

III.

NOTICE OF RUINS OF ANCIENT DWELLINGS AT SKARA, BAY OF SKAILL, IN THE PARISH OF SANDWICK, ORKNEY, RECENTLY EXCAVATED. By GEORGE PETRIE, Esq., CORR. MEM. S.A. SCOT. (PLATES XXXIX. to XLII.)

Among those numerous remains of primitive dwellings of the early inhabitants of the Orkneys, which have been more or less examined, a great mass of ruins on the shore of the bay of Skail, in the parish of Sandwick, and mainland of Orkney, occupies a prominent place, and deserves particular notice.

About fifteen or sixteen years ago, the drift-sand, which had accumulated to a great height at a place called *Skara*, on the south side of the bay above named, was undermined and swept away by the wild waves of the Atlantic, and an immense "Kitchen Midden," apparently of great antiquity, was exposed to view. It was at some points 15 or 16 feet high, and consisted chiefly of ashes thickly studded with bones, shells, pieces of horns of the ox and deer, and fragments of charred wood. The discovery was communicated to me by Mr William Watt, Skail, who showed me various bone and stone implements which he had picked out of the mound, and informed me of the existence of the ruins of buildings at the

same place. I sent a notice of Mr Watt's discovery to Dr Daniel Wilson, who refers to it at page 143 of the first edition of his "Pre-historic Annals of Scotland," and gives drawings of some of the bone relics. It is also alluded to by Captain Thomas, R.N., in his "Celtic Antiquities of Orkney," published in the "Archæologia," vol. xxx. One of the bone pins was sent by me to the Museum of Antiquaries in Edinburgh in 1851. Mr Watt afterwards, from time to time, collected a variety of stone and bone relics from the mound, and ascertained that a great mass of ruins lay buried there. He also came upon a stone kist or box containing about two dozen large oyster shells, all perforated in the middle with a hole about an inch in diameter.

In 1861 Mr Farrer made a partial examination of the mound, and opened some chambers and passages. In a letter to one of the local newspapers he stated, that all the chambers and passages "were filled with sand and stones fallen from the roof, together with vast quantities of shells and bones in various stages of decay. The chambers were in most instances flagged at the bottom. No human bones were found, but a stone vessel (probably a lamp), a few pieces of bones pointed and cut, a piece of hard and heavy metal, supposed to be manganese, together with an immense quantity of ashes in alternate layers of sand and ash."

Mr Watt afterwards resumed the exploring of the mound, and by dint of great perseverance and labour, has succeeded in clearing out a large portion of the ruins, although evidently much yet remains to be done. During the progress of the work he has collected a vast hoard of primitive relics, some of them unique, all of them more or less rude, and all deeply interesting as bearing on the social habits of the early inhabitants of the Orkneys.

I have repeatedly visited Skara during Mr Watt's explorations, and noted the peculiarities of structure, taking care on each occasion to measure and plan the ruins as far as they were opened. I afterwards found the advantage of this, when several portions of the building tumbled down, after having been exposed for a short time to the weather. These have been since restored by Mr Watt, but had I not previously planned them, I could not have been able, as I now am, to testify to the care and accuracy with which, as far as was practicable, the restorations have been made. My plans show the structure as it originally stood when discovered

by Mr Watt, and therefore a comparison of the ruins as they now appear, with the plans, will at once prove how closely the original has been copied.

The ruins at Skara are altogether so different in type from any hitherto discovered, and the relics which have already been found are so varied and numerous, although all of bone or stone, that I thought it would be very desirable to have the results of Mr Watt's enthusiastic labour up to this time made known to the Society of Scottish Antiquaries, without waiting till the whole mound be explored. To this arrangement Mr Watt has kindly consented, and besides giving me full information as to the successive discoveries made by him during the excavations, has also permitted me to make drawings of as many of the relics in his possession as my time at present will permit.

The buildings at Skara may be generally described as a group of chambers and cells, arranged on both sides of, and opening into, a long zig-zag or winding passage, which runs nearly parallel with the line of beach. One set of chambers is on the seaward side of the passage, the other on its landward side, as will be seen by a reference to the Ground Plan (Plate XL.) The passage (AAA, ground plan) is from 2 to 3 feet wide, and, judging by the portion of the roof which remains at the south-east end, at *n*, has been about 5 or 6 feet high. The doorways or entrances to the cells are, as will be seen by the plan, always on the concave part of the main passage or gallery. Two large chambers (C and L), and two sides of a third (W), have already been discovered, but there is reason to believe that the entrances G^a and H lead to others as yet unexplored.¹

The chamber C is entered from the gallery A by the doorway or passage B, which is about 12 feet long, 2½ feet wide at outer end, and 3 feet 9 inches at inner end, and about 3½ feet high. About 8 feet from the entrance, two jambs project slightly into the passage, and on the inner side of these, in the side walls, were bar holes (XX), and extending across the passage with its ends in these holes, a long stone was found, which had evidently been used as a bar to support or barricade a door. The widest part of the passage is between the jambs and the chamber. This chamber

¹ Since the above was written a large chamber, to which the opening G^a forms the doorway, has been cleared out, and a large collection of bone beads, &c., were found in it.

