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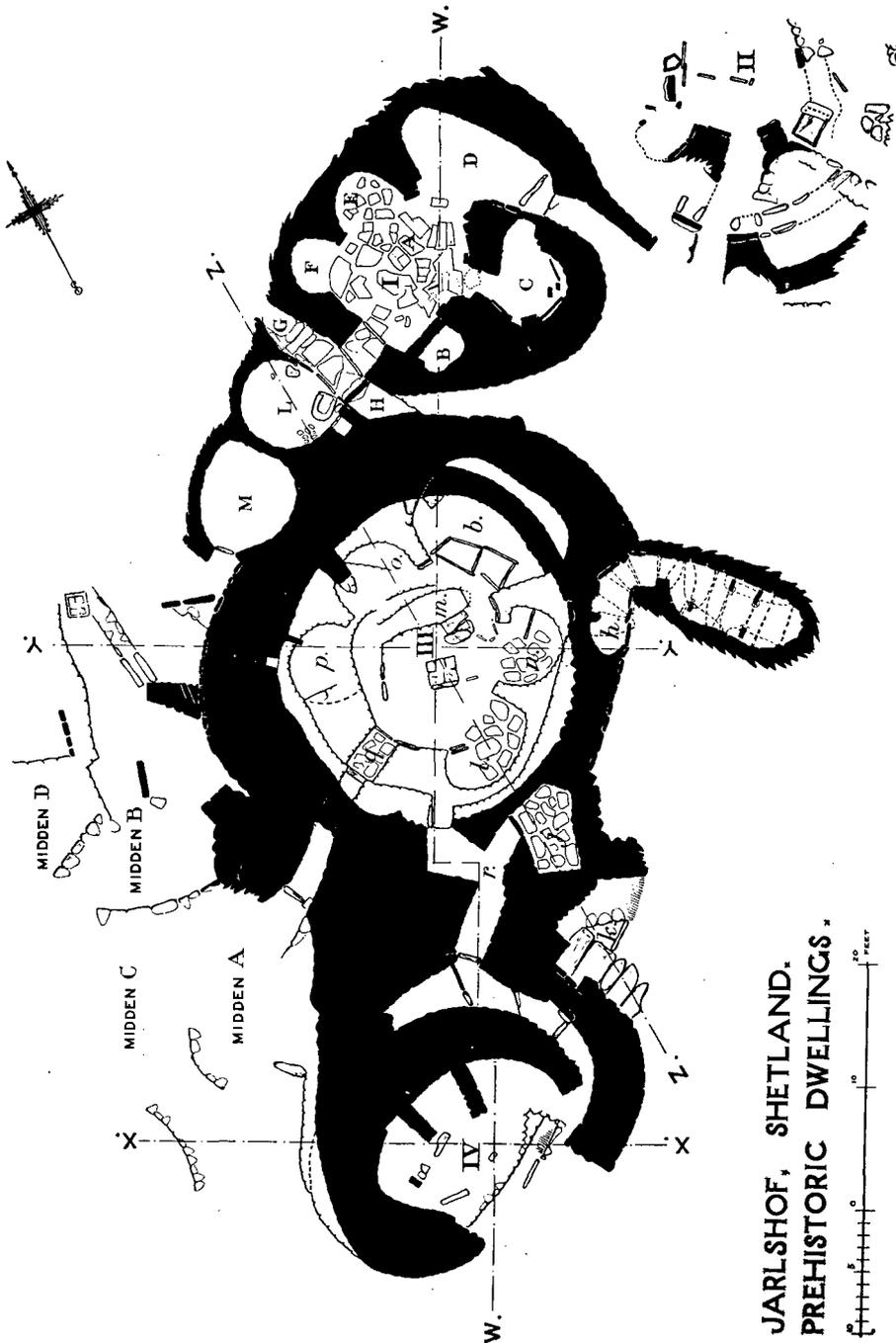
AN ACCOUNT OF FURTHER EXCAVATION AT JARLSHOF, SUMBURGH, SHETLAND, IN 1932 AND 1933, ON BEHALF OF H.M. OFFICE OF WORKS. BY ALEX. O. CURLE, C.V.O., F.S.A.Scot., F.S.A.

In the *Proceedings* of the Society, vol. lxxvii., for session 1932-3, a report was published on the completed excavation of a dwelling which was designated Dwelling No. i, but the report and consideration of the excavation of an adjacent dwelling, commenced in 1932 and designated No. ii, was left over until it in its turn would have been completed, as was anticipated, in the summer of last year.

In 1931, when exploring the secondary entrance into chamber D of Dwelling No. i, there was located an earlier wall passing beneath it, and on following up this clue in the summer of 1932 the remains of Dwelling No. ii were discovered lying to the eastward, and practically contiguous. When the sand and soil had been removed over an area measuring some 22 feet by 25 feet it was apparent that the remains, which lay at a level of 15.25 feet above Ordnance Datum, were very fragmentary, and as the greatest dilapidation had occurred towards the west and adjacent to Dwelling No. i, it seemed probable that the material had been utilised for that building.

The plan as revealed in 1932 did not show the full extent of the original structure, and accordingly at the commencement of last season's exploration a considerable area was uncovered to the eastward in the hope that additional remains, and in better preservation, would be revealed. In this we were grievously disappointed, for on the surface exposed practically no structure remained. Such stones as were revealed were merely lying on the surface with no suggestion of construction.

The plan, as far as recovered, showed a building differing somewhat from that of Dwelling No. i, but disclosing certain features in common. Though it revealed two periods of construction, the condition of the soil on the floor, and the relics from it, indicated that neither occupation had been of long duration. The original structure, represented almost entirely by a segment of wall towards the south-west, had apparently been circular. This wall was 2 feet in thickness, and built throughout without clay. The entrance through it from the south-west was 2 feet 6 inches wide, and had extended inwards for a distance of some 4 feet, being flanked on either side, apparently, by built piers, probably



JARLSHOF, SHETLAND.
PREHISTORIC DWELLINGS.

Fig. 1. Plan of Excavations as far as completed at the close of season 1933, prepared by H.M. Office of Works, Edinburgh.

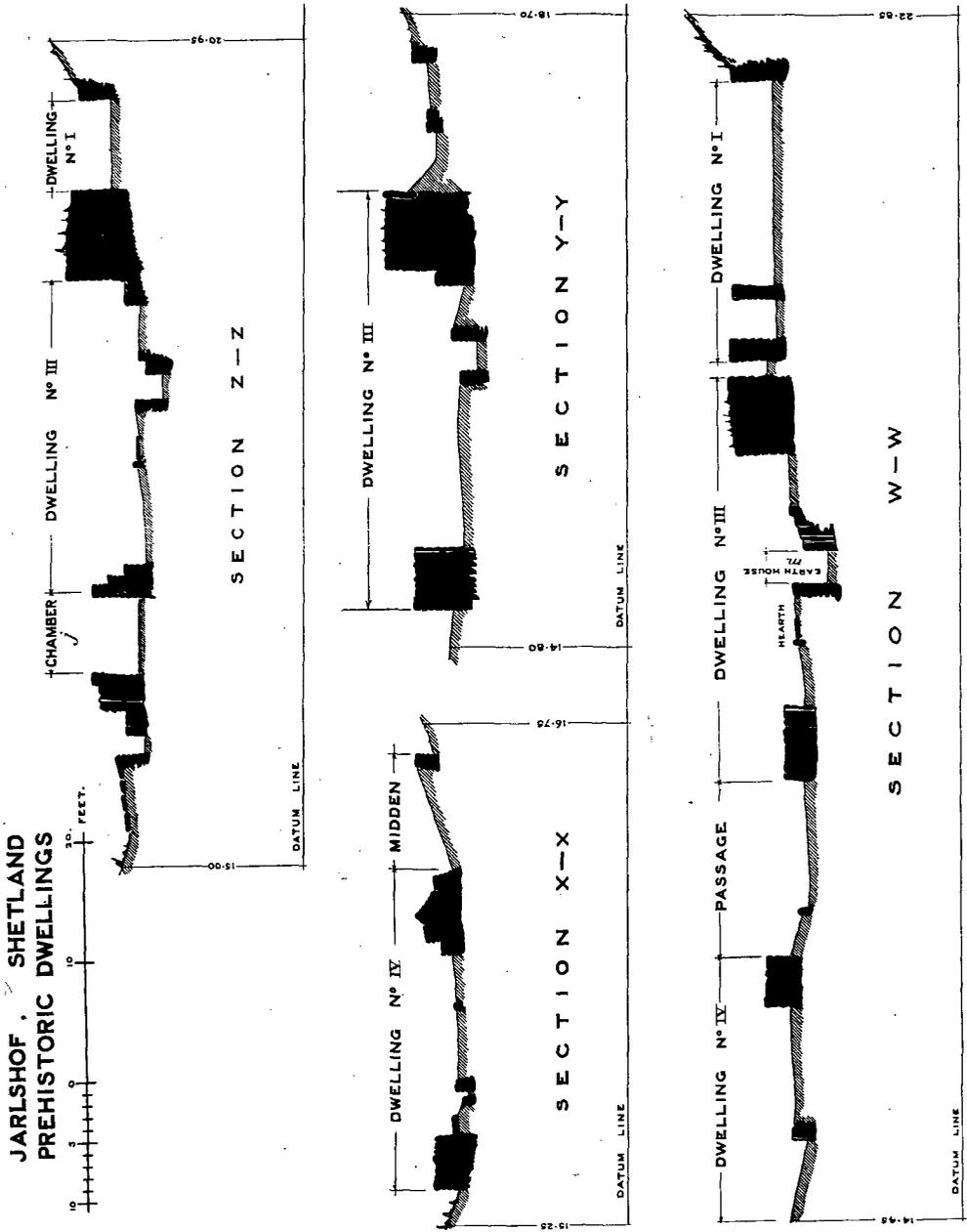


Fig. 1a. Sections relative to Plan, Fig. 1.

forming the ends of chambers. The floor of the passage consisted of sandy clay burned to a brick red. In what had probably been the centre of the dwelling was a large hearth, on two sides of which were kerbstones, indicating a rectangular enclosure. The original bed of this hearth had, like the floor of the passage, been formed of sandy clay burned to a brick red, while in the secondary occupation it had been paved.

The later construction, as will be seen from the plan (fig. 1), consisted



Fig. 2. View across Dwelling No. ii, showing the back Wall of Dwelling No. i on the right. The arrows indicate the positions of the Slate Boxes.

of an inner enclosure which had apparently followed a plan very similar to that of its predecessor, with divisional walls terminating in upright slabs springing from an outer wall of circumference 2 feet wide, formed largely of upright stones set on the outer and inner circumferences, with loose rubble between. The secondary character of the later wall was borne out by the fact that the upright stones forming the termination of the earlier wall, at right angles to the passage, were set in yellow clay placed there after their beds had been cut out of the red burnt floor. In general the work of the later builders was distinguished from that of their predecessors by the lavish use of yellow clay. The plan of the interior is very ill-defined, but there is an indication of an arrangement of large upright stones around the

hearth set at the apices of triangular blocks of masonry, which probably rested on the surrounding wall, and contained cells or chambers between them, as was seen in Dwelling No. i (fig. 2).



Fig. 3. Sherd of Pottery found in Slate Box.

the purpose of keeping it plastic.

On the opposite side of the hearth was another slate box, pentagonal in form, and measuring 2 feet in longest diameter by 1 foot 10 inches, by 1 foot 5 inches in depth. It was floored with yellow clay, and luted in the angles with similar material, while clay, which covered the outer faces, would, if desired, have rendered it water-tight. It was filled with debris, among which were a few shells of cockle and limpet. Sticking in one of the angles near the top was a sherd of coarse pottery (fig. 3) decorated with a zone of repeating chevrons between two impressed lines. A cleaver of slate, with a handle, measuring 10½ inches in length, was also found projecting from a break in one of the side slabs.

Slate artefacts, chiefly of a spatulate form, were of frequent occurrence on the floor of this dwelling, and as on the surface of one of these a lump of yellow clay was found adhering, it is suggested that such implements may have been employed for working with clay after the manner of the mason's trowel.

On the south-east half of the enclosure, adjacent to one of the piers, is situated a slate box, or tank, formed of large slates, measuring 2 feet 7 inches by 2 feet 2 inches, by 2 feet 6 inches deep, and partially covered at one end by another slate. Yellow clay lay on the floor of the tank and was present in the corners, while externally there were indications that the construction was set upon a bed of clay. At one end, towards the north-west, lay a deep irregular mass of this material, and lesser deposits lay in the vicinity, indicating that the tank had evidently been used to contain clay for

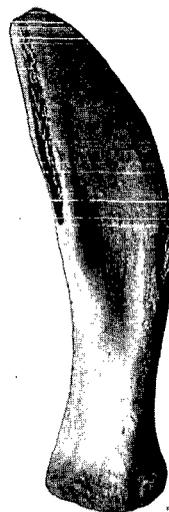


Fig. 4. Knife-like object of Bone.

Very little pottery and few animal bones were found on the site, and though no querns came to light one rubber was found. A knife-like object, 8 inches long, formed from the bone of an ox, was found below some debris (fig. 4). A midden, chiefly composed of shells, lay under the site towards the north-west at a depth of about $1\frac{1}{2}$ foot. A portion of this was examined and there was recovered a small fragment of a Shetland "knife" of polished obsidian, also a segment of a large vessel of steatite polished on both surfaces. A midden nearer the surface exposed on the north-west yielded a cylindrical bead of bone $1\frac{1}{4}$ inch in length by $\frac{1}{2}$ inch in diameter (fig. 31, No. 3).

In the course of the exploration of this site the stratum of blown sand which was found just above the foundation-level of Dwelling No. i, and passing across the front of the secondary entrance, was observed to be lying equally distributed over the whole of the area, the base of it at a height of $2\frac{1}{2}$ feet above the hearth-level with dark soil beneath, indicated that a long period of time must have elapsed between the abandonment of Dwelling No. ii and the period of construction and occupation of Dwelling No. i.

In removing the superincumbent material last summer with a view to reaching the floor-level of No. ii, at a depth of 3 feet below the surface, and at a height of 10 inches above the stratum of blown sand, an object of particular interest was recovered (fig. 5). This was a disc of fine-grained sandstone measuring 22 inches in diameter by $\frac{1}{2}$ inch in thickness, having incised on one face two of the symbols so frequently associated with early Christian monuments in the north-east of Scotland—those known as the "spectacle" and "flowering rod" symbols. The surfaces of the rim and of the reverse face are very smoothly polished. The symbols vary slightly from the usual representations in that the centre portion of the rod is placed at right angles to the two floriated ends and the discs are unornamented. The edge of the stone, on the upper or decorated face, is considerably chipped.

A disc of similar dimensions and character, bearing a design formed by a divergent spiral, was found in the course of the previous excavations carried out by the proprietor, and is illustrated in the *Proceedings*,



Fig. 5. Stone Disc ornamented with "Spectacle" and "Flowering Rod" Symbols. (3.)

vol. xli. p. 33, while another, not yet illustrated, bearing a somewhat indeterminate pattern, was also found while the broch and adjacent buildings at Jarlshof were being cleared up by H.M. Office of Works in 1925. Two other ornamented discs found on the Ness of Burgi at the end of the promontory of Skatness are illustrated in the *Proceedings*, vol. xvii. pp. 296 and 297.¹ Numerous discs of similar character and dimensions, but unornamented, have been found during the course of excavations around the site. One of these found in Mr Bruce's excavation is likewise chipped on the edge of one surface, and indentations on that surface suggest the possibility of some decoration having been chiselled off.

DWELLING NO. III.

Before proceeding to describe the excavation carried to completion on this dwelling in the summers of 1932 and 1933 it is desirable to refer again to the site of Jarlshof and to relate the indications of its early history revealed in the course of our exploration. The geographical position, a low promontory in a comparatively sheltered bay at the extreme southern end of Shetland, is such that, in early times, before regular trading-centres were established or safe anchorages discovered, almost every adventurer who had dared the passage from the south would land there, or in the neighbourhood. Therefore it is not surprising to find that at almost whatever level of occupation the excavation reaches there is an earlier one beneath in the character of a kitchen-midden. As related, such a midden lay below the remains of the earliest dwelling, No. ii. It was found beneath the earliest level in No. i, and it was met with last summer while searching for the outer wall of No. iii. No pottery has so far been recovered from this midden-level, so we cannot attribute it to any particular period of culture. But between the occupation represented by the kitchen-midden, and that accepted as the first period of Dwelling No. iii, there was another important occupation with numerous stone buildings very similar in character of construction to those that came after, and yielding pottery not found in the later level within Dwelling No. iii. This occupation presumably came to a sudden end with the advent of the builders of Dwelling No. iii, as the similarity of the floor-levels indicate a close connection in point of time.

