fallen in during, or after, a previous occupation. It was in clearing away this rubbish, which was about $3\frac{1}{2}$ feet thick, that we found a number of curious flat implements of considerable size made from the bones of a whale. We also found three long handled combs (figs. 10, 11, 12), not so fine as that from chamber D., but tolerably perfect, and interesting from their being of a different type from it. The heavy wedge-shaped one with six teeth is, I think, different in form from any in the Museum collection at present. If (as I believe is pretty well established) these combs were used in weaving, the great strength of the teeth in this specimen, and their distance apart, would perhaps indicate some unusually coarse fibre that was being woven; while the comb with the longest handle has the teeth very close together, and was probably used for some much finer material. We also found, amongst the rubbish, pieces of a cup or vessel of some sort, made from the vertebra of a whale, two bone awls, one small scraper, a shank bone of a sheep with two marks of a blunt knife or saw on it, several bone pins, and two rounded stones about $\frac{1}{2}$ a foot in diameter, and nearly 2 inches thick, each with a hole $\frac{3}{4}$ inch in diameter bored through the centre. This was the largest room discovered, being somewhat circular in shape with an average diameter of 25 feet. On the eastern side of the room we found two long flat stones set on end with their flat sides parallel to the face of the wall, and 3 or 4 feet from it. One stone was 8 feet 8 inches high, and the other



Figs. 10, 11, 12. Three long-handled Combs of Bone, found in Chamber E. at Howmae ($\frac{2}{3}$ of actual size).

exactly 8 feet above the floor level; they were over 2 feet wide and 3 to 4 inches thick, and they stood about $7\frac{1}{2}$ feet apart from centre to centre. One stone was shored up or supported by masonry built between it and the wall, and both are also kept in position by smaller stones on edge driven in round them at different angles. One long flat stone running between the two high ones forms the back of three fireplaces, which are separated from each other by more flat stones on edge at right angles to the back.

There is a sort of curved recess at the north-west of the room, partitioned off from the rest by two flat stones on edge, meeting each other at an obtuse angle. These stones were about 1 foot high, reckoning from the floor of the main room, or about 2 feet above the floor of the small compartment, which was at a lower level than the rest.

Inside the space thus partitioned off was found a cist about 3 feet long, 1 foot wide and about $1\frac{1}{2}$ deep, formed by flat stones on edge, projecting from the wall, and joined by another which formed the front; immediately above the cist were two small presses in the wall, one about $1\frac{1}{2}$ foot square, and the other about 9 inches.

To the north of these, supported by a flat stone on edge at one end, and by a small block of masonry at the other, was laid a flat stone 4 feet long by 1 foot wide, apparently to form a seat with a keeping place below it.

At the south of the main room there is a stone on edge, shown on the plan. There was nothing remarkable about the stone itself, but all the paving stones for several feet on both sides of it, on being lifted, were found to overlie a layer of 3 inches deep of limpet shells, the only reason that we could think of for their presence there being that they might tend to keep off damp. After completing the clearing out of this room, we had but a day to spare before being obliged to leave the island, and this day we devoted to exploring the drain through room E. previously referred to. We first removed the rubbish from the passage leading south-west down to the floor level, for a distance about 12 feet.

This disclosed the fact that the passage was paved with flagstones built into the walls on each side. We managed, however, to lift the fourth

one, and found a hole, partly filled with rubbish, almost large enough to admit a man. We sent in a boy, who managed with some trouble to clear it out; we could then see that the flagstones covered an underground passage or drain 5 feet deep, 1 foot wide at the *bottom* and 2 feet at *top*; these at least were the dimensions for about 5 feet in length of the passage measuring from room E., but at this distance the southern wall of the passage turned in towards the northern one, meeting it at a very acute angle, about $8\frac{1}{2}$ feet from the entrance to the room. We had not time to trace the drain (if such it can be called, having no apparent outlet), but we hope next year, or on some future occasion, to complete the exploration of this and of the other unexplored passages from F. and G. On one of the flagstones at the far end of the underground passage just described we found a large intervertebral plate of a whale, 1 foot $2\frac{1}{4}$ inches long diameter and 1 foot $\frac{1}{4}$ inch short diameter. It is pierced by four rectangular holes chiselled out with some sharp instrument, and looks remarkably like the top of a stool with the legs wanting. This excavation, commenced on 22nd July, was stopped for the season on 3rd November 1884, the area excavated being 3296 square feet, and the quantity of rubbish removed about 15,000 cubic feet. To preserve the building as much as possible, and also to prevent stray cattle from falling down into the rooms, we enclosed the excavations before leaving with a stout wire fence.

III. KITCHEN MIDDEN AT HOLLAND.

There are also on the table a few articles of stone and bone which did not come from either of the above mounds, but were found lately when levelling the ground about my own dwelling-house at Holland or *High* land, so called because, although under 50 feet, it is the highest eminence in the island of North Ronaldsay.

It is now ascertained that at least 12 feet in depth of that elevation consists of compressed ashes, mostly black in colour or nearly so, of the consistence of clay, and, like it, of a greasy feeling when rubbed between the finger and thumb. There were some burnt stones amongst the ashes, a few stone whorls (one of which was slightly ornamented), and a fragment of some vessel of steatite blackened on one side. There were many bones

of ox, sheep, and pig, of which the marrow bones were as usual broken across. Some bone implements of unusual form were also found, the uses of which are unknown to us.

The mound is of a rounded form, and in rough numbers measures about 140 yards across; consisting, so far as we have examined it, wholly of ashes; and it is the most extensive *Kitchen Midden* in North Ronaldsay.

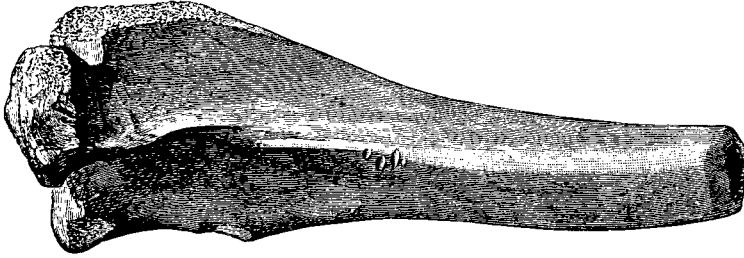


Fig. 13. Bone Implement found in a Kitchen Midden at Holland.

I may add, that a large proportion of the farm-houses on the island are built upon artificial mounds. The ground is so uniformly low and flat that, wherever it was possible to do so, such eminences appear to have been taken advantage of for building purposes.