(C) is of a very irregular shape, and much dilapidated on the south-west side next to the cell E, and the roof was entirely wanting. When the sand had been cleared out, the floor of the chamber was found to be marked off into divisions or compartments, by stones of various sizes set on edge, some merely projecting an inch or two above the level of the floor, while others, especially those forming the compartment marked Z, were from a foot to upwards of 2 feet in height. The stones at F evidently marked the hearth, as the space they enclose bore strong traces of fire, and was filled with ashes, mixed with fragments of burnt bones. Three stone kists or boxes (marked respectively a^1 , a^2 , a^3 on plan) were also found set in the floor, the upper edges of the stones forming the boxes projecting considerably above it. The smallest was fitted with some care at the corners. A large stone about $5\frac{1}{2}$ feet in height stood on end in an angle in the east wall of the chamber. In the south corner, and a little above the level of the floor, is a small cell (D) about 4 feet in diameter, and only about 4 feet high. The entrance to the cell is 2 feet 7 inches high, and very narrow. Another small cell (E) is on the south side of the chamber, into which it now opens; but whether it did so originally is doubtful, as there is no clearly defined doorway on that side, while at the further end there is such a doorway, which probably communicated with a chamber, to which I suppose the opening G^a was the entrance from the main passage A.¹ Mr Watt found a drain running beneath the floor of the chamber C, in the directions indicated by the dotted lines b , b . The diameter of the chamber, from the inner end of the doorway or entrance to the opposite wall, is about 11 feet, and the average length, in the direction from north-east to south-west, to the opening into the cell E, is about $21\frac{1}{2}$ feet; but I am inclined to believe that the length originally was less by about 3 feet, which space was occupied by a wall that separated the chamber from the cell. Indications of this will be seen marked on the plan. The average height of the remaining walls of the chamber is between 5 and 6 feet; but the original height cannot be ascertained. The walls are rudely built without mortar, and the corners or angles of the chambers have been rounded off, and appear to have converged considerably inwards, but not in so marked a manner as in the less ruinous chamber which has yet to be described.

¹ This supposition has since been found to be strictly correct.

About 10 or 12 feet along the gallery or main passage (A), beyond the outer end of the entrance or doorway of the chamber C, and on the same side, are seen two low openings. These give admission to a low triangular cell or recess (G) about 6 feet long in front, $4\frac{1}{2}$ feet in width to the point farthest back, and $3\frac{1}{2}$ feet high. Immediately beyond this recess, but at a height of about 3 feet above the level of the floor of the passage A, is an opening (see view of line *p, q*) extending backwards in the direction of the space where it is supposed another chamber will be found, and a few feet farther on, on the same side, is the doorway G^a already mentioned. Nearly midway between the recess and the doorway G^a , a stone set on edge across the passage projects a little above the floor. The passage widens considerably beyond this stone, but afterwards becomes narrower towards the south-western extremity, near to which on the same side as G^a , is a low narrow opening (H), probably the entrance to another ruined chamber. The gallery or passage (AAA) having only been traced a few feet further, it is not yet known how far it may extend in that direction.

Nearly opposite to the small doorway H, and on the seaward side of the main passage, is a small opening (*r*) near the level of the floor, about 9 inches square, extending into the cell M in the thickness of the wall, and commanding the main passage. The doorway (K) of the large chamber (L) is about 7 feet further towards the north-east end of the passage (AAA), and is nearly 4 feet wide at the outer end, but narrows to about 16 inches in the middle, then widens again to 2 feet, and finally contracts to 20 inches at its inner end next the chamber. The average height of the passage was 3 feet. The narrowest part was formed by two flag stones placed upright, one on each side of the passage. These served as jambs, and behind them, in the side walls, were bar-holes (*y y*). One of these (*s y*) extended into the cell M, which thus served the double purpose of guarding the main passage (AAA) and the entrance or doorway (K) of the large chamber L.

There was no appearance of a roof to the chamber L when Mr Watt dug into the ruins, and as the walls were greatly dilapidated, their original height cannot now be ascertained with certainty. The chamber is square in form, but the angles are rounded off as in the chamber C, and the diameter, measured on the floor, is about 21 feet in the direction

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from north-east to south-west, and between 19 and 20 feet in the other (Plate XXXIX). A space for a hearth (U) is marked off in the centre by stones set on edge projecting a little above the floor. The entrance to the guard-cell M is nearly midway between the doorway of the chamber L and the south-west wall. The north-east side of the chamber was divided into two compartments (Z Z) by large flagstones set on edge in the floor. There were remains of a third division on the same side, and on the opposite side were two similar compartments (Z Z) separated from each other by a rudely built wall. The farthest end of the innermost compartment was shut in by a similar wall (20). Beneath this wall a very thick rude clay urn was found. This discovery naturally suggests the question, When and why came the urn to be placed there? I am not sufficiently acquainted with the circumstances in which it was found to enable me to form any decided opinion as to the time when it was deposited in the spot in which it was discovered; but I think that it has been buried there either by the original occupiers of the building, or by those who at a later date seemed to have appropriated the dwelling, and made alterations and additions, including, apparently, the rude wall beneath which the urn was found. I may mention, in connection with this, that urns have been found in the ruins of broughs, not only as if deposited there after the buildings had ceased to be inhabited, but some were so placed that they had evidently been standing there before the structures had been abandoned. In one case I found an urn built into the wall of the brough. I have, therefore, been led to suppose that it was not unusual with the early inhabitants of Orkney to retain in their dwellings cinerary urns containing the ashes of departed relatives or friends.