The excavation of this site was commenced in the season of 1932 and was completed last summer, when there was also explored the ground to the south and west of it.

In attaining to the level treated as primary and shown as the ground-

¹ I am indebted to Mr Corrie of the Ancient Monuments Commission for calling my attention to the latter reference.

level on the plan and sections (figs. 1 and 1*a*), two, and possibly three levels of occupation were passed through, the second and later revealing occupations of a less permanent character. It has been deemed best, therefore, to commence this communication with an account of the principal period in the history of the dwelling, and to deal with its subsequent phases in chronological order.

The lowest level uncovered showed the remains of the first of the occupations above referred to with a fairly complete plan. Though this was not the earliest occupation of the site, as disturbed soil lay beneath its floor containing near the entrance a large saddle quern, it was deemed advisable to regard this level as primary and leave the structural remains undisturbed, as there was no evidence to show that any building connected with the still earlier occupation remained beneath. It was evident that this building was not the earliest not only by the disturbed soil below, but by the character of the remains to the south-west of it, to be hereafter described. The portion of an outer wall occurring in the periphery on the north-east probably also belonged to a previous construction on the site. This was exposed in 1932 at the inner end of cell H in Dwelling No. i, and was built with a very decided batter, thus differing from any other walling observed in the building. Its base lay 13.93 feet above Ordnance Datum, which is slightly lower than that of such other parts of the outer wall as are measurable.

Dwelling No. iii is approximately circular, measuring in the interior some 22 feet by 26 feet, with the longer axis from west to east. The outer wall, where such exists, is badly defined and of different periods. In certain directions apparently there had been no outer wall. Following the wall in a south-easterly direction for a length of some 15 feet from the early fragment above mentioned, it is noticeable that it is not in alignment, that it is formed of different material not all uniform, and that its foundation lies some 4 to 5 inches higher than that of the early portion. Along the south-eastern section for a length of 15 feet it is again of a different character, being distinguished on that part by a considerable use of upright stones in its construction and in its foundation. The next portion extending to about a quadrant of the circle is occupied, in the first place, by an area of ruins and reconstructions, against which the inner wall of the dwelling must have rested. Beyond that, forming the south-west quadrant, the inner wall appears to be revetted against a structureless mass of debris, containing among the stones, numerous fragments of pottery and other relics, evidently derived from the earlier occupation. On a section running from west to north, the periphery is merely marked by a row of large boulders resting on soil at a high level. The explanation appears to be that when the

builders of Dwelling No. iii arrived they found an existing settlement stretching seaward. This they completely overwhelmed, erected their own habitation on the site, and subsequently spread into previously unoccupied ground to the northward, as exemplified by Dwelling No. i.

The primary inner wall of Dwelling No. iii, formed of selected flat beach stones and built without pinnings, though much reduced in height, is still approximately complete. It shows a plan which conforms some-



Fig. 6. View of primary occupation level of Dwelling No. iii towards original entrance.

what closely to that of Dwelling No. i as far as excavated in 1931, that is to the eastward of the entrance passage G of the latter. Access has been by a passage *q* from the west, now of unascertainable length, but possibly some 10 feet long and 2 feet 6 inches wide, into a courtyard measuring 13 feet 9 inches or thereby in diameter, out of which there opened rounded chambers, two to right (*l* and *n* of plan) measuring respectively 8 feet 3 inches by 4 feet 3 inches, and 6 feet 3 inches by 5 feet, and two to left (*p* and *o*), *p* being incomplete and unmeasurable, while *o* measures 12 feet by 9 feet, with a larger chamber *b* at the back facing the entrance (fig. 6). Slightly to the south of the centre of the courtyard was a paved hearth, measuring 2 feet 6 inches square, with a single kerbstone rising at the south-west side, much reddened by the

action of fire, the surface of the hearth being at a level of 13·81 feet above Ordnance Datum. To the south-east of the hearth, and in alignment with the back of it, was an area, ill-defined, as it had evidently been disturbed in the formation of the earth-house *m*, to be described hereafter, and slightly sunk, now measuring some 12 by 14 inches. On the west and north sides of this area against the soil were some lumps of yellow clay, such as might have been used to maintain small upright slabs in position, and spread evenly over the floor, to a thickness of a $\frac{1}{4}$ to $\frac{1}{2}$ inch, was a thin bed of the same material. On this lay horizontally much carbonised wood to a depth of $\frac{1}{4}$ to $\frac{1}{2}$ inch, among which were one or two pieces of an unused sword mould. The natural condition of the clay showed that no burning had taken place on the spot. Specimens of the charcoal were removed for examination, and as it has now been ascertained that they represent various varieties of timber—oak, Scots pine, hazel, willow, and poplar or birch—it seems likely that there was here a store of charcoal to be used in the process of smelting.¹ To the north-west of the hearth a group of stones thrust vertically into the ground marked the position of a post-hole probably of the second level, beneath which was much carbonised wood disintegrated, evidently the remains of a post some 8 inches in diameter.

To either side of the entrance passage at its inner end, there seems to have been a pier of masonry, measuring some 4 to 6 feet across, separating it from the first of the lateral chambers on either side. The chambers *l* to *p* shown on the plan have been built into the wall, and are separated by radial piers faced with upright slabs, in exactly the same manner as in Dwelling No. i, and in the buildings adjacent to the neighbouring broch, and of subsequent date. The pier on the north-east side of chamber *n* terminates with a projection towards the south-west, and in rear of it a slab set on edge against the wall forms a recess about 1 foot 9 inches wide and a little over 1 foot deep. A single stone projected at right angles from the corner nearest the entrance of chamber *l*, behind which lay a collection of ten stone implements (fig. 7) varying from $7\frac{1}{2}$ inches to 1 foot in length, and lying in orderly arrangement, which seemed to indicate that here also there had been a recess or ambry. Scattered over the floor of this chamber were some thirty implements of slate or stone, and in the east end a barrow-load of cobble-stones, pebbles from the beach, round and oval, such as could be easily held in the hollow of the hand. The entrance passage was flagged, as also were the floors of *l* and *n* (fig. 8). The floor of *p*, on the other hand,

¹ I am much indebted to Mr M. Y. Orr of the Royal Botanic Garden for examining and reporting on this charcoal.

was formed of yellow clay, while that of *o* was covered with a thin layer of yellow peat ash, and had been much disturbed. The floor of *b* was the natural sand, and it is noteworthy that the floor of the chamber occupying a similar position in Dwelling No. *i* was also unpaved.

The history of chamber *b* is very obscure. Occupying the opening into it, between the two piers, there are sunk in the floor two slate boxes in alignment, formed with slabs on each side and end, and with a single septal slab between them (fig. 9). They measured respectively 2 feet

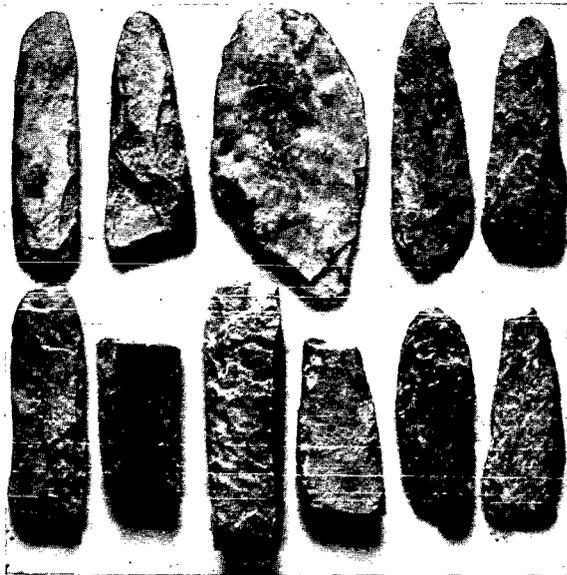


Fig. 7. Collection of Stone Implements found together in Chamber *l*. ($\frac{1}{3}$.)

3 inches by 2 feet, by 1 foot 4 inches deep, and 2 feet 5 inches by 2 feet, by 1 foot deep, and were almost entirely filled with sand and food refuse, chiefly animal bones. From these boxes were recovered two pieces of a clay mould for a sword, unused, and the pouring gate for a similar mould almost complete, illustrated on p. 282, fig. 49. As these practically closed the entrance they can only have been placed there subsequent to the abandonment of the chamber. Originally the chamber had a breadth of 12 feet 6 inches, and a depth from front to back of 9 feet 6 inches, but subsequently a reducing wall was constructed diminishing the size of the chamber to 11 feet 6 inches by 6 feet. The general character of the material used in this wall differs from that in the other chambers, in that the stones are larger—

nor is the building quite so neat. Its position, however, and the level of its foundation, point to it having been constructed during the early period of occupation.

Fig. 10 shows the northern half of the dwelling, chambers *o* and *p*, with the later building at the back of them.

The relics found on the floor of this early occupation were numerous,

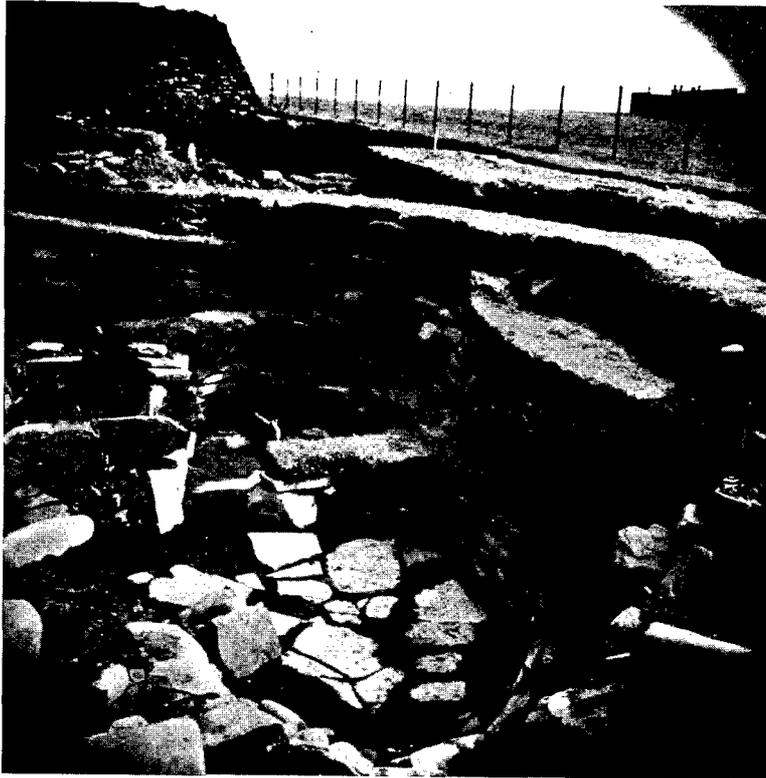


Fig. 8. Chambers *l* and *n* showing paved Floor of the former.

and will be particularly detailed hereafter. They included various pieces of clay moulds, used and unused, for casting swords; saw-edged objects of slate; implements of stone of the Shetland type; and chisels of bone fashioned with a socket in the process-end after the form of the bone tools from the Maglemos in Denmark. The pottery was, for the most part, straight-sided with simple rims, burned brick red, and made without steatite in the body. Scrapers of quartz were of frequent occurrence, and from the floor of *p* came seven large cores of quartz, weighing in all from 20 to 30 lbs.

At the close of this occupation a considerable period seems to have elapsed during which the building fell into ruins, as the next occupants of the site disregarded for the most part the plan of their predecessors. When they entered into possession they reduced the walls around the chambers to a general height of about 18 inches, abandoned the entrance, laid a sill across it at the new level, restricted it in breadth and made it the approach to a large midden (Midden A) to the westward. A new



Fig. 9. Slate Boxes in Floor of Chamber *b*,

entrance was formed (*r* on plan) towards the south-west, passing over an existing wall in which there had originally been an opening subsequently blocked by three flagstones set parallel in the direction of the wall. On the right or north-west side a wall had been constructed against the mass of debris which occurred at this place, with a short return to the southward, where this secondary passage led into a passage belonging to the pre-existing settlement, to be dealt with later on (fig. 11). The original entrance passage *q* was at its inner end levelled up with paving flags to the height of the inserted sill. A new inner wall was erected above and behind the face of the earlier wall, as may be seen in fig. 6. With this occupation the building appears to have been converted from a dwelling-house to a workshop. A large hearth was

constructed in the centre of the courtyard with a slab set upright at the south side to act as a fireback. This, when found, was lying displaced. To the north-west of the hearth had been the post-hole mentioned above, and at three different places on the north and east sides of the hearth pebbles were noticed placed upright in the ground as if marking the sites of other post-holes. Conceivably this was the



Fig. 10. The northern half of the Dwelling Chamber *o* and *p*, with later Walls above.

remains of some arrangement for erecting a screen of hides to shelter the fire. Beside the hearth was found in that position—an inverted quern. The south-eastern arc over the sites of chambers *l* and *n* appears to have been abandoned as no structural remains of other chambers were found there, while on the opposite side large slabs set on end were employed for the main portion of walls erected to form small cubicle-like chambers above *p* and *o* (fig. 12).

Enclosing the hearth on two sides, north-east and north, an underground chamber (*m* on plan) had been formed during this occupation, but its condition indicated that it had not been long in use. It had been entered from the vicinity of the exit to the Midden A, and from

the outer end of the existing remains extended inwards for a distance of 13 feet 9 inches. The floor-level at its commencement lay 13.93 feet above Ordnance Datum, and descending by steps it fell to 10.99 feet. From a width of 1 foot 3 inches at the opening it expanded at a distance of 5 feet 6 inches to a width of 2 feet 6 inches, where an intake on the left probably formed the check of a door. Thereafter, turning to the right the actual chamber was formed, expanding to 2 feet 6 inches



Fig. 11. Entrance of Second Occupation with Passage Wall on right.

at its greatest width, and narrowing to a point at its termination. At the inner end a shallow recess on the right extended southward to a depth of 2 feet 6 inches. The walls were constructed of coursed masonry, rather small thin stones being used, as shown in fig. 13. When discovered only the terminal cover remained in position over the main chamber, and three over the short southward projection. On the former three covers were lying displaced, while all the others had been removed. The facts that the end covers actually rose above the floor-level of the earliest hearth, and that the wall on the north-west closed the front of the early chamber *p* indicated clearly the secondary character of this construction. There was hardly any discoloration on the sand

which formed the floor to show that the chamber had been occupied, and there were very few animal bones, and no other relics with the exception of a small worked fragment of bone found upon it. In clearing out the sand, however, which filled the chamber, several relics were found at various depths. At a depth of 2 feet 6 inches beneath



Fig. 12. Remains of orthostatic Construction of Second Occupation over Chamber *p*.

the remaining lintel a small bronze pendant consisting of an oblong plate with one end turned over to form a loop was found (fig. 42, No. 1), also fragments of the rims of two pots with finger-mark impressions on the top (fig. 54, Nos. 8 and 9). From the upcast further sherds of the last-mentioned ware were recovered, and, *inter alia*, a piece of the outer envelope of a mould.

The discovery of this souterrain raises the question of the use of a small chamber found in 1932. This construction was situated above the original entrance (*g* on plan) exactly in line with the commencement, as remaining, of the souterrain. It consisted of a small quadrangular

chamber formed of flags, measuring 3 feet 2 inches long by 2 feet 4 inches wide, and was entered by an opening 1 foot square.

This opening, if of its original dimensions, seems too restricted for human use, diminutive though such entrances frequently are.¹

The peat that was used at this period gave a brilliant coloured ash in contradistinction to the yellow ash yielded by the fuel of the subsequent period, and was spread to a depth of many inches over the



Fig. 13. Earth-house *m* in right foreground.

whole floor of the central court. Numerous relics were found, including awls, chisels, and kindred objects of bone, also fragments of clay moulds. Sherds of pottery were recovered having a well-defined hollow beneath the rim, and it is noteworthy that no pottery of this class was found in the adjacent Dwelling No. *i* excavated in 1932. The most notable find which could be attributed to this level of occupation was the section of a completed mould, which had evidently not been used, for casting a bronze sword, described on p. 281, and illustrated in fig. 48.

The third occupation of this site followed fairly closely at a higher level the plan of its predecessor. The dwelling continued probably to be used as a workshop. A large circular hearth (fig. 14), measuring 5 feet 6 inches by 4 feet 6 inches, was constructed in the centre, formed

¹ See Hencken, *Cornwall and Scilly (passim)*.

with a bed of gravel 4 inches deep covered with clay, backed with a large slab set up on end with a narrower one flanking it, and outlined with stones. The peat consumed on it, which had accumulated to a depth of 1 foot 8 inches, almost to the top of the fire-back, produced a buff-coloured ash, and was spread over the whole area. Cubicle-like chambers were constructed along the west and north arcs, the area occupied by



Fig. 14. Third Occupation-level showing Central Hearth.

p and *o* on the ground plan and the masonry between them being covered with three of these chambers *c*, *e*, and *f* (fig. 15). The walls were roughly constructed, as in the level immediately below, with upright slabs and horizontal building. Though a hearth was found in each, except in the case of *f*, the most westerly, it is doubtful if they were used as dwelling-places. Chamber *f* differed somewhat from the other chambers of this period, being formed between the inner face of the main wall and a solid four-sided block of masonry measuring some 4 feet 6 inches by 3 feet 9 inches. The purpose of such a heavy pier of masonry at this

place is not explained by any existing remains. At the inner end of *f*, at that point some 2 feet wide, there was a hearth, and in the face of the main wall a well-constructed ambry, measuring 1 foot 2 inches by 1 foot 5 inches, by 1 foot 2 inches deep, formed with slabs. Within this were found the two lower jaw bones of a pig and other bones.

In the central area, to the south of the large slab forming a fire-back,



Fig. 15. Third Occupation-level. Chambers *c*, *e*, and *f* on the Northern Arc.

was discovered a curious construction formed of flagstones set on end in shape of a triangle, and lining a hollow measuring 4 feet 3 inches in length, and 2 feet 3 inches across at greatest width. The flags probably rested originally on a paved floor represented by a mere scarcement. Beneath this level the soil was burnt to a brick-red colour, suggesting the use of the construction as a furnace, or possibly a kiln. Towards the north-east there had probably been an inner section, as the hollow extended in that direction, with the soil burnt on the floor of it to a like colour; but only one slab remained, and that placed obliquely on the

west side (fig. 16). From the south-west angle an air duct or flue passed through an opening, measuring 16 inches by 14 inches, seaward for a distance of 6 feet, covered with heavy lintels, two and three above one another, beyond which it was entirely broken down. This flue occupied the upper portion of the entrance passage utilised during the second period. It measured, as far as ascertainable, 12 inches by 10 inches.

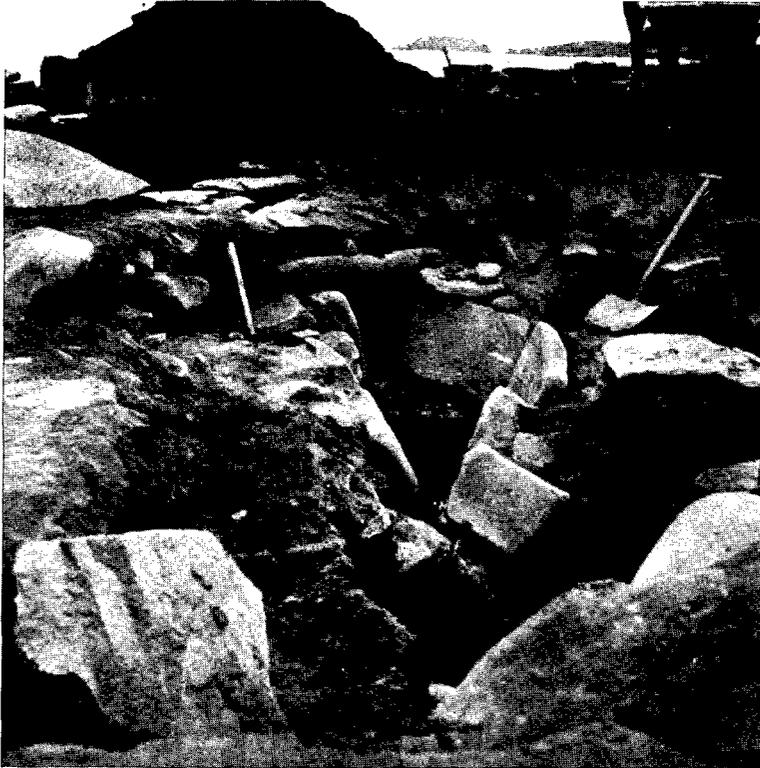


Fig. 16. Triangular Construction to the South of the Hearth in the Third Occupation-level.

Some calcined animal bones and ash, bright red from burning, were found on the floor.

Querns and rubbing-stones were found in two of the chambers and in the central area, lying inverted. No grain was seen anywhere in the building, and as traces of clay were found on the surface of one of these querns, and of one found later on in a midden, it is probable that they were used for levigating clay in connection with the manufacture of pottery as well as for grinding grain.

The wall on the northern arc towards the interior, against which chambers *c* and *e* were formed, had been reconstructed at a late date with material which differed from that used in the adjacent wall of *f*, and appears to be merely a facing wall against an earlier construction behind. Much yellow clay had been used as mortar between the stones, as can be seen in fig. 17. It is noteworthy that in a partition projecting



Fig. 17. Section of Wall of Chamber *e* showing use of Clay Mortar.

from this wall to divide chambers *c* and *e* a number of small, flat, unbroken pebbles have been used as pinnings, differing in this respect from such pinnings used in brochs, which are invariably broken pieces of stone. This is the only part of the building in which pinnings have been used.

When this third occupation occurred the encircling wall was built across the exit to the midden, the builders being evidently unaware of the gap in the wall beneath, with the result that a serious settlement took place. In fig. 13, p. 240, may be seen at base the original entrance; above the sill of the later exit to the midden; and higher up the settled wall.

No actual entrance into the construction referable to this occupation was discovered. The entrance and passage of the second occupation was closed and blocked with the flue from the furnace, as mentioned above, and it can only be surmised that the building being in use at this stage of its history merely as a workshop, the entrance to it was open and unprotected across the former wall-heads on the south-east.

During the period under consideration a souterrain was constructed on



Fig. 18. Remains of Wall in front of the Entrance to the Souterrain *h*.

the eastern arc with its entrance above chamber *n* of the first occupation (*h* on plan, fig. 1).

The existence of a chamber, still roofed, was ascertained in 1932, but as it was undesirable to break into it by destroying the structure, the excavation around was proceeded with in the expectation that a normal line of access would be met with. The roof formed of heavy flags laid transversely to the direction of the wall of the main dwelling was uncovered, and towards the interior a fragment of a wall was exposed on which rested one end of a flagstone, the other end of which had possibly extended to the roof (fig. 18). Behind this, beneath a heavy lintel just discernible at the end of the flagstone in the foregoing figure, was found a stone door in position with stone wedges inserted

at the sides. A flat slab, partially covering it at base, lay against it, while in front, supporting it, lay three large boulders, two below and one above, pressing against the door (fig. 19). As may be seen in the illustration, the stones in the wall to the left of the doorway are bedded in a mass of yellow clay, and the debris lying against this wall indicated that it had not originally been exposed. In all probability, therefore, a covered passage led to the door and terminated there. The facing wall of the



Fig. 19. Entrance to Souterrain *h*.

second period had been partially demolished, and an excavation made in the thickness of the wall behind for the formation of a stair, and to a considerable depth into the undisturbed soil beyond for the chamber. Fig. 20 shows in the centre, at the edge of the darker material, the line of the cutting made through the natural deposit of sand, and the subsequent filling of soil and stones above the roof of the earth-house.

As it was obviously undesirable to disturb the door, so closed when the last occupants departed, access was obtained through the roof, where the end cover had been previously displaced. A passage 2 feet 6 inches in width, and furnished with rude steps, led down for 7 feet, and then

turning sharply to the right gave access through a portal, formed by an intake on the right, to a chamber 11 feet long, 4 feet 6 inches wide, and 3 feet high. The walls were constructed with upright slabs surmounted by horizontal building, the whole covered with large flags supported partly on the wall-heads, and partly on upright pillars set in the floor, projecting at right angles from the side walls (fig. 21). The floor was the natural sand discoloured by occupation. On it were found a bucketful and a half of animal bones, mostly broken for extraction of the marrow,

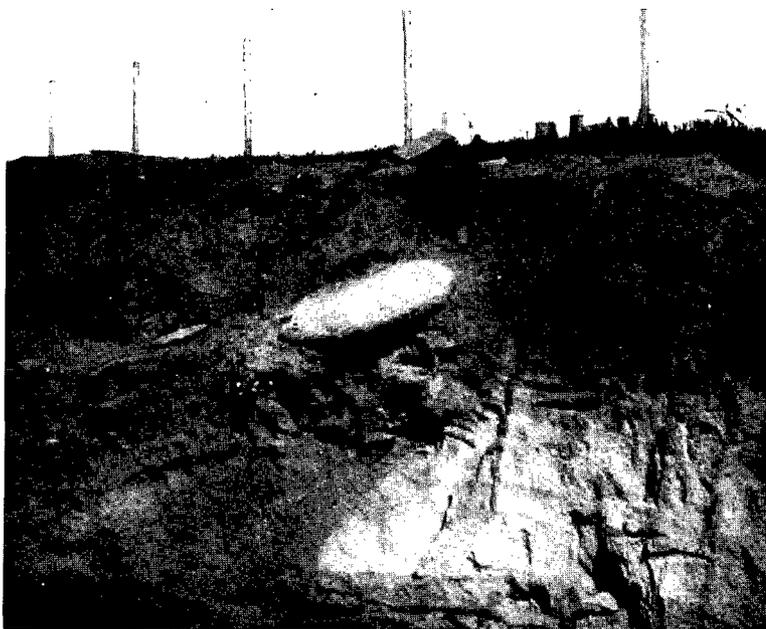


Fig. 20. Showing line of Excavation through the Natural Soil in formation of the Earth-house.

a number of fragments of different pots, eighteen hammer-stones (pebbles abraded at one or both ends), and seventeen pebbles in their natural condition, such as were probably brought into the chamber for the purpose of fracturing the bones. The only objects of peculiar interest were five *astragali* of oxen (fig. 37)—four of which were pierced through transversely, the other having the perforation only through one wall—and a small specimen of iron slag from a bloomery.

From this third occupation-level of Dwelling No. iii there came pottery of varied character, including a polished black ware with a cavetto beneath the rim, and whorls for spinning not found in the earlier levels. But conspicuous by their absence were pieces of clay moulds,

scrapers of quartz, and artefacts of slate, so common in the earlier levels.

The evidence of the fourth occupation was slight, and confined chiefly to a rudely built wall over the latest peat-ash deposit across the front of *b* on the east side of the central court.

In carrying the exploration beyond Dwelling No. iii to the southward conditions were found to be greatly disturbed. The chamber *j* (see plan, fig. 1) immediately to the south of *l*, had evidently belonged to the period that preceded the construction of Dwelling No. iii, as the wall that separated



Fig. 21. View of Interior of Earth-house *h*. (The white support in the centre is not a part of the original construction.)

the chambers had obviously been constructed against the material with which *j* was filled. A passage, blocked up, had led into it from the west. The floor was paved and lay at a level 13.85 feet above Ordnance Datum and some 6 inches above that of *l*. That the filling of this chamber had been effected at an early period was evident from the relics found within it. Numerous pieces of moulds, and sherds of pottery (fragments of straight-sided vessels, with and without a bead rim, and with no steatite in the body), comparable with pottery found elsewhere and referable to an early period, came from the blocked passage and the filling. To the south of *j* a triangular portion of the paved floor of a chamber, *k*, was exposed at 13.37 feet above Ordnance Datum, which, as well as an area to the west of it, had been covered with a layer of heavy flags, part

of some late structure. The pottery found in the lower part of this chamber indicated that its occupation had been contemporaneous with that of *j*.

From the blocked entrance to *j* a passage led in a west-south-westerly direction for a distance of 11 feet 6 inches, with a paved floor at level of 12·49 feet above Ordnance Datum. To the northward a



Fig. 22. The Main Passage showing Paving, Blocking above it and Flue on top.

branch in the second period had formed the access to the centre of Dwelling No. iii, having evidently served some previous purpose, as the actual entrance to Dwelling No. iii passed over the base of a wall 1 foot 6 inches above the floor-level of the passage, as previously mentioned. Along the line of this branch the flue from the furnace of the third occupation had been carried, passing over the top of large stones employed to block the main passage (fig. 22). Over the area on either side of the passage there is an accumulation of debris, with here and there a short length of walling, giving no clue to its original purpose.

At a distance of some 12 feet from its original end in *j*, the passage is blocked by a large flag set on edge, beyond which it bifurcates to left and right. The right corridor, also blocked at its commencement, terminated in the back portion of a small early chamber with the remains of a bee-hive roof. As shown in the illustration (fig. 23), this corridor is faced on the north side by a wall of later construction. The corridor



Fig. 23. The Right Corridor of the Passage showing facing Wall of later construction.

to the left, as may be seen on the plan (fig. 1), is also blocked at two points and at different levels. The level in front of the first block, 12.25 feet above Ordnance Datum, being apparently the original ground-level.

From a consideration of the levels and the finds it seems probable that the people who constructed Dwelling No. iii in its first period, overthrew, on their arrival, a settlement already existing on the site, and proceeded at once to construct on a part of it a fresh habitation for their own use. The area to the south-west of it, between Dwelling

No. iv and the middens to be afterwards described, is covered with many feet of debris.

This previous occupation does not appear to have extended as far as the ground occupied by Dwelling No. i, as there was no evidence on that site of a pre-existing building, and the plan of it, as well as the finds



Fig. 24. Cist-like arrangement of Slabs found above Dwelling No. iv.

recovered, present close analogies to those of Dwelling No. iii in its first period.

The continuous wall of both corridors to the south was the outer face of the wall of an incomplete building, referred to as Dwelling No. iv.

DWELLING NO. IV.

In clearing away the soil overlying Dwelling No. iv a cist-like arrangement formed of four upright slabs and a slab on the floor was uncovered, oriented east and west. It measured 19 inches and 20 $\frac{3}{4}$ inches along each side, 15 $\frac{1}{2}$ inches and 10 $\frac{1}{2}$ inches across the ends, and 6 inches in depth.

It contained neither ashes nor remains of any sort, and its purpose accordingly remains undetermined (fig. 24).

In opening out the dwelling, when the wall was uncovered from beneath the masses of debris which overlay the whole area, it was evident that it had been subjected to various alterations. It had an average width of from 5 to 6 feet and took the form of a horse-shoe, open towards the south-east. Before reaching the floor-level shown on the



Fig. 25. Chamber above the Wall of Dwelling No. iv showing the opening from the West.

plan, a curious chamber formed of flags was uncovered (figs. 25 and 26) opening to the west. It was formed of flags set on edge and covered with slabs. An opening 10 inches square occurred near the top of the remains of the outer wall of the dwelling towards the west, behind which, dipping downwards, the chamber extended inwards for a length of 5 feet 3 inches, with an average breadth of 1 foot 4 inches, and height of from 12 to 18 inches. It was obviously late, and more resembled a dog-kennel than anything else, but there were no relics nor indications of its purpose found within it.

When Dwelling No. iv was uncovered to the floor-level it was found to consist of two small chambers separated by a radial pier of masonry,

while a similar pier cut off the most easterly chamber from ground on the east filled up in an earlier occupation (fig. 27). The soil beneath this floor-level was much disturbed, and there was no doubt that the remains of this dwelling belonged to a late occupation, but as they presented some analogy to the late structural remains of Dwelling No. iii which had been removed, it was considered desirable to leave them undisturbed.



Fig. 26. Chamber above the Wall of Dwelling No. iv from the East, with Roofing Flags removed.

The wall on the east had been sunk through a deep deposit of peat ash which lay also below it, and much peat ash was deposited over the floor. Possibly this dwelling in its later stages had also been used as a workshop, and the incomplete circle of its enclosing wall towards the south suggests a similar condition occurring as in Dwelling No. iii during its later period, no entrance being referable to that period, and no chambers erected on that arc.

A study of the plan (fig. 1) indicates the amount of reconstruction

that has taken place on the site and in its immediate neighbourhood. The enclosing wall shows several lines of reconstruction towards the west, while across the front or south section are two walls, shown at the east side, facing in opposite directions and of different periods, both, however, of earlier date than the outer wall of the main building.

In a hole dug below the floor within the eastmost chamber the



Fig. 27. View of Dwelling No. iv as excavated.

soil was found to be black and greasy, and from it were recovered the end of a heavy stone club, pieces of two others, an awl of bone, and part of a slate saw. Just beneath the floor-level of the west chamber there was found the remains of a large pot crushed in the soil with the stone lid resting upon it.

The relics found in clearing Dwelling No. iv to floor-level included several awls of bone and scraper-like tools of the same material. Relics such as were recovered from the earlier periods of Dwellings No. i and No. iii were absent.

MIDDENS.