There was a square kist or box formed of flagstones in the west corner of the chamber, partly beneath the level of the floor. Besides the compartments already mentioned, there was another (Z⁵) extending from the doorway of the chamber to the side of the compartment Z¹. In the latter is an opening or doorway (N) which probably formed the entrance to another chamber or cell, the ruins of which have not yet been explored. There is another opening (S², see section *g, h*) in the chamber wall at a height of about 4 feet above the floor of the chamber; but it has only been traced for about a couple of feet. In this recess lay the quartz celt, No. 27. On the opposite wall is a recess (*u*, see plan of recess and

section *g, h*) about 3 feet long, 20 inches wide in the middle, and 20 inches in height. The sole of this recess is about 4 feet above the floor of the compartment *Z*³. A curious structure was found at the north-west wall opposite the doorway of the chamber (see *OO* on ground-plan, and section on the line *e, f*). The lower part may have been a bed; but if so, the stone, whose edge rises a little above the floor in the middle of the "berth," would not have added to the comfort of the occupant, although it may have helped to keep him wakeful.

There was a small opening or doorway *t*, through the wall at the back of the lower division of the structure just referred to, leading to a cell (*P*) 6 feet long and 3 feet wide. As the lower portions only of the cell remain, its original height is unknown, but probably it was 4 or 5 feet. Two square stone boxes, similar to those already noticed, were found in the floor of the chamber in front, and one at the south-west end of the "beds;" and at the other end stood a shallow stone vessel (18), similar to those discovered at New Grange in Ireland. Two other stones, with shallow cavities in their upper surfaces, were found—one (22) between the entrance of the chamber and the division *Z*⁴, and the other (21) in the division *Z*⁵. A small stone cup (19) stood at the outside of the hearth. A small square opening (*V*²) at the north corner of the chamber is the entrance to a cell (*Q*), about $4\frac{1}{2}$ feet in diameter, and $3\frac{1}{2}$ feet high, having a drain from the centre extending seawards. Between this cell and the sea-shore a sort of sentry-box, or small oblong cell (*T*), was found apparently outside of and detached from the main building. The drain (*R*), however, passes through this outwork in its way to the shore. The chamber or outwork (*T*) was about 6 feet long, $2\frac{1}{2}$ feet wide, and $4\frac{1}{2}$ feet high. A flagstone laid across the end of the cell (*T*), next the main building, a little above the level of the floor, appeared to have been used as a seat, while in front of it stood a large square block of stone (23) firmly set in the floor, as if it had been used as an anvil, or as a block on which to break or split bones, shell-fish, or similar articles of food.

The side walls of the chamber *L* were perpendicular, as shown by the section on the line *g, h*, while at the angles, which were rounded off, the walls converged considerably towards the top, as will be seen by the section on the line *e, f*. Mr Watt found some large pieces of ribs of

whales in this chamber, and he is inclined to think that they have been used to prop or support the roof.

On leaving the chamber L, and proceeding eastwards along the north-west side of the passage AAA, the next opening we come to is the doorway (V) nearly opposite to the triangular cell G. This doorway is about $6\frac{1}{2}$ feet in length, and from its entrance to two stone jambs in the side walls, a distance of 4 feet, it is about 2 feet 4 inches wide. Immediately beyond the jambs the width is nearly 3 feet, which gradually increases to $3\frac{1}{4}$ feet at the inner extremity, where two stone slabs (W^2) stand on edge across the end of the passage, and overlap each other, leaving a small space between the overlapping edges. The stones stand about 2 feet 9 inches in height, and the doorway appears to have been about the same height. These slabs, if viewed as fixtures, cannot have belonged to the original design, for they virtually close up the doorway. Probably they were placed there by later occupants, because the roof of the main passage had fallen in, and the doorway which opened into it had therefore become useless. A new entrance could easily have been made in the wall next the sea; but as that side of the chamber has entirely disappeared, no trace of such doorway can now be found even had it formerly existed. The two slabs in question may, however, have been firmly placed at the inner end of the doorway only to protect the chamber from invasion, and the assailants having obtained entrance by unroofing the building, may have left the slabs undisturbed at the doorway. All that now remains of the chamber W, to which the doorway V leads, is on the west side, and between the south-west corner and the doorway. A compartment (Z^1), formed by the wall of the chamber and by slabs or flagstones from 1 foot to 18 inches in height set on edge, extends from the left hand side of the doorway V to a narrow opening, forming the entrance to the cell X. This cell, from its position, was doubtless a guard chamber similar to the one marked M on the ground plan. The roof of the cell was wanting, the remains of the wall (X^2) which formed the north side being only from $1\frac{1}{2}$ feet to 2 feet high. A few feet from the entrance of the cell X, along and close to the west side of the chamber, there was found set in the floor a box (a^5), about 20 inches square and 18 inches deep, formed, like those in the other chambers, of flagstones or thick slates roughly dressed. About 18 inches beyond this