The area to the north of Dwelling No. iv, as far as explored, was almost entirely occupied by middens. Four of these that covered fairly determinable areas were designated Middens A, B, C, and D.

Midden A.—This midden was clearly referable to the earlier occupations of Dwelling No. iii, as it was placed at the end of the passage leading from the dwelling during these occupations, at a distance of 11 feet 6 inches from the inner end. Further, as the exit to it was closed in the later occupation its use had evidently been confined to the earlier period. The actual entrance to the midden during the second occupation was marked by a sill across the passage and a portal, while the outline towards the south and west was rudely defined by a loosely built wall in the former case, and large pointed stones merely laid on the surface in the latter.

It was some 2 to 3 feet deep, and contained large quantities of limpet-shells lying in blackened soil, and a certain number of animal bones, chiefly of oxen. Cockle-shells were rare, and only one fish bone was found. Chisels and pins of bone, pieces of sword moulds, a fragment of a crucible, and the usual stone axes and clubs of Shetland type were also found. In the bottom of the midden near its centre lay two broken querns, one of them of unusual size with a trough 9 inches in depth.

Midden B.—This midden lay immediately to the north of Midden A, from which it was separated by a line of boulders laid on the surface. Two upright stones on the north side, 3 feet apart, appeared to mark the entrance from some habitation in that direction. The material forming the midden was similar to that found in the others, and the relics recovered included pieces of clay moulds, quartz scrapers, stone axes, and clubs.

In addition to these, however, there was one find of peculiar interest, namely, the skeleton of a dog which had resembled in size a terrier (fig. 28). It lay directly in front of the assumed entrance, where its presence was fortunately revealed before disturbance by the chance exposure of a jaw. Its position was at a level of 16·93 feet above Ordnance Datum, and an examination of the sand and soil in the immediate environment showed clearly that it was upon a contemporary surface and that it was not a secondary interment. The posture of the skeleton suggested that the animal had lain down on its side naturally, with its limbs stretched out, and died in the midden where its remains were found. The bones were carefully cleared of soil, and after a measured drawing¹

¹ I was indebted to Mr James Richardson, the Inspector of Ancient Monuments, for making the measured drawing.

had been made and the skeleton photographed, it was dismembered and forwarded for examination to the Royal Scottish Museum.¹

Midden C.—This midden, whose limits were not clearly defined, lay beneath a bed of sand some 4 to 5 feet in depth, and to the west of Midden A. A very large quern lay on the edge of it, the rubber of which was found nearby. It produced as relics numerous heavy stone clubs, objects of bone, slate tools, quartz scrapers, and rims of pottery refer-



Fig. 28. Skeleton of Dog found in Midden B.

able to the earliest occupation of the site. The food remains were similar to those found elsewhere.

Between it and the seashore there are probably more midden deposits covered by a considerable depth of sand, and as this had had an unimpeded access to the area it was held to indicate the absence of any structural remains beneath.

Midden D covered an indefinite area to the north of Midden C, and produced relics of an early date. Upon it was uncovered the site of a quartz-knapper's operations. Alongside two anvil stones on which he had rested the cores of quartz while striking them, lay his hammerstone indented with the blows, and lying around were the cores, chips, and two or three finished artefacts of quartz (fig. 29).

¹ A description of the skeleton is contained in a Report on the animal bones by Miss Margery I. Platt, M.Sc., forming an Appendix to this communication.

To the north-west of Dwelling No. iii, ground was uncovered on which sundry indefinite remains of structure were laid bare which may be explainable when further excavation has been carried out in this direction.

Before ceasing work for the season a commencement was made of clearing off the soil above the building discovered in 1932 at the north end of the original passage into Dwelling No. i. A considerable amount of the wall-head was exposed, showing that the building is in a fair state of preservation and not encumbered with ruins and debris.



Fig. 29. Site of a Quartz-Knapper's operations.

Just before leaving a series of exploratory pits were dug in the meadow to the northward of the fenced-in area, and structural remains, which seemed to be of prehistoric character, were revealed in a number of them.

The relics actually registered during the course of the season's work numbered over six hundred, while nearly one thousand were noted.

OBSERVATIONS ON THE RELICS.

ANVIL STONES.

Three anvil stones—pebbles with pitted depressions on the surface—were found in addition to the two that lay among the quartz-knapper's

material already referred to. One from chamber *n*, Dwelling No. iii, consisted of one-half of a flat round stone fractured across the centre. Another was a flat round stone, $3\frac{1}{2}$ inches in diameter, with the pittings on the flat surface, and was found outside Dwelling No. iv. The third was one-half of an oblong pebble with the depression along the upper surface, and was found in the corridor.

ARMLETS.

Nine segments of armlets of polished steatite or other material were recovered and are illustrated in fig. 30. They appear to have been

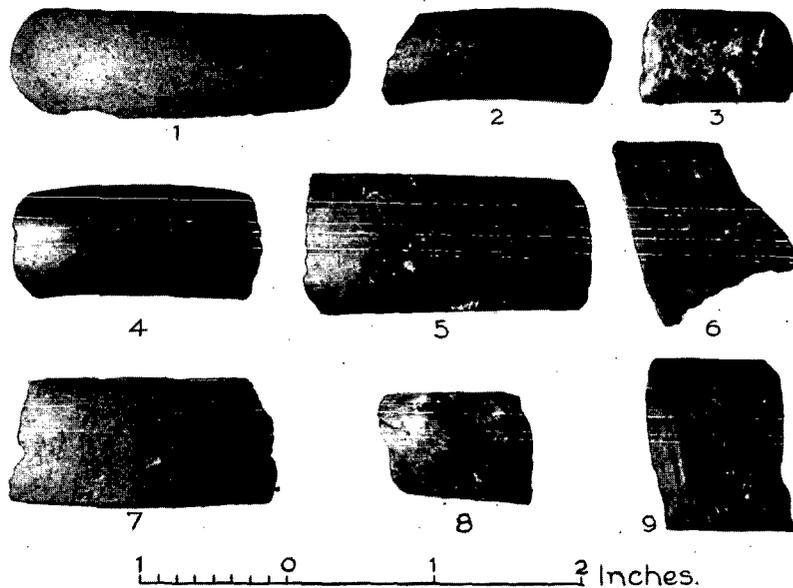


Fig. 30. Segments of Armlets.

of two types—broad and pointed oval in section, or comparatively narrow and only slightly convex on the inner surface. Of the former there were only two examples, both of dark green material, highly polished and measuring about $1\frac{1}{4}$ inch in breadth. They were referable to the third or latest occupation of Dwelling No. iii. The narrower specimens were of varying colour and quality of material, and measured about $\frac{3}{4}$ inch in breadth. They appeared to be referable to the second as well as to the third period of occupation.

No. 1 is a segment of grey-green steatite, $\frac{11}{16}$ inch broad; found in Dwelling No. iv.

No. 2 is a segment of dark green steatite, plano-convex in section, $\frac{7}{8}$ inch broad; found in opening out Dwelling No. iii at a level 18.25 above Ordnance Datum.

No. 3 is a segment of polished steatite, grey mottled black, $\frac{5}{8}$ inch broad and rather thin; found at the side of the earth-house *m* in Dwelling No. iii.

No. 4 is a segment of dark green steatite, slightly convex on the inner surface, $\frac{3}{4}$ inch broad; found in Dwelling No. iii at about level 15.53 above Ordnance Datum.

No. 5 is a segment of polished, mottled dark green steatite, $\frac{5}{8}$ inch broad; found at the level of latest occupation in chamber *d*, Dwelling No. iii.

No. 6 is a small segment of dark green material, highly polished on the exterior, pointed oval in section, measuring $1\frac{5}{8}$ inch in breadth but imperfect at one edge; found in clearing off surface soil south-west of Dwelling No. iii, at 18 inches below the surface.

No. 7 is a segment of grey coloured steatite, plano-convex in section, $\frac{13}{16}$ inch broad; found at the same level as the last.

No. 8 is a segment of polished steatite of the same form as the last, $\frac{11}{16}$ inch broad; found in clearing out earth-house *m*.

No. 9 is a segment of an armlet of dark green steatite, highly polished on the outer surface, measuring $1\frac{3}{8}$ inch in breadth, pointed oval in section; found to the west of the third occupation hearth in Dwelling No. iii.

BEADS OR PENDANTS.

Eight beads, or pendants, were found, fashioned from steatite or bone, six of the former material and two of the latter. All are illustrated in fig. 31.

A cylindrical bead of bone (fig. 31, No. 3) measuring $1\frac{1}{4}$ inch in length by $\frac{1}{2}$ inch in diameter was found in the portion of the shell midden examined to the north-west of Dwelling No. ii, lying below the floor-level of that site and consequently earlier than any of the other relics.

No. 4 shows the other bead or pendant of bone. It is an object, quadrangular in section, measuring $\frac{15}{16}$ inch by $\frac{7}{16}$ inch by $\frac{1}{4}$ inch, pierced transversely towards one end. It was found in the earth-house *h*, and belongs, therefore, to the third occupation of Dwelling No. iii.

No. 5 is a bead, or possibly a pendant, of polished steatite, in form a flattened sphere, measuring $\frac{3}{4}$ inch in diameter and pierced from both surfaces, with a notch to one side as if the object had been suspended as a pendant. It was found in clearing out earth-house *m*, and so belongs to the second occupation of Dwelling No. iii.

No. 6 is an unpolished bead of steatite, $\frac{7}{8}$ inch in thickness, with a cylindrical perforation. It was found in the neighbourhood of Midden D.

No. 7 is an unpolished bead of steatite, roughly hexagonal, measuring $\frac{3}{4}$ inch in diameter, by from $\frac{3}{8}$ inch to $\frac{1}{2}$ inch in thickness. The perforation constructed in the centre is cup-like at either surface. It was found in soil fallen into the earth-house *m* from the second level.

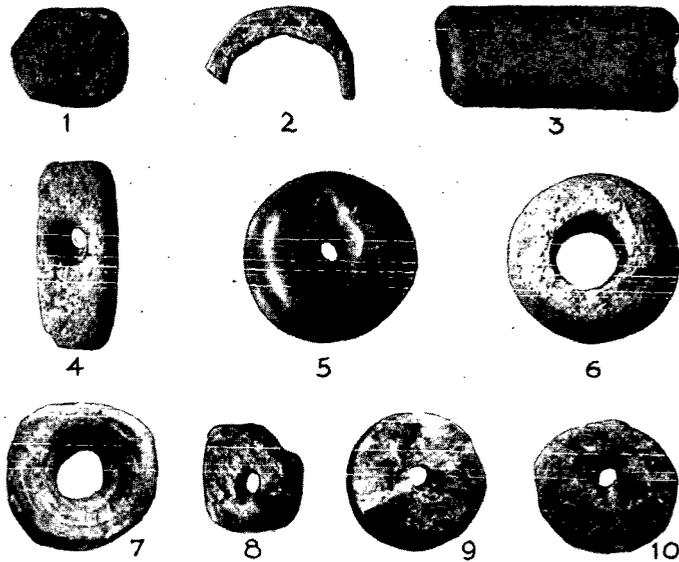


Fig. 31. Beads of Bone and Steatite and part of a Ring of Steatite.

No. 8 is a small oblong bead of steatite, measuring $\frac{9}{16}$ inch by $\frac{1}{2}$ inch and from $\frac{1}{4}$ inch to $\frac{1}{8}$ inch in thickness, with an oval perforation made from both sides, and slightly towards one end. It was found in Dwelling No. iv. An object of steatite (No. 1) similar to the foregoing, unperforated and probably an unfinished bead, was found in the entrance to earth-house *h*.

No. 9 is a discoid bead of steatite, measuring $\frac{11}{16}$ inch in diameter by $\frac{5}{16}$ inch in thickness. It was found to the south of the second occupation hearth in Dwelling No. iii.

No. 10 is a discoid bead, measuring $\frac{9}{16}$ inch in diameter and $\frac{1}{8}$ inch in thickness, with a small central perforation made from both sur-

faces. It was found in Dwelling No. iii at a level referable to the second occupation.

It will be observed that none of these beads came from the level of the first occupation of Dwelling No. iii, or from a contemporary floor elsewhere. With the exception of the cylindrical bone bead they appear to be referable to the second period of occupation.

Ring of Steatite.—One-half of what appears to have been either a pendant or a finger-ring of steatite, unpolished, was found on the level of the hearth of the second occupation of Dwelling No. iv. It was flattened on the upper and lower surfaces, tapered towards the broken ends, and measured $\frac{3}{4}$ inch in diameter (fig. 31, No. 2).

BONE OBJECTS.

Dwellings Nos. ii, iii, iv, and the middens in the vicinity of the last two, produced a very large collection of bone artefacts.

It will be remembered that very few were found in Dwelling No. i. Similarly, from the earlier site, Dwelling No. ii, the crop was very meagre, only amounting to five. Among these, however, was a fine knife-shaped object (fig. 4), fashioned from the scapula of an ox. The other objects were all awls or piercers.

From the other sites, however, there came no less than 139 objects, most of which are illustrated in figs. 32-39. These consist of chisel-ended tools made from cannon bones of oxen, both socketed and otherwise; scapulas of oxen which have been used as shovels; blunt-ended blade-shaped tools, usually much worn; phalangeal bones of oxen perforated completely, or through one wall only; objects made from the perforated heads of femurs; numerous awls or piercers, and miscellaneous specimens.

Chisel-like Tools.—These numbered twenty-one. All, with one exception (fig. 33, No. 9), came from the earliest levels of occupation. The exception, which is a split bone with a rounded end, came from the level of the top of the remaining lintel over the earth-house *m*, a position which might associate it with the second occupation of Dwelling No. iii, but in respect that the roof of the earth-house at this point was sunk beneath the floor of the period to which it was referable, this tool might also belong to the earlier occupation.

Socketed chisels, perfect and imperfect, numbered eleven (fig. 32, Nos. 1-11). Of these, four (Nos. 1, 2, 3, and 7) were found on the earliest occupation level of Dwelling No. iii. No. 1 is formed from the metatarsal bone of an ox, cut or sawn obliquely and socketed at the process end. Apparent saw marks are visible on the oblique surface. No. 2 is similarly made. No. 3 is formed from a similar bone. No. 7 is

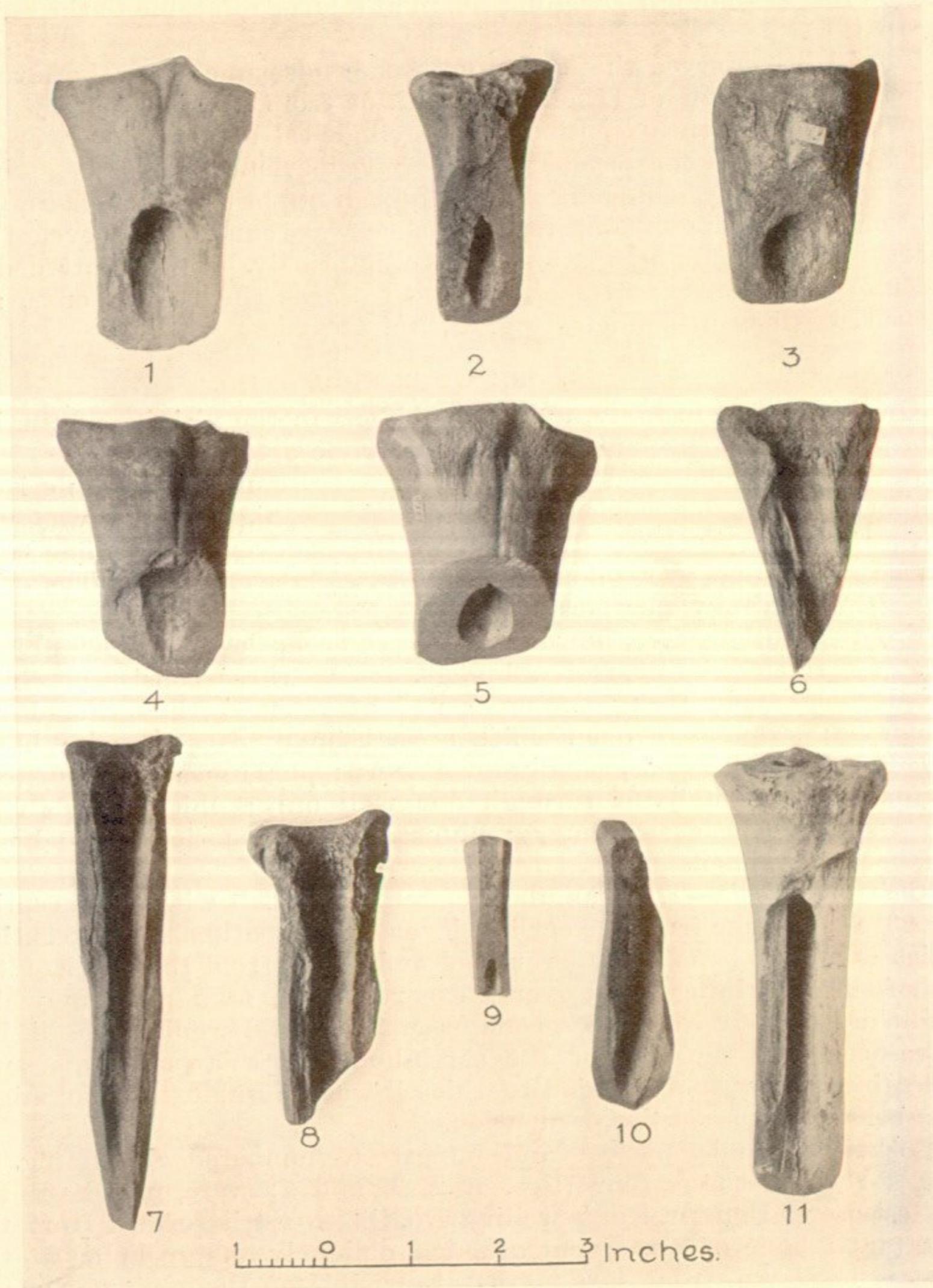


Fig. 32. Socketed Chisels.

also fashioned from an ox metatarsal. No. 4 came from the passage leading out of Dwelling No. iii. to the south-west. It is made from an ox metacarpal. Saw marks are visible on the oblique surface. No. 6, made from the cannon bone of an ox, was found in Midden A. Two (Nos. 8 and 11) were found in Midden B. Both are made from the metatarsal bones of oxen. On the surface of the cutting edge of No. 11 there are numerous saw marks. No. 9 is fashioned from a sheep bone, and was found in Midden D. No. 5, made from an ox metacarpal, was found at the base of an isolated piece of wall to the east of chamber M of Dwelling No. i.

There were found ten unsocketed chisel-like tools (fig. 33, Nos. 1-10). Of these, three (Nos. 2, 9, and 10) were found in Dwelling No. iii. Two are made from ox bones and are imperfect, having been split. No. 10 was recovered from the floor of chamber *n* and so is referable to the first occupation. No. 9 was found at the level of the top of the lintel over the earth-house *m*, and so might belong to the second occupation period, as probably also did No. 2, which was found below the floor of the third occupation. No. 1, formed from an ox metacarpal cut through obliquely was found on the east side of Midden A. No. 3, made from an ox metacarpal, was found in Midden A. No. 4, 3½ inches long, made from one half of an ox metatarsal, was found also in Midden A. No. 5, made from the process-end of the leg bone of an ox, with all the prominences rubbed down, was found in Midden A. (There are numerous cut marks on the surface as if made with a sharp metal tool.) No. 6, from an ox metacarpal, split and rubbed down from both surfaces to a cutting edge, was found to the south-east of Dwelling No. iii. No. 7, fashioned from a metatarsal bone, was found in opening out Dwelling No. iv. No. 8, fashioned from one half of a split ox metatarsal, was found in Midden C.

Scapulae of oxen, which have been used as shovels (fig. 34, Nos. 1 and 2), were found to the number of eight, within Dwelling No. iii and on sites referable to the earlier occupations. From Dwelling No. iii two typical examples came from chamber *p* and one from *b*. Of the former, one was found just beneath the small chamber at the entrance to the earth-house *m*, and might be referable to the second occupation, and the other on the floor-level. The third was found in chamber *b* at a level 14 feet over Ordnance Datum. Two were found in Midden B and one in Midden D. The remaining specimens were found while clearing ground to the east of Dwelling No. iii.

Knife-like Objects.—Two objects like knives fashioned from scapulas of oxen (figs. 4 and 35) were found—one (No. 4) in Dwelling No. ii and consequently of early date, and the other while exploring ground to the east of Dwelling No. iii. The former (fig. 4) is a gracefully fashioned

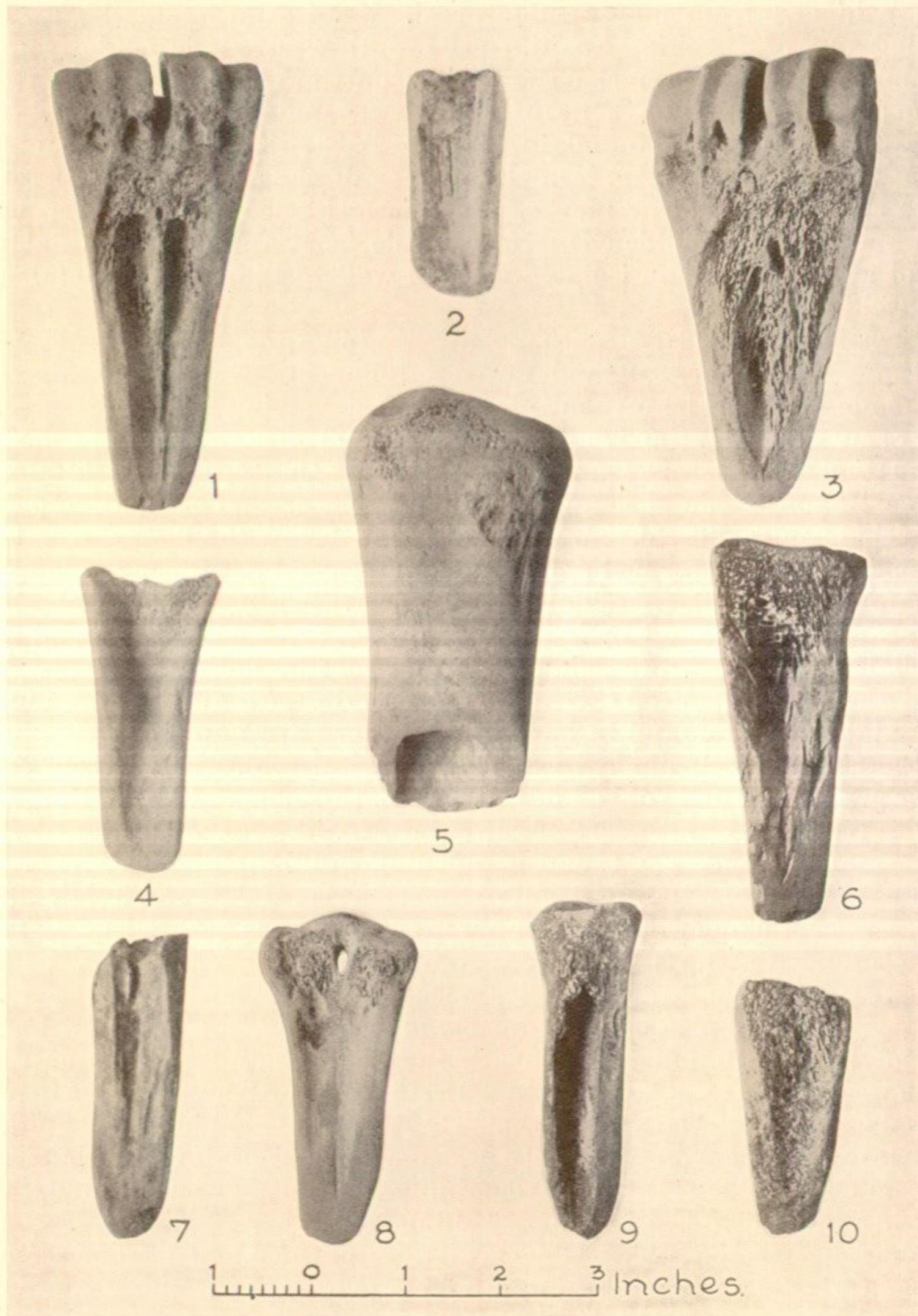


Fig. 33. Unsocketed Chisels.

tool, much striated on its surface, possibly from rubbing with pumice in the course of its reduction. The latter is imperfect, and has not been such a well-fashioned tool.

Awls, Pins, and Boring Implements.—The majority of the bone objects fall under this heading, and it is significant that they chiefly belong to the later occupation levels rather than to the earlier.

It does not seem possible to differentiate between pins and awls,

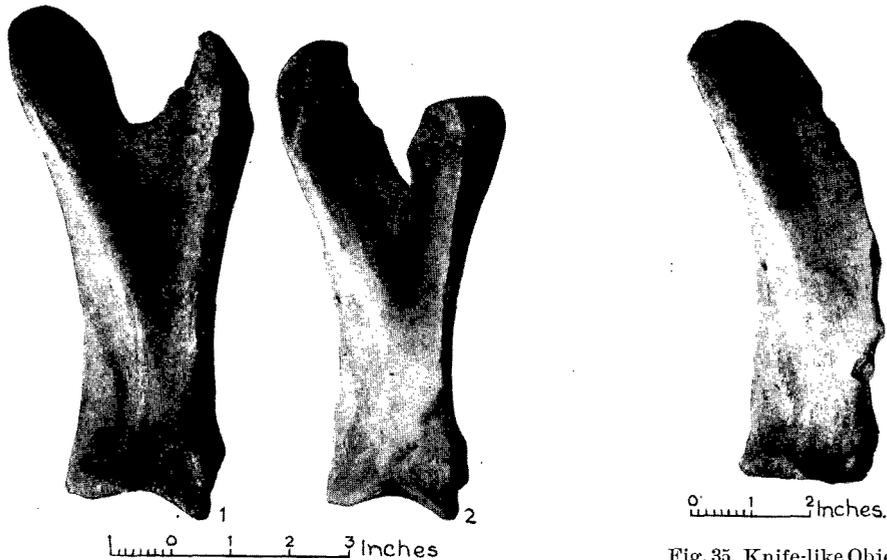


Fig. 34. Scapulae used as Shovels.

Fig. 35. Knife-like Object of Bone.

and there has accordingly been no distinction made in classifying them. A distinction has, however, been drawn between sharp-pointed borers and blunt-pointed tools.

Sharp-pointed Borers.—In this class there are some fifty objects, made for the most part from splinters of bone and showing various degrees of finish. Of these fourteen were found in Dwelling No. iii and are shown in figs. 36, 37, and 38.

Fig. 38, No. 2, is made from a bird bone. It was found associated with pottery of the third occupation adjacent to the entrance to the earth-house *h*.

Fig. 37, No. 6, is a splinter from an ox bone, rubbed down to a point at one end and polished by use, and was found in *h*.

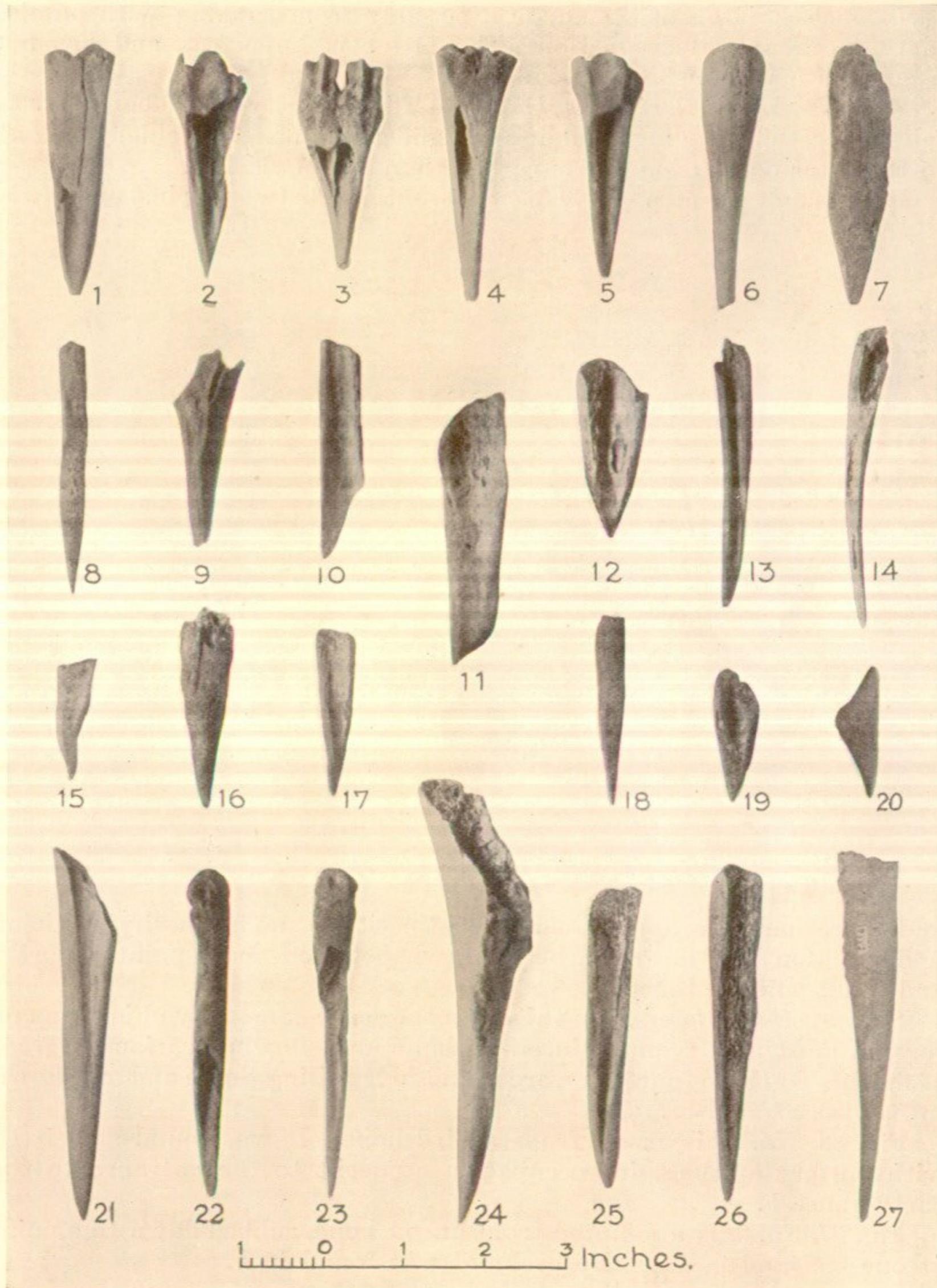


Fig. 36. Awls, Pins, and Boring Implements.

Fig. 37, No. 7, is made from a splinter of a sheep bone. It was found in the entrance to *h*.

Fig. 37, No. 9, is made from a sheep bone. It was found in earth-house *h*, and consequently belongs to the third occupation.

Fig. 36, No. 16, is a pointed ox bone found in opening out the earth-house *m*, so is probably referable to the second occupation.

Fig. 36, No. 7, is a splinter of an ox bone worked to a point and was found at the level of the lintel over *m*.

Fig. 36, No. 18, is fashioned from a splinter of a sheep bone, and was found in opening out earth-house *m*.

Fig. 36, No. 22, is a sheep metatarsal, one end of which has been broken off obliquely and the remaining side worked to a point. It was found on the top of the wall-head of *m*.

Fig. 38, No. 3, is made from the cannon bone of a sheep rubbed down and polished and was found on a spot at the level with the top of the lintel over *m*.

Fig. 38, No. 5, is made from a splinter of a sheep bone and was found above *m*.

Fig. 38, No. 18, is a small fragment of a sheep bone reduced to a smooth surface all over and sharply pointed to one end. It was found on the top of the wall-head of *m*.

Fig. 38, No. 19, is a sharply pointed sheep bone and was found in clearing out the earth-house *m*.

Fig. 38, No. 26, is made from a sheep metatarsal, rubbed down to a sharp point, and was found in interior of Dwelling No. iii.

Fig. 36, No. 10, is a splinter of a bird bone which has been worked to a point. It was found at the north-east end of the slate box in chamber *b* and possibly belonged to the first occupation.

It will be observed that, with three exceptions, all these objects from Dwelling No. iii were either found within earth-house *h*, or in the immediate vicinity of *m*, and of the exceptions one was found outside the door of *h*, and the other adjacent to the slate boxes in *b* which must have been a late intrusion.

Dwelling No. iv. produced eight specimens illustrated in (figs. 36 and 38).

Fig. 36, No. 11, is a splinter of an ox bone worked to an oblique point at one end.

Fig. 36, No. 12, is made from a large splinter of an ox bone.

Fig. 36, No. 19, is a splinter from a sheep bone.

Fig. 36, No. 20, is a small triangular splinter of ox bone rubbed down, smoothed all over, and pointed at both ends.

Fig. 36, No. 25, is a splinter of a bone of a large sheep.