box was the end of a large compartment or pit (Z^2), about $6\frac{1}{2}$ feet long, and from 3 to 4 feet in width. A low stone wall or bench surrounds the inner end, the side next the side wall of the chamber, and about half of the south end. There is a space of about 16 inches wide left at the south end (11^2) between the flagstones, apparently as a doorway. It has been already stated that the wall next the sea had disappeared; but along that side three flagstones (VVV) were found standing on end, evidently the remains of compartments similar to those found throughout the building, and indicating the line of the side wall. Two stone boxes were in front of these stones, and a small stone cup was found in the box (4) next to the west side of the chamber, and another stone cup (3) close to the boxes, but outside of them. There were also two boxes or pits ($a^3 a^4$) to the eastward of the three stones just referred to. In one was found a stone implement or ball (5) perforated through the middle and covered with projecting knobs. A cast of it is in the Museum of the Antiquaries. The box or pit furthest to the eastward contained the perforated shells already referred to. The beautifully cut spherical stone ball (6), of which a cast is also in the Museum, was found between the two last mentioned stone boxes. A hearth is also indicated in this chamber by stones set on edge in the floor. There is also a cell (X) on the south side of the chamber entered by a low door about 18 inches square. The cell is $5\frac{1}{2}$ feet long, and from 2 feet to 2 feet 3 inches wide. The roof was wanting.

The buildings at Skara, being so ruinous, and so entirely buried in the sand, and those parts of the exterior of the walls, which have been uncovered, not being now as they were when found, I have not had an opportunity of judging what appearance the structure would have presented when intact; but I was told by Mr Watt that the walls on the outside, as far as he has examined them, were very rough. They had, however, been coated over by a layer of clay, intended, as he thought, to exclude wind and rain. Excavations round the landward side of the ruins would probably show whether they had been plastered all round with clay.

In the present stage of the excavations it would be premature to hazard a conjecture as to the age of those interesting remains, but that they are of very considerable antiquity may be inferred, not only from the type of implements which have been hitherto discovered, they being exclusively of bone or stone, but also from the fact that the bones and horns of

animals long since extinct in Orkney, such as the deer and, it is believed, the *Bos primigenius*, were thickly strewed throughout the debris of the building.

Another discovery, bearing on the probable age of the ruins, was that of a human skeleton, which Mr Watt writes me he found "lying on its face, with the head to the north, just above the fire-place in the largest house" (that marked L on ground plan). "The knees had been tucked up to, and the arms folded across, the chest; the head was the lowest part, and may have been about three feet above the floor. There were some deer's bones *higher up* in the sand than the body, though I did not meet with any of them directly over it."

Mr Watt also found other human bones leaning in a corner of the passage near the triangular cell. They were standing along with bones of the ox, &c., and one of them, a femur, had been notched or cut with some rude instrument, but that may have been merely accidental.

The skull of the skeleton found in the chamber L is of a type with which I am familiar. The forehead is rather low and receding, and the nasal bones are very high. In the last respect it closely resembles other skulls which I have obtained from ancient graves in Orkney, but the notch at the root of the nose is deeper than in any of the skulls I have hitherto met. As I have given with the plans a list of the principal relics found in the ruins, and indicated by figures the spots where some of them were severally discovered, it is unnecessary to recapitulate them all here. I may, however, remark that one of the stone cups, when found, contained a mass of white clay or pigment, which had apparently been kneaded; and on a level with, and near to another stone cup or small vessel, lay a lump of similar clay or pigment, about half a foot square. A small piece of red pigment,¹ which had apparently been partially rubbed down, lay in another place; and a still larger mass, resembling a brick in form, was also discovered in the ruins. I found a piece of blue-coloured pigment last autumn in a kitchen midden in Westray, along with stone and bone

¹ The red pigment has probably been obtained from hæmatite of iron, as several pieces of the ore were found in the ruins. I gave a specimen of it to Major-General J. H. Lefroy, when he visited Skara with me in 1867, and he submitted it for analysis to Professor Abel of the Royal Arsenal, Woolwich, who stated that he found the specimen of iron ore to be silicious hæmatite, that it did not contain any manganese, but that a *trace* of cobalt was present in it.

implements exactly resembling those found at Skail; and I have, in the ruins of brouchs, on two other occasions, discovered red and blue pigments.

Many of the bones found in the debris of the building, and in the midden, were split and splintered, or broken across. I observed that the leg bones of the deer were, however, unbroken. Bones and teeth of the horse were frequent; and bones of the whale were found in considerable quantities, in most cases, however, converted into cups or vessels of a large size. The kitchen midden was thickly studded with fish-bones, chiefly of small fish, apparently the "sillock," or coal fish; but I also repeatedly recognised bones of the cod.

The bone implements and other bone relics were very numerous. The vertebræ of the whale appear to have been often converted into vessels for domestic uses. One at Skail was 9 inches long and $7\frac{1}{2}$ broad, and had a cavity made in the centre 5 inches in diameter and $2\frac{1}{2}$ inches deep. There were several implements formed of a part of the leg-bone of the ox, having the shaft cut across obliquely, so as to form a sharp edge like a chisel. The face thus formed is very smooth, as if from frequent use. There is a large circular transverse opening at the other end, near the joint, apparently to afford a firm hold when using the implement, which Mr Watt supposes may have been employed in skinning or flaying animals. An exactly similar implement was found by Mr Farrer in the Knowe of Saveroch, Birsay, and is now in the Antiquarian Museum. Nos. 28 and 29 of the drawings accompanying this, represent two of the implements found at Sandwick. One of them is in my possession. There were several of the type No. 30, and I found one of the same form in Westray. Mr Watt has picked up nearly 100 of the bone pegs or pins in the ruins and kitchen midden. They vary in length from 2 to about 5 inches. Nos. 36 and 38 are two-pronged; No. 39 is very sharp at the broadest or lance-shaped end; No. 40 is flat on the one side, while the other is convex, but the edge all round is tolerably sharp. The four numbered 41 are apparently ornaments or pendants to a dress, and exactly resemble those which are seen on the seal-skin dresses of the Esquimaux of the present day. No. 42 is a bone marked with nine encircling notches; and No. 43 is another, with only seven notches, some of which have become nearly effaced since it was found, owing to its decayed state. It is No. 43 which, I

think, is figured by Dr Daniel Wilson in his "Pre-historic Annals of Scotland." No. 44 is a similarly-marked bone, with seven notches, which I got from the kitchen midden in Westray, and already referred to, but as one of the ends is wanting, the original number of notches is now uncertain. Various opinions, some very fanciful, have been expressed as to the purposes to which such notched bones have been applied. Having observed in Mr Watt's collection several bone beads which had never been polished, but still retained the rough edges of the fracture, where the bone had been first notched nearly through, and then broken across, I placed them beside the notched bone, No. 42. The unfinished bead 44^c, as will be seen by the drawing, so nearly corresponds in size and general appearance, including the distinct traces of notching, with the divisions into which the bone is marked off, that Mr Watt and I had no doubt that the beads had been formed by a similar process, and that the notched bones are simply bone beads in embryo.

The two curious relics, Nos 16 and 17, were found at the spots respectively indicated by these numbers on the plan. They are not unlike the Esquimaux "forks" presented to the Museum by Dr Rae. They appear to be of coarse ivory, and were probably highly valued, as we may infer from the hole by which each is perforated, no doubt for the purpose of suspending them to the fortunate owners. Some of the larger bone implements, resembling that numbered 32, are so blunt at the point that it is difficult to conjecture to what purpose they have been applied, unless it were to serve as pegs by which the skins of animals were kept stretched out while drying. No 31 was possibly used as a spoon! I found one of the same form in Westray.

Horns of the ox and deer were well represented at Skara. One of the horns, or rather horn-cores, of the ox measured upwards of 10 inches in circumference near the base; and although nearly the half was wanting, the length, in a straight line, from one extremity to the other (not along the curve) was 1 foot 1 inch. A tooth of a walrus was also found at Skara. The comb, which is so common in the broughs, has not yet been met with in the Skara ruins.

The *stone relics* are very numerous. Several stone mortars were found. One of them was discovered in the chamber W, at the spot marked by the figure 9. It had evidently been long used to grind or pound some

sort of white clay or pigment, as the cavity was encrusted with a hard whitish coating resembling enamel. The mortar, when discovered, was nearly filled with fish bones, which had apparently been pounded into a mass of minute fragments. In connection with, and as throwing light on this discovery, I may state that, even in the present century, the inhabitants of North Ronaldshay, at any rate in a time of great scarcity, used fish-bones, pounded fine, to eke out their scanty supply of meal; and it was a common saying among them, when any one was complaining of scarcity of food, "Thank Guid, thu're no come tae ait (eat) the fish-banes yet." The stone implement resembling a ship's block, of which I give a drawing (No. 48), is the third that has been discovered in Orkney, so far as I know. One is in my possession. It has probably been used as a weapon, by being attached to a handle by a thong or piece of skin, or to a "lasso." Rough stone hatchets or choppers, such as those in the drawing, were not unfrequent. A broken one was found in one of the bar-holes of the doorway of the chamber L. Stone cups were found in several places. Two specimens are shown in the drawings. The triangular box (No. 49), contained, when found, a quantity of kneaded pigment. Stone celts are rarely found in Orkney, but Mr Watt has discovered several in the building he has been exploring. Although tolerably sharp at the edge, they are generally rough on the sides. The two smallest celts are, however, highly polished. Mr Watt thinks that No. 45 is of jasper. No. 15 is quite a miniature implement.