Fig. 36, No. 26, is a curved splinter from an ox bone.

Fig. 38, No. 9, is a splinter of a sheep bone with the point amissing.
 Fig. 38, No. 25, is made from a splinter of a sheep bone.

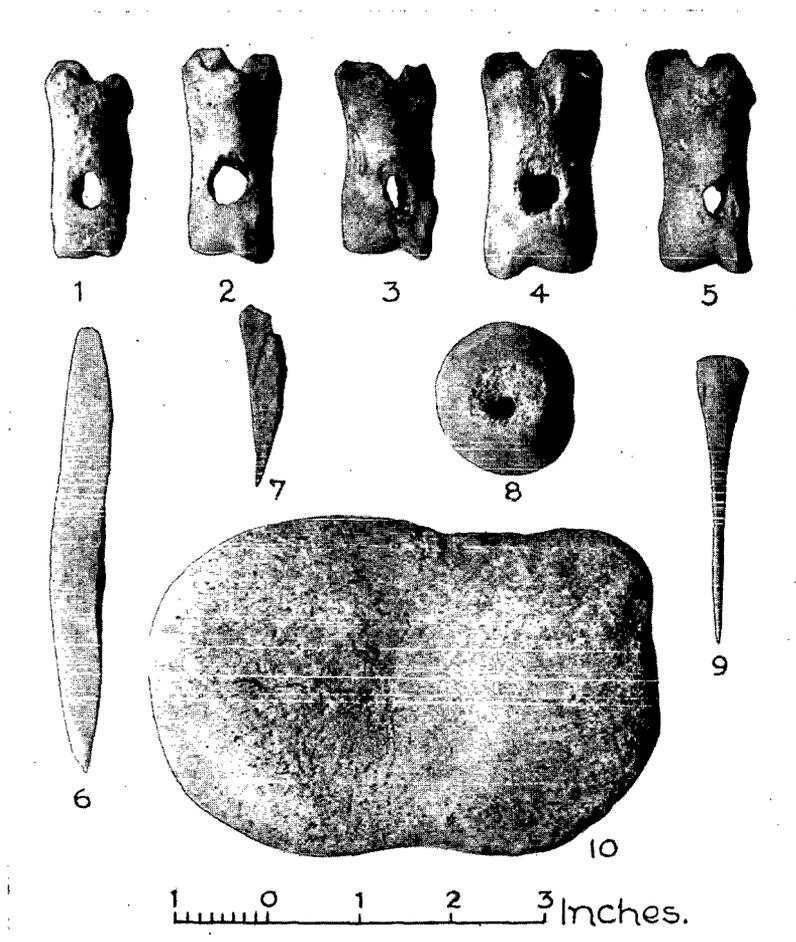


Fig. 37. Bone Objects found in the Earth-house *h*.

Midden A yielded seven specimens (fig. 36, Nos. 1, 5, 9, 17, 21, and fig. 38, Nos. 6 and 10), in general similar to the foregoing.

Midden B produced one (fig. 38, No. 12) of no special interest.

Midden C yielded six (fig. 36, Nos. 3, 4, 15, and 24; fig. 38, Nos. 7, 23, and 24), of which only one (fig. 38, No. 7) has a particular interest in being made from a bird bone. The area to the east of Midden A produced three (fig. 36, Nos. 2 and 6, and fig. 38, No. 17).

In a midden in the south corridor to the east of Dwelling No. iv, 4 feet below the adjacent wall-head, was found a well-fashioned awl, made

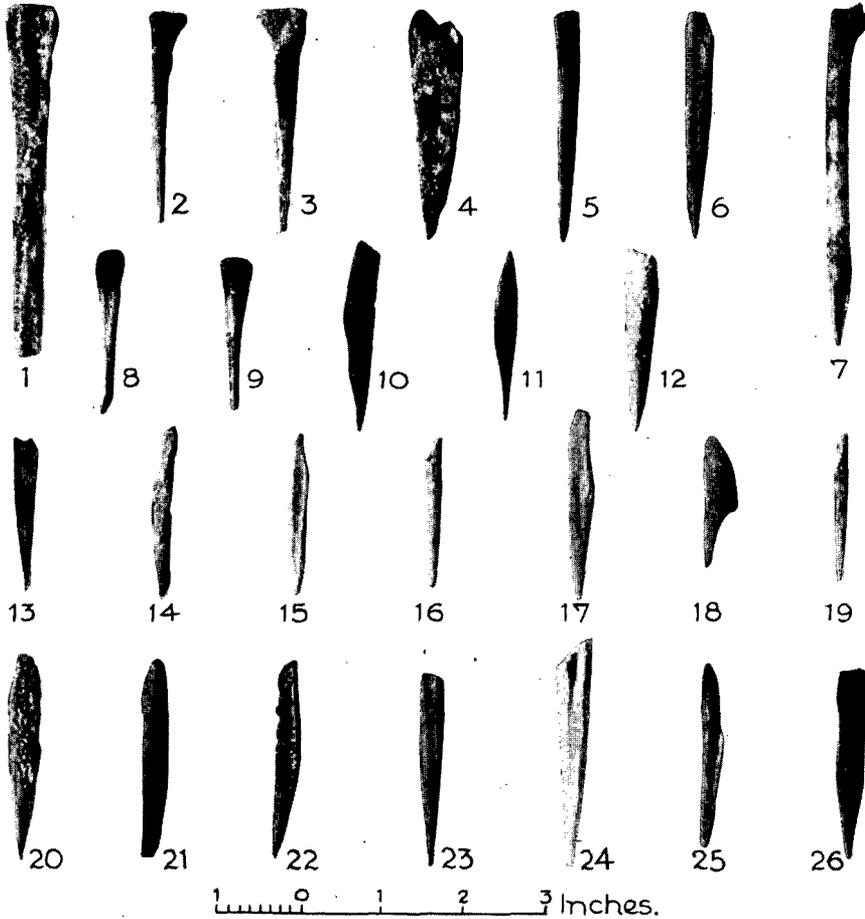


Fig. 38. Awls, Pins, and Boring Implements.

from the metatarsal bone of a sheep (fig. 36, No. 23), and another awl (fig. 36, No. 13).

Fig. 36, No. 27, and fig. 38, No. 12, were found at the base of a cross wall in the area to the south-east of chamber M of Dwelling No. i, associated with the chisel (fig. 33, No. 5), and so are probably referable to an early date.

Fig. 36, No. 14, and fig. 38, Nos. 15 and 20, were found in Midden D, and so are also probably of early date.

Fig. 38, No. 11, made from a splinter of a sheep bone, and pointed at both ends, was found in the remains of an early chamber to the north of Dwelling No. iv.

The only other specimen (fig. 38, No. 22) is a splinter with no particular interest, and was found to the south-east of *j*.

Blunt-pointed Tools.—Into this category have been placed tools which, though obviously intended for piercing, have a blunt point. They number nine, and are shown in fig. 39.

No. 1, made from the radius of a large sheep, was found in Midden C, and so belongs to an early period.

No. 2, a portion of a split ox bone, was found in *k*.

No. 3 is one-half of a split ox metatarsal, worn, and polished to a rounded point at one end, and was found in Dwelling No. iv.

No. 4, made from the tibia of a sheep, and partially split, was found in the east corridor.

No. 5, made from a splinter of ox bone, and smoothed with use, was found in Midden D.

No. 6, made from an ox bone, was found in the south corridor.

No. 7, a splinter of ox bone, was found in Midden D.

No. 8, made from a splinter of a sheep bone, was found to the south of *j*.

No. 9 is a splinter of a sheep bone much rubbed down and polished with a rounded point, found in Dwelling No. iv.

Phalangeal Bones, Perforated.—Six ox phalangeal bones were found, with holes pierced right through them in five cases, and through one wall only in the other. All were found in Dwelling No. iii, and five of them were recovered from the floor of the earth-house *h* and are shown with the other bone relics from that site in fig. 37, Nos. 1 to 5. The other example was found in a small enclosed space at the side of the primary hearth in Dwelling No. iii. The purpose which these objects served is unknown. The perforation is large for the size of the bone, and shows no signs of wear such as might be caused by a cord if they had been worn in suspension. On the other hand, it will be observed that the perforation is always made at the distal and lighter end of the bone, which would obviously be done if suspension was intended.

The phalanx of a small ox pierced near its distal end, was found by Mr Arthur J. H. Edwards, F.S.A.Scot., within a chambered cairn at Lower Dounreay, Caithness, associated with fragments of neolithic and beaker pottery, a stone axe, and human remains; and the occurrence of another phalanx, similarly pierced, in a Stone Age kitchen-midden at Oram in Denmark, is reported by Mr Edwards in his account of the

excavation of the above-mentioned cairn.¹ An example was picked up by me on the Links of Quendal, a few miles distant from Jarlshof,

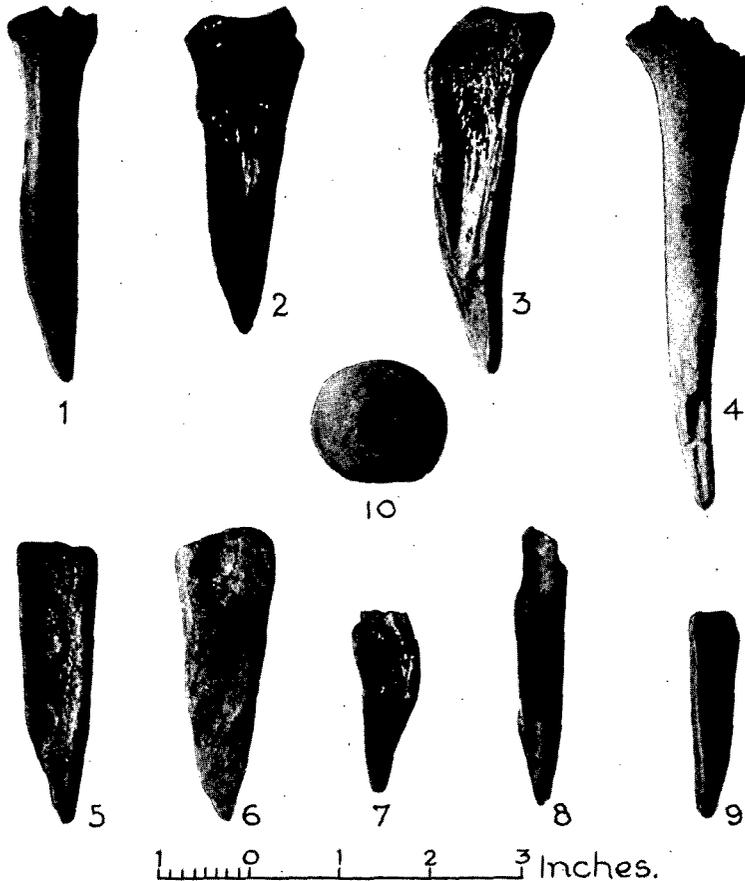


Fig. 39. Blunt-pointed Tools.

where numerous relics show the former existence of a culture contemporaneous with that at Jarlshof.

Heads of Femurs, Perforated.—Two heads of femurs were found, both perforated (fig. 37, No. 8, and fig. 39, No. 10). The former was found in the earth-house *h*, and the other in Dwelling No. iv. In each case the apex

¹ *Proceedings*, 1928-9, vol. lxiii. p. 138.

has been worn as if by the pressure of some object, such as a plate resting on it. There are a number of perforated femur heads in the National Museum of Antiquities found in brochs in Caithness and elsewhere, and believed to have been used as whorls. It is doubtful if the Jarlshof specimens have been so used, for no other whorls have been found in their vicinity, and the friction mark on the apex of the bone suggests some other purpose.

Miscellaneous Bone Objects.—Fig. 37, No. 10, is a plate of cetacean bone, measuring superficially $5\frac{1}{2}$ inches by $3\frac{3}{4}$ inches, with a depression towards the centre of each face. It was found in the earth-house *h*.

Fig. 40, No. 4, is a small object, smoothed all over as if by constant use. It was found in chamber *n* of Dwelling No. iii.

Fig. 40, No. 5, is another tool of the same class. It is made from the metacarpal of an ox, bluntly pointed at each end and reduced to a smooth polished surface all over. It was found to north of Dwelling No. iv.

Fig. 40, No. 16, is a smooth piece of sheep bone, rounded at one end. It was found on the floor of earth-house *m* in Dwelling No. iii.

Fig. 40, No. 18, is an implement of the same sort as Nos. 4 and 5, made from a splinter of an ox bone and worked to a smooth surface all over. It was found in the area to the east of Midden A.

Tools of the character of the above described were also found at Skara Brae.¹ They may have been employed in finishing the surface of pots by polishing, or otherwise.

Fig. 40, No. 1, is a splinter of an ox bone, chisel-ended at one termination and worked to a blunt point at the other. Many striæ appear on the surface, probably produced in the course of manufacture.

Fig. 40, No. 2, is a blunt-pointed object of sheep bone found in Midden B.

Fig. 40, No. 3, is the calcaneum of an ox, partially reduced to a flat surface by friction on one surface, found to the south-west of Dwelling No. iv.

Fig. 40, No. 6, is a spatulate object of bone made from an ox rib worked to a plano-convex section, found in Midden A.

Fig. 40, No. 7, is a round-ended fragment of polished bone found on the top of the lintel of earth-house *m* in Dwelling No. iii.

Fig. 40, No. 8, is a round-ended chisel-like object of bone found above the floor-level of *m* in Dwelling No. iii.

Fig. 40, No. 9, is a flake of a large rib bone of an ox which has been worked down at both ends, found above *m* in Dwelling No. iii.

Fig. 40, Nos. 10, 11, and 12, are the ends of implements worn at the point, made from cetacean bone, found adjacent to Midden B.

¹ V. Gordon Childe, *Skara Brae*, p. 122, fig. 13, B2.

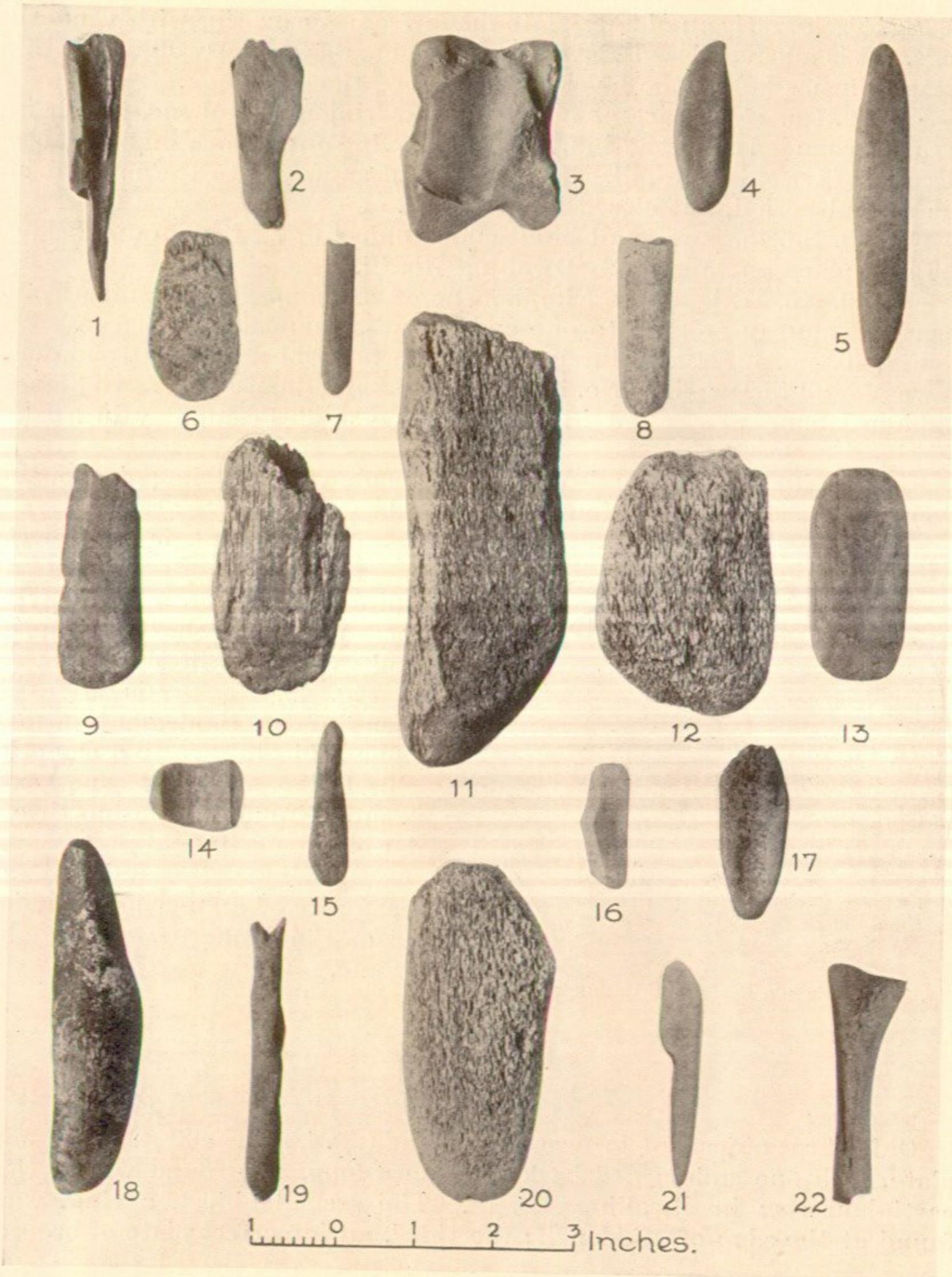


Fig. 40. Miscellaneous Objects of Bone.