There is one type of stone implement very abundant at Skail. These are flakes of hard old red sandstone, generally of a circular or oval shape, and of various sizes—say from 2 to 8 or 9 inches in diameter. They have been broken off from water-worn stones, and have invariably one side smooth, while the other shows the fracture. One edge is always thicker than the other, which is almost invariably very sharp. In one specimen which I have, two or three notches have been made in the sharp edge, as if for the purpose of converting it into a sort of saw. There were hundreds of those flakes found at Skara, but not one has received the slightest polish, and very few of those found seem to have been used, as most of their edges are as sharp as if the flakes had been newly detached.

While I was on one occasion carefully examining a large heap of the flakes, I observed a notch on the fractured side of the thickest edge of

one of them (see No. 46 of drawings), which had evidently been caused by the stroke or blow by which the flake had been produced. I took up one after another of the heap, and found that all bore the same characteristic mark, which, I think, is good evidence that they are artificial. Every flake, therefore, which does not possess such a token, has invariably been rejected.

The notch very much resembles the mark which would be made by a pointed instrument used as a wedge, but as that would imply a knowledge of metal, of which no trace has hitherto been found in the ruins, Mr Watt expressed his opinion that the flakes had been produced by a smart, dexterous stroke with a stone held in the hand on the edge of a suitable stone resting on a large supporting stone. The mark or notch where the stroke had taken effect appeared to me to be deeper than any which such a blow was likely to make. The process by which these rude stone implements had been obtained seemed to be still a matter of doubt. Accident has, however, apparently revealed the secret, and probably the people who inhabited the Orkneys, and used these stone flakes or primitive knives long ages ago, were similarly directed to the discovery of the simple means by which such implements can be easily and readily obtained to any amount.

When I was examining some artificial mounds last autumn, in the island of Westray, I discovered the kitchen midden to which I have already alluded, by finding a flake with the notch on it on a mound which the recent drifting of the sand had laid bare. I remarked to a friend who accompanied me, that I expected to discover bone implements also in the mound. We immediately set to work with pocket knives to dig into the face of the mound, and were soon rewarded by finding bone pins and great numbers of stone flakes similar to those from Skara, and the notched bone, No. 44 of the drawings. I was afterwards strolling on the rocks below the cliffs, but considerably above high-water mark, when the appearance of a stone, which had recently been broken, attracted my attention. On lifting it, I saw, with some surprise, that a flake of a circular shape had been recently struck from it, and at the upper edge, where the stroke had taken effect, was a notch, the counterpart of those by which the flakes found at Skara are characterised. The broken surface of the stone lay uppermost, and was still coated with a white

powder, produced by the blow which had severed the flake. This was sufficient evidence that the stone had been broken only a few hours before I discovered it, as a heavy rain which had fallen during the night would have washed away the powder had the fracture been made the previous day. Pondering over these facts, it occurred to me that my son and a companion, who had shortly before gone along the cliffs, had been amusing themselves by dashing stones on the rocks, and had thus unwittingly rediscovered the ancient mode of producing the rude stone implements of the early inhabitants. Acting on that supposition, I dashed the broken stone, which I still held in my hand, on the rocks; and as I confidently expected, and to my great delight, a flake was detached as good as any found at Skara, and with a notch clearly defined. I frequently repeated the experiment, and with invariable success; and I have little doubt that such was the simple mode by which the flakes of the ancient kitchen middens in Orkney were generally obtained. To break them off with another stone wielded in the hand, would be a process both tedious and uncertain in its results. I believe a much more powerful stroke than can be given in that way is necessary to produce a notch like the one which is always made by *dashing* the stone on the rocks, or on another stone of sufficient size and hardness to resist the blow. The notch on the ancient flakes, and on those which I obtained in the manner described, has a peculiar appearance, more easily recognised than described.

A considerable number of circular discs of clay-slate, of various sizes, from 3 or 4 inches to 14 or 15 inches in diameter, have been found at Skara. They have been roughly chipped or dressed into the present form, and have been used as covers for the rude vessels of baked clay, of which numerous fragments are found. These fragments of pottery generally bear marks of exposure to strong fire, and are doubtless the remains of vessels which have been in use for cooking and other domestic purposes. The effects of strong fire are also visible in a circle or margin round the edge of the discs, which appear to have projected to the extent of an inch or so beyond the mouth of the vessels they covered.

During last summer, stone and bone implements, similar to several of those found at Skara, were discovered in various parts of Orkney. I found stone flakes at Stromness, Birsay, Burray, and Westray; discs at Harray and Westray, and I believe they are frequently found in Shetland. Bone

pins and bone scoops were found at Westray, as already mentioned. A perforated bone chisel (similar to Nos. 28 and 29 of drawings) was found by Mr Farrer at Birsay some years ago. It is evident from the localities where these implements have already been discovered, that the people who used them were distributed generally over the islands.

Rude as are these stone and bone relics found in Orkney, the large collection of stone implements discovered in Shetland in 1865—many of them picked up by myself—are not less rude and primitive.