Fig. 40, No. 13, is an oblong plate made from an ox rib, with rounded ends. It is much striated and came from chamber *b* in Dwelling No. iii, some 6 inches below the level of the top of the slate box.

Fig. 40, No. 14, is part of a penannular ring of ox bone, $\frac{3}{4}$ inch in breadth, rounded off at the end, found in opening out the original entrance passage of Dwelling No. iii, which was used as access to the midden in the second period, but closed in the third.

Fig. 40, No. 15, is a small blunt-ended object of ox bone found below the secondary entrance into Dwelling No. iii.

Fig. 40, No. 17, is an oval implement of ox bone rubbed smooth all over and bluntly pointed to one end. It was found in Midden D.

Fig. 40, No. 19, is a splinter of a sheep bone bifurcated at one end. It was found in Dwelling No. iii above the earth-house *m*. A similarly fashioned bone was found in the earth-house at Foshigarry in North Uist.¹

Fig. 40, No. 20, is the end of an implement, worn at the point, made from an ox bone, and found in chamber *j*.

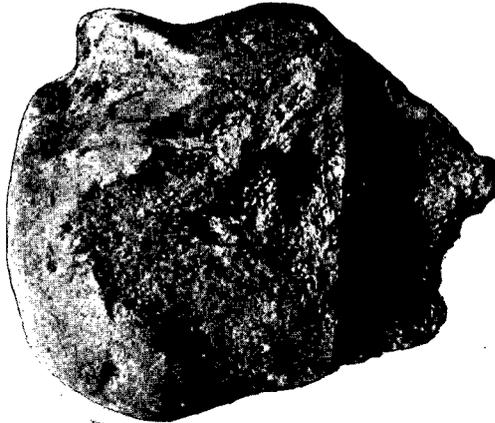


Fig. 41. Portion of a Perforated Hammer-head. (4.)

Fig. 40, No. 21, is an object in appearance resembling a knife-blade with a tang. It measures $2\frac{7}{8}$ inches in length and was found in Midden C.

Fig. 40, No. 22, is a fragment of an implement of ox bone rubbed down to a smooth chisel-like edge at one extremity, found to the north of Dwelling No. iv.

Fig. 41 is the half of a perforated hammer-head made from the humerus of a small whale.

BRONZE RELICS.

Only three objects of bronze were found (fig. 42). The first, an oblong plate, with one end turned back to form a loop, was found within the earth-house *m* in Dwelling No. iii. The second object, a ring, was found at the edge of Midden B; the third, an imperfect plate of bronze

¹ *Proceedings*, 1930-1, vol. lxxv, p. 539, fig. 22, No. 6.

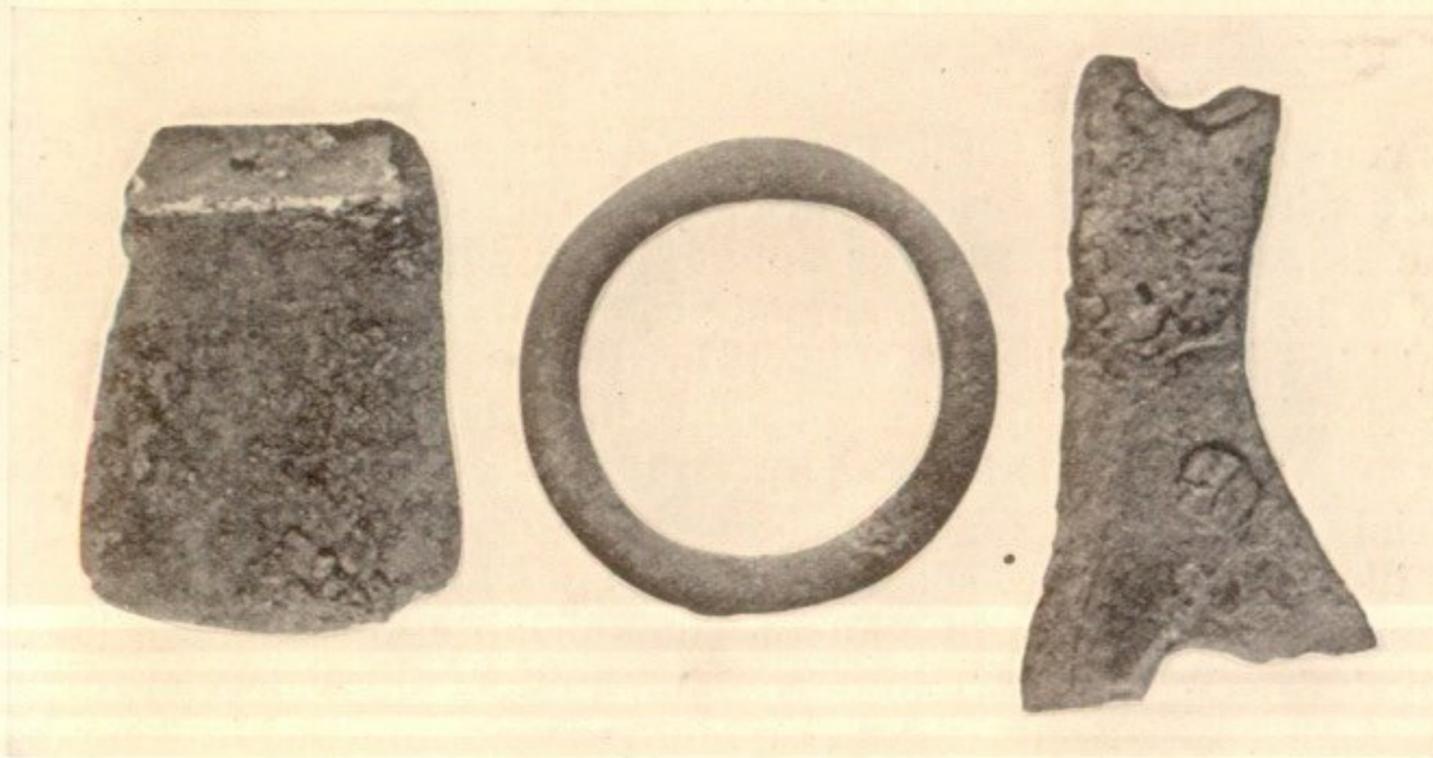


Fig. 42. Bronze Relics.



Fig. 43. Fragment of Crucible. (†.)

with part of a rivet hole at either end, was found near the surface to the north-west of Dwelling No. iv.

CRUCIBLES.

Eleven pieces of crucible were found, unfortunately all too small to indicate with certainty the form of a complete vessel.¹

The largest fragment was found in Midden A. It is a segment $3\frac{7}{8}$ inches long, of a round-bottomed vessel, tapering to one end, the wall diminishing from 1 inch to $\frac{7}{8}$ inch in thickness in one direction, while the bottom rises. The fragment suggests a boat-shaped vessel with a depth of about 2 inches, and an interior width of $3\frac{3}{4}$ inches. The material of which it is made is somewhat spongy in texture and friable. It is illustrated in fig. 43. Another fragment was found in a filling of stones at the back of one of the uprights forming a side of the so-called furnace in Dwelling No. iii, and would belong probably to the second occupation. Six fragments were found while opening out Dwelling No. iv. Two pieces came from the earth-house *h*; one from the side of the hearth of the second occupation in Dwelling No. iii; and another from the small enclosed area beside the primary hearth in the same Dwelling.

GROOVED STONES.

Three blocks of sandstone (fig. 44), two of them triangular and the third approximately so, with deep grooves, formed on the apex of each and

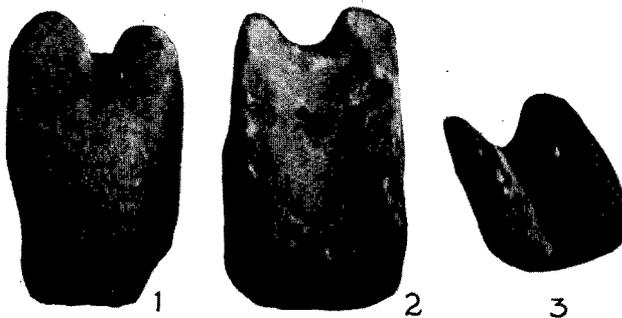


Fig. 44. Grooved Stones. (Ca. $\frac{1}{2}$.)

worn smooth, very markedly in the smallest example, and less so in the others, were found, two in situations referable to the early

¹ Among the relics from Haag, in Denmark, were found a sufficient number of fragments of a late Bronze Age crucible to admit of a partial reconstruction, an illustration of which appears in the *Mémoires de la Société Royale des Antiquaires du Nord*, 1908-13, p. 156.

period, viz. the floor of chamber *l* in Dwelling No. iii and the area east of Midden A, while the other came from Dwelling No. iv. The purpose of these stones is not obvious, but the groove suggests that it was made for keeping a rope in position, in which case they were probably used for tethering an animal, or for anchoring a boat.

HONES.

Four hones or polishers of fine grained sandstone were found in Dwelling No. iii; two of one type, and two of another. The former—

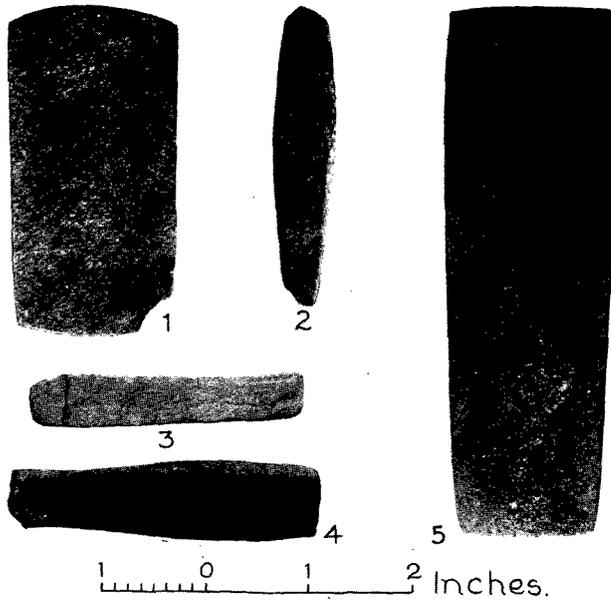


Fig. 45.

small, quadrangular in section, and tapered—came from a high level, and belonged evidently to a late period. The latter—longer, thin, and flat—were both found at the level of the second occupation. They are illustrated in fig. 45, Nos. 1, 2, 4, and 5. No. 3 was found in Midden D.

LEATHER.

On the level of latest occupation, associated with the pottery whorls, was a short strip of leather which appeared to be ancient.

MOULDS.

Fragments of clay moulds for casting objects of bronze were found in considerable numbers during the course of the excavation. They were associated in Dwelling No. iii with the earliest and the second occupations only. A very large number of pieces were found in the material with which chamber *j* and the passage out of it had been filled; many were recovered from Midden A, a few from Midden B, several from the area to the north of Dwelling No. iv, and also from the ground cleared, showing indefinite remains of building to westward of Dwelling No. i. It has already been observed that none were found in Dwelling No. iv, neither did the early midden, C, yield any examples; nor were there any fragments found in the area east of Midden A in association with the early pottery.

In all, there were recovered some seventy-nine pieces of sufficient importance to be registered, the other fragments being chiefly portions of the envelopes in which the moulds had been encased. These fragments are, for the most part, of sword moulds, but there are also pieces of moulds for socketed axes, for leaf-shaped spear-heads with a pronounced midrib, and two pieces of moulds for indeterminate objects.

The sword moulds greatly predominate; and while it is not possible from the fragments to estimate exactly the number of different moulds represented, judging from the colour, the shape of the keys and sockets, and the treatment of the matrix, the numbers are probably slightly in excess of thirty. In contrast to the finds of previous years, quite a number of these fragments of sword moulds are parts of moulds which have never been used—indicating the probability that they were fashioned on the spot. There are only nine pieces of moulds for socketed axes—all parts of used moulds.

The pieces, apparently parts of spear-head moulds, numbered six and possibly represented only two or three weapons.

Sword Moulds.—Among the pieces of sword mould are several of particular interest, though none of them add much to the knowledge which we acquired previously. Eight fragments which appear to be all parts of the same mould were found in the filling when clearing out a blocked passage between the chamber *j* and the passage *r*. They included a portion, $5\frac{1}{2}$ inches long, of the greater part of one side of a matrix for a hilt. In the casting, provision had been made for two rivet holes for the attachment of the grip, which were represented by two prominences in the centre line of the mould. This part of the mould presumably had been a reconstruction of the original hilt portion, as at the butt end there remain on the face of the exposed section three, out of an original number of five, tenons. These have fitted into a corre-

sponding number of sockets in the adjacent section of the mould fortunately recovered (fig. 46, Nos. 1, 1A, 1B).

Another section of the blade portion of a mould, $2\frac{1}{4}$ inches long, shows on the back the impression of a flat plate, upon which the mould has been supported when soft, crossed by three impressions of some indeterminate material (fig. 46, Nos. 2 and 3). The impression of a reinforcing rod was observed on the back of a mould found in Dwelling

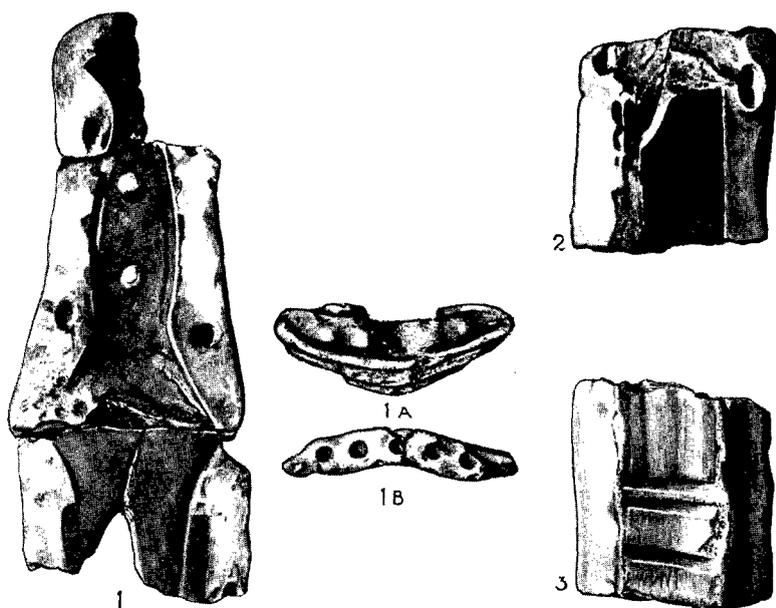


Fig. 46. Parts of Sword Mould showing arrangements for attachment of Hilt Portion and for reinforcing the Mould. ($\frac{1}{2}$.)

No. i in 1932.¹ The above fragments were all seemingly part of the same mould, the various unusual features of which indicate that there had been difficulty in its construction.

A piece of a matrix, unused (fig. 47, No. 7), found in clearing out chamber *j*, was for the end of the hilt-plate, and had made provision for a flange on the lower edge. There was also a portion of an outer envelope found in chamber *j*, on the inside of which was a ridge about $\frac{1}{8}$ inch broad, the cause or purpose of which is not obvious.

Three pieces of unused moulds were found on the floor of chamber *l* with a number of rude stone implements, and showed on the surface the impression of a wooden pattern employed to form the matrix.

¹ *Proceedings*, vol. lxxvii. p. 116, *g*.

A section of one side of a matrix, found about 6 inches below the floor-level of the second occupation, showed various apparent finger impressions on the back.