About sixteen or seventeen years ago I opened, in Orkney, two barrows, each containing a kistvaen with some burnt bones and ashes in it, and at the outside of one end of the kistvaen (the north-east end), lay a stone implement of the same type with the majority of those from Shetland. About the same time I got another implement somewhat similar, but displaying more care bestowed on its manufacture, and approximating to the stone celt in form. I found it also in a barrow, containing a kistvaen and some burnt bones. One of the rudest form was sent by me to the Antiquarian Museum; it is labelled "A. S. 1, stone celt found in a grave under a tumulus, parish of St Andrews, Orkney. Presented by Geo. Petrie, 1850." Cremation is usually assigned to the Bronze period, including also the latest stages of the Stone period, but in Orkney, as I have shown, we have it associated with the most primitive forms of stone implements.

According to Mr Evans, Mr Westropp, and others who concur with them, the flints found in the gravel drift "are the earliest known forms of weapons, and of the rudest nature, as if formed by a people in the most degraded state of barbarism." "They present no analogy to the well-known implements of the so-called Celtic or Stone period. They have appearances of having been fabricated by another race of men, and on a much larger scale, as well as of ruder workmanship." "They are thus," says Mr Westropp, "evidences of a much earlier stage of development, and of an age of ruder strength, and still more infantile skill; perhaps, too, of an earlier species of a human-like race, the companion and contemporary of the extinct bear, the extinct rhinoceros, the mammoth, and other larger animals no longer in existence." The stone implements lately found in such numbers in Orkney and Shetland are as rude as the weapons from the gravel drift; and, therefore, any inferences drawn from the rude nature of the latter would be equally deducible from the stone implements

found in Orkney and Shetland. The one would be as good evidence as the other of "an earlier species of a human-like race;" but, unfortunately for the pre-Adamite theory, the Orkney implements, although of the rudest type, have been found in circumstances decidedly opposed to it. They were associated at Skara with other relics, displaying much greater care and skill in their manufacture, and have been discovered in such numbers as to leave no doubt that they were in common and constant use by a people who cooked their food in fire-baked clay vessels, and who also, as has been already shown, practised cremation, and deposited the ashes of their honoured dead in an urn of stone or baked clay, enclosed in a kistvaen, beneath a monumental mound. Besides, the horizontal arching of the cells, the converging of the walls of the main chambers, and, generally, the peculiarities and whole character of the large and complicated specimen of ancient domestic architecture at Skara, show that its builders had attained to considerable constructive skill, and furnish another proof that they were greatly in advance of that lowest stage of barbarism which the rudest forms of flint and stone implements are now usually assumed to indicate.

It is not, therefore, a fair and legitimate inference from the discovery of a very low type of stone implements, that the race by whom they were made and used could not produce better specimens of their handiwork, or that they had never been acquainted with metals. The facts furnished by the late researches in Orkney and Shetland, especially at Skara, seem to point in another direction, and to lead to the conclusion, that the tribes whose remains have been discovered had, before their arrival in those islands, been in a higher state of civilization. That it was not, therefore, ignorance of metals, nor inability to fabricate a higher class of implements than those found, that originated the latter, but simply that they were compelled by sheer necessity to make use of the only materials attainable in their isolated position.

It is evident, then, that the rude nature of the implements, apart from other facts and circumstances, cannot be accepted as proof of their great antiquity.

It would be premature to attempt to fix an age for the ruins and relics discovered at Skara, until the whole mass of remaining buildings there has been thoroughly explored; but I am strongly inclined to hope, that the ancient refuse heaps, which are not unfrequent along the shores

of Orkney, conjoined as they are with ruins of buildings, will help to throw light on the Kjökkenmöddings of other districts, and to point out the people to whom they ought to be assigned.

LIST of some of the Implements, &c. (see Plate XLII.), found in the Ancient Ruins at Skara, Sandwick, Orkney. Corresponding numbers are marked on the Ground-plan (Plate XL.), to indicate the spots where some of them were found.

1. Stone Mortar.
2. Stone Celt.
3. Small Stone Vessel or Cup.
4. Do. do., found in box or pit *a'*.
5. Curious Stone Weapon or Ball, perforated in middle, and covered with large projecting knobs.
6. Beautifully cut Stone Ball, with knobs or projecting points all over it, found amongst a quantity of ashes.
7. Box or Pit, in which perforated oyster shells were found.
8. Oval-shaped Stone Cup.
9. Large Stone Mortar, inside encrusted with a white substance like enamel; it contained a large quantity of fish-bones finely bruised or crushed.
10. Bundle or Sheaf of Bones of same kind of which the pins, &c., seem to have been made.
11. A small piece of Whalebone, cut as if intended for an idol or "Fetish."
12. Large Vessel, made of a vertebra of a whale.
13. Stone Cup.
14. Do., and on a level with and near it, a lump of very white clay or pigment, about half a foot square, was found.
15. Very small Celt.
16. Large Implements, ivory (?).
17. Do. do. do.
18. Large Stone, with cavity, probably used as a mortar for rubbing or pounding corn.
19. Small Stone Cup.
20. Large Urn, of coarse clay, found underneath cross wall.
21. Shallow Stone Vessel.

22. Similar Vessel, with very shallow cavity.
23. Stone Block, probably had been used for breaking bones, shell-fish, &c., on it.
24. Large Bone Vessel, made of a vertebra of a whale.
25. A Circular Disc or Plate of clay slate, found with 16 stone flakes or knives, and several bones, supposed to be of the sheep.
26. Several Human Bones were found standing on end, leaning in a corner of the passage, along with bones of animals.
27. Celt of Quartz, found in the opening S in chamber L.
- 28, 29, 30. Bone Implements, of which several specimens have been found.
31. Bone Implement, another exactly similar was found in a refuse heap in Westray.
- 32, 33, 34, 35, and 37. Bone Implements, of which at least 100 have been found.
- 36, 38. Two Two-pronged Implements like forks.
39. Bone Implement, probably a lance head; it has a sharp edge at broad end.
40. Piece of Flat Bone, very smooth, apparently from frequent use.
41. Four Ivory Pendants or Ornaments.
- 42, 43. Two Notched Bones, marked off into sizes for beads.
44. A similar Notched Bone, from Westray.
- 44^a, 44^c. Beads, made from notched bones.
45. Beautiful Celt of jasper (?).
- 46, 46^a, 47. Stone Flakes or Knives, of old red sandstone.
48. Stone Implement, hard red freestone.
49. Small Stone Box, in which some red pigment was found.
50. Rude Stone Knife of clay slate.
- 51, 52. Stone Cleavers or Hatchets of clay slate.
53. Celt of old red sandstone.
54. Celt of serpentine.

A sketch in oil colours of the interior of the large chamber at Skara, (L of ground plan Plate XL.), taken on the spot in October 1863, by the late Mr John Cairns, artist, was presented by him as a Donation to the Society in May 1866 (see Pro. vol. vi. p. 419), along with a collection of stone and bone relics from the same locality, by Mrs Cairns. Mr Cairns' sketch is engraved here (see Plate XXXIX.)

MONDAY, 13th May 1867.

The HON. LORD NEAVES in the Chair.

The following Gentlemen were balloted for, and elected Fellows of the Society :—

ROBERT CLARK, Esq., Printer.
JOHN YULE, Esq., Newburgh, Fife.

The following Donations to the Library and Museum were announced, and thanks voted to the Donors :—

(1.) By JOHN EVANS, Esq., F.S.A. Scot., &c., Hemel Hempstead, Herts.

Twenty Specimens of Worked Flints from the Yorkshire Wolds (East Tindal, Sherburn, Helperthorp). They measure from 1 inch to 3 inches in greatest length, and vary in shape from a rounded form, chipped round the edges, to a long or flake-shape. One specimen is nearly square.

Collection of Nineteen Worked Flints or Weapons, ranging from 3 inches in length and 1 inch in breadth, to 7 inches in length and 3 inches in breadth. The larger implements are generally pointed at the extremities, resembling in character the ordinary stone axe-head. They are generally of a light-grey colour. Found at Spiennes, near Mons, in Belgium.

(2.) By H. A. ANDERSON, Esq., Harviston, Gorebridge.

Two Red Clay Floor Tiles, $4\frac{1}{2}$ and $5\frac{1}{2}$ inches square, glazed, white patterns, scroll ornaments, and animal. Found in a ruin at Repton, Derbyshire.

(3.) By ROBERT CARFRAE, Esq., Curator S.A. Scot.

Brass Oval Shaped Medallion of Oliver Cromwell, 4 inches long, front face, bust in mail.

Medal in Silver of Charles II., size No. 15. Laurated bust of the king looking to the right. Reverse—Britannia, and ships at sea. Legend, FAVENTE DEO.

Hawkins on the Silver Coinage of England. 8vo. London, 1841.

- (4.) By the COUNCIL of the SPALDING CLUB, through JOHN STUART, Esq., LL.D., Secretary.
Sculptured Stones of Scotland. Vol. Second. Edited by JOHN STUART, Esq., LL.D. Folio. Edinburgh, 1867.
- (5.) By JOHN STUART, Esq., LL.D., Sec. S.A. Scot.
Two Ancient Records of the Bishopric of Caithness. (From The Bannatyne Miscellany, Vol. III.) 4to. Edinburgh, 1848.
- (6.) By the late Mr DAVID DOULL, 72 Lauriston Place.
The High Street Catastrophe : Newspaper Cuttings giving an account of the Fall of a House in the High Street, Edinburgh, 24th November 1861. Folio.
- (7.) By WILLIAM MACKISON, Esq., F.S.A. Scot. (the Author.)
Notes on the recent Excavations made at Cambuskenneth Abbey, Stirling. 4to. (18 pp.) London, 1867.
- (8.) By the SOCIETY OF ANTIQUARIES OF LONDON.
Archæologia. Vol. XL. Part I. 4to. London, 1866.
Proceedings of the Society of Antiquaries of London. Vol. III. Parts I. II. 8vo. London, 1866-67.
- (9.) By General PATRICK YULE, F.S.A. Scot.
Voyage dans la Basse et la Haute Égypte, pendant les Campagnes du Général Bonaparte. Par V. Denon. 2 vols. large folio. Paris, 1802.

The following Communications were read :—