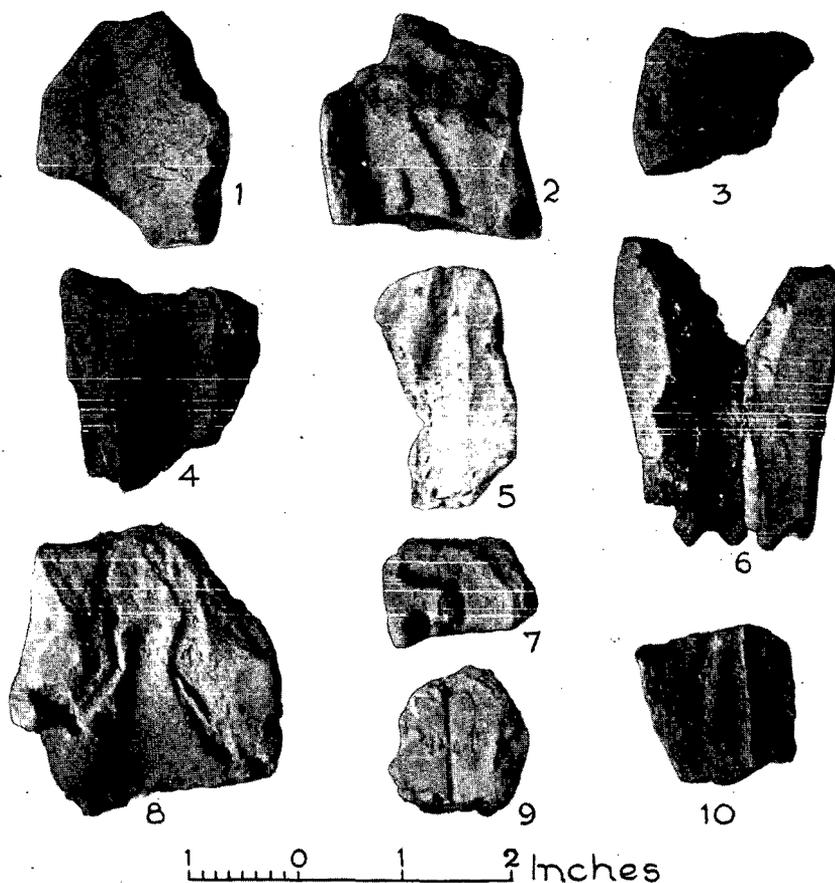


Fig. 47. Fragments of Clay Moulds.

A considerable portion of the upper part of a matrix was found in Midden A, showing the wings of the blade with rivet holes and flange (fig. 47, No. 8). The prominences to form the rivet holes have been broken off, but holes in the surface of the mould indicate where they have been. A hollow runs up the matrix into the hilt, where it is

stopped, indicating that the convexity of the blade has been continued into the hilt-plate.

The most perfect section of a mould so far recovered was found on the north side of Dwelling No. iii, on the first occupation level, at

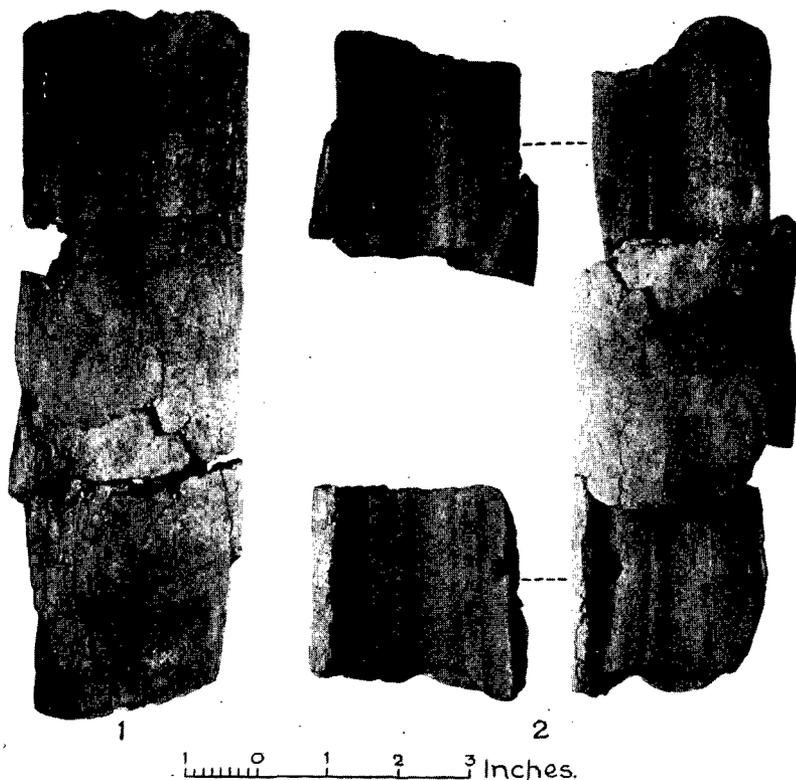


Fig. 48. 1, Complete Section of a Sword Mould. 2, With broken Portions laid aside to expose the Matrix.

13.13 feet above Ordnance Datum. It consisted of a section from the central portion of an unused mould, complete with both valves and outer envelopes, and measured 10 inches in length by $3\frac{1}{2}$ inches in breadth (fig. 48). The matrix was enclosed within two layers, or envelopes, and on the side of the inner one, where exposed, are the impressions of some thin ligature which had been used to hold the

two valves in place.¹ Though the section was complete when found, as it dried the two portions from either end became detached.

The pouring gate (fig. 49), illustrated also in last season's report, was actually found in one of the slate boxes in Dwelling No. iii. It measures $2\frac{5}{8}$ inches in height, and $2\frac{3}{4}$ inches by $2\frac{3}{8}$ inches in diameter at the mouth, which is oval. On the under side is apparent the impression of the top of the mould against which it was fitted. A portion of another gate, amounting to about two-thirds of its original extent, was found in the area to the north of Dwelling No. iv. It measures $2\frac{1}{2}$ inches in longest diameter by $1\frac{7}{8}$ inch broad by $1\frac{3}{4}$ inch deep.

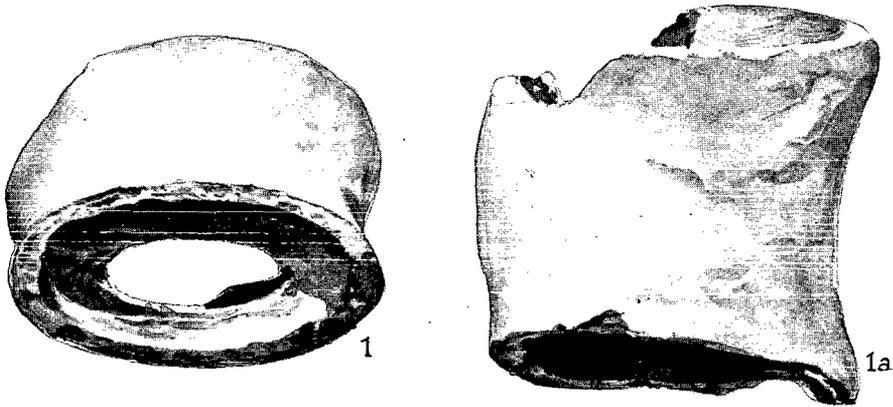


Fig. 49. Gate of Sword Mould. 1, View from below. 1a, Elevation. (x.)

Axe Moulds.—The fragments of axe moulds came from the lowest level of Dwelling No. iii, from Midden A, and from the area to the north-west of Dwelling No. iv. They revealed no features of particular interest. Fig. 47, No. 3, shows a portion of a cutting edge.

Spear Moulds.—The pieces of spear moulds (fig. 47, Nos. 4, 5, 6, and 10) all came either from the later middens, the area to the west of Dwelling No. i, or to the north of No. iv.

Indeterminate Fragments.—A fragment of a mould for a circular object came from Midden B.

Fig. 47, No. 9, shows another fragment found to the westwards of Dwelling No. i. On the matrix surface there is a well-defined hollow, $\frac{1}{16}$ inch broad, running from end to end, on one side of which the matrix is slightly convex and on the other flat. This may possibly be part of a mould for a sword-chape similar in some respects to a fragment in the

¹ A fragment of a mould in the Mortimer Collection in the Municipal Museum at Hull similarly shows the impressions of a cord obviously used for the same purpose.

collection above referred to in the Hull Municipal Museum, and illustrated in the issue of the Hull Museum Publications, No. 169.

Clay Core.—A small conical object of baked clay, with traces of bronze on its surface, is evidently the core of the socket of a small bronze knife, as it exactly fits the socket of such an object in the Bell Collection in the National Museum of Antiquities (DK. 38).



POTTERY.

The pottery from Dwelling No. ii, except for the sherd with chevron ornament found projecting from the angle formed by the junction of the slabs in the smaller slate box, was of little significance. It consisted of some eleven fragments, small and unimportant, with neither a rim nor the edge of a base represented. Nine of the pieces came from a level 6 inches above the actual floor. The largest fragment, $\frac{9}{18}$ inch in thickness, has large grains of steatite in the body and a black polished exterior surface, in these respects resembling one or two sherds found in Dwelling No. i.

Fig. 50. Core of Socket of Bronze Knife. (1.)

The pottery found in Dwelling No. iii and its immediate vicinity may be divided into four classes: (1) Vessels with sides straight or slightly inverted, having the lip either flat on the top or rounded, and sometimes turned over externally so as to form a roll moulding; occasionally with the moulding $\frac{1}{4}$ to $\frac{1}{2}$ inch below the rim; and more rarely with an additional rounded fillet $\frac{1}{2}$ inch or so below the other; hard red ware with no steatite in the body; (2) pottery with a rim, flat or rounded, on the top, and a flange projecting to the interior; having a backing of chips of steatite in the body; (3) vessels with a well-defined shoulder and a hollow under the rim, giving in profile an ogee curve; and (4) a class not largely represented and of late date, in which the well-defined shoulder has given place to a rather flat curve extending from the intake below the rim to the base.

The pottery of the first class belongs exclusively to the earlier periods, the first of the occupations of Dwelling No. iii here dealt with, and the occupation of the site which preceded it. From the floor of chamber o in Dwelling No. iii came one of the few ornamented sherds (fig. 52, No. 6) which is marked on the exterior with vertical strokes. The examples with the bead mouldings were found, with one exception, in areas referable to the earlier era, but it is right to qualify that statement by mentioning that rims of pots were of infrequent occurrence on the lowest level of Dwelling No. iii. Fig. 51 shows a pot of the earliest period, reconstructed from fragments which were found

in clearing out chamber *k*. Fig. 52, Nos. 3 and 4, show rims found in Midden A associated with Dwelling No. iii. The exception (fig. 52, No. 1) was found immediately below the floor of the small chamber on the site of the entrance to the earth-house *m*, and accordingly of a date previous to the second occupation. An example without a moulding (fig. 52, No. 2) was found at the floor-level of chamber *p*. Fig. 56, No. 10, shows a section of a base of a pot of this early ware found in opening out the original entrance to Dwelling No. iii.



Fig. 51. Reconstructed Pot of Earliest Period.

Among the debris which constituted the backing for the wall of Dwelling No. iii to the west, and between the primary entrance *q* and the secondary entrance *r*, were found numerous sherds, all with one exception (fig. 53, No. 6) (which is obviously late, and found at a comparatively high level), belonging to this early type, and including

specimens with bead mouldings below the rim (fig. 52, Nos. 7-12, and fig. 53, Nos. 4 and 5). Among these sherds there occurs a fragment of a base (fig. 53, No. 4) showing a clearly defined angle formed by the junction of two sides, also a piece of a straight rim showing a slight bend at each end (fig. 53, No. 5), thus indicating the use of square vessels as well as round, an assumption further borne out by the discovery of rectangular slates, apparently pot lids.

Midden C, which from its relative depth was evidently the earliest of the four middens which lay to the west of Dwelling No. iii, yielded solely pottery of this character (fig. 53, Nos. 1, 3, 7, and 8, and fig. 54, Nos. 2 and 3). Fig. 54, No. 1, shows a base of a vessel of the same ware.

The pottery of the second class, *i.e.* with a flange to the interior, definitely belongs to the second period of occupation of Dwelling No. iii, as examples were found in the earth-house *m* belonging to that period, at a level some 3 feet below the upper surface of the remaining lintel. Several examples found at this spot were of a black ware heavily backed with steatite, and ornamented with finger-tip impressions on the surface of the rim (fig. 54, Nos. 8 and 9).¹ Another sherd (fig. 56, No. 3), came

¹ Among the pottery fragments recovered by Mr and Mrs Cunnington in their excavation of the Early Iron Age inhabited site at All Cannings Cross Farm, Wiltshire, and preserved in the museum at Devizes, there is a portion of a rim with a marked projection inwards and finger-tip impressions on the surface, and in the late Bronze Age pottery found at Scarborough (*see* Reginald Smith, F.S.A., in *Archeologia*, vol. lxxvii. (1927) p. 191) finger-tip impressions are freely used, not on the rims, but on applied fillets.

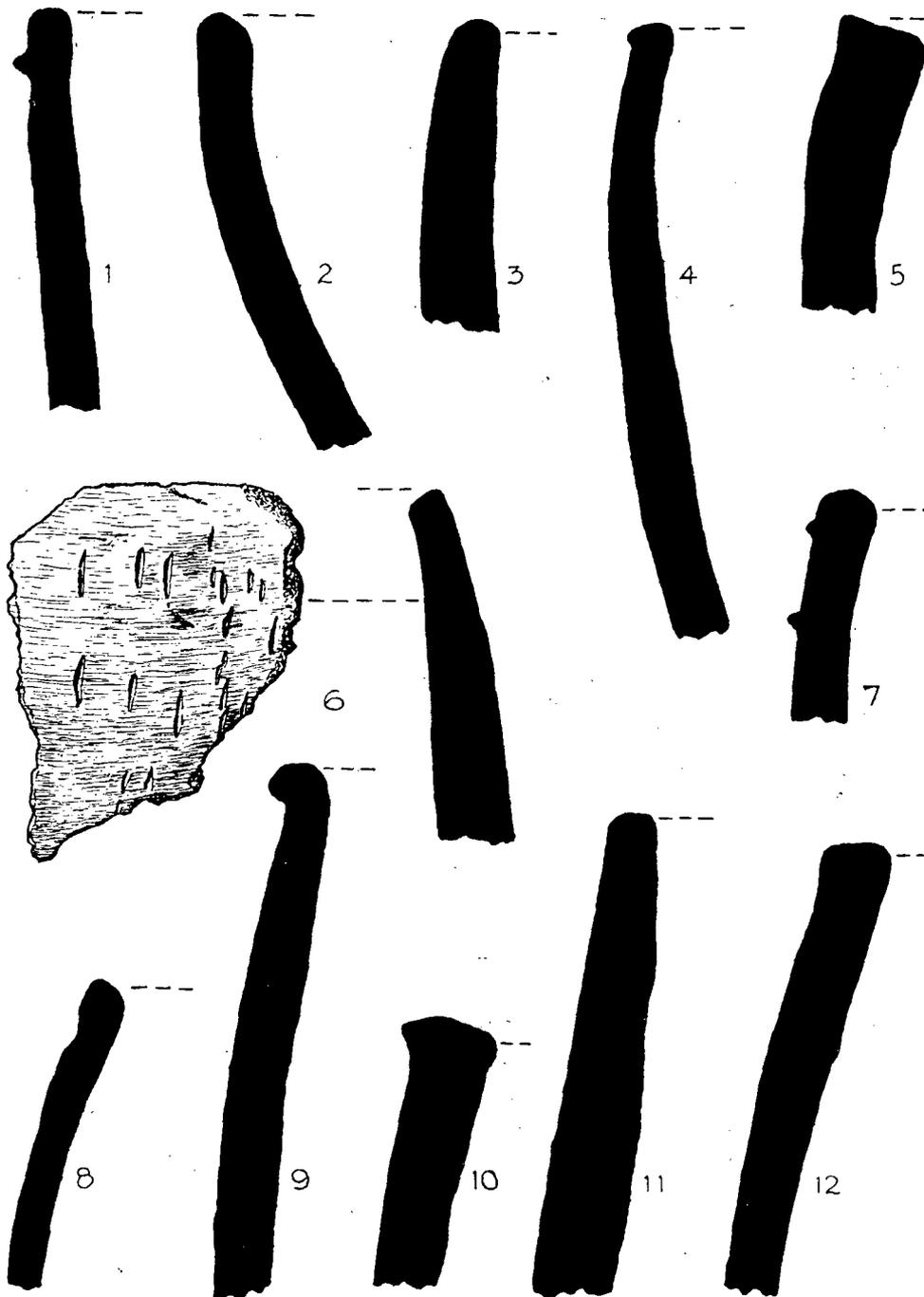


Fig. 52. Sections of Pottery of the Earliest Period. (4.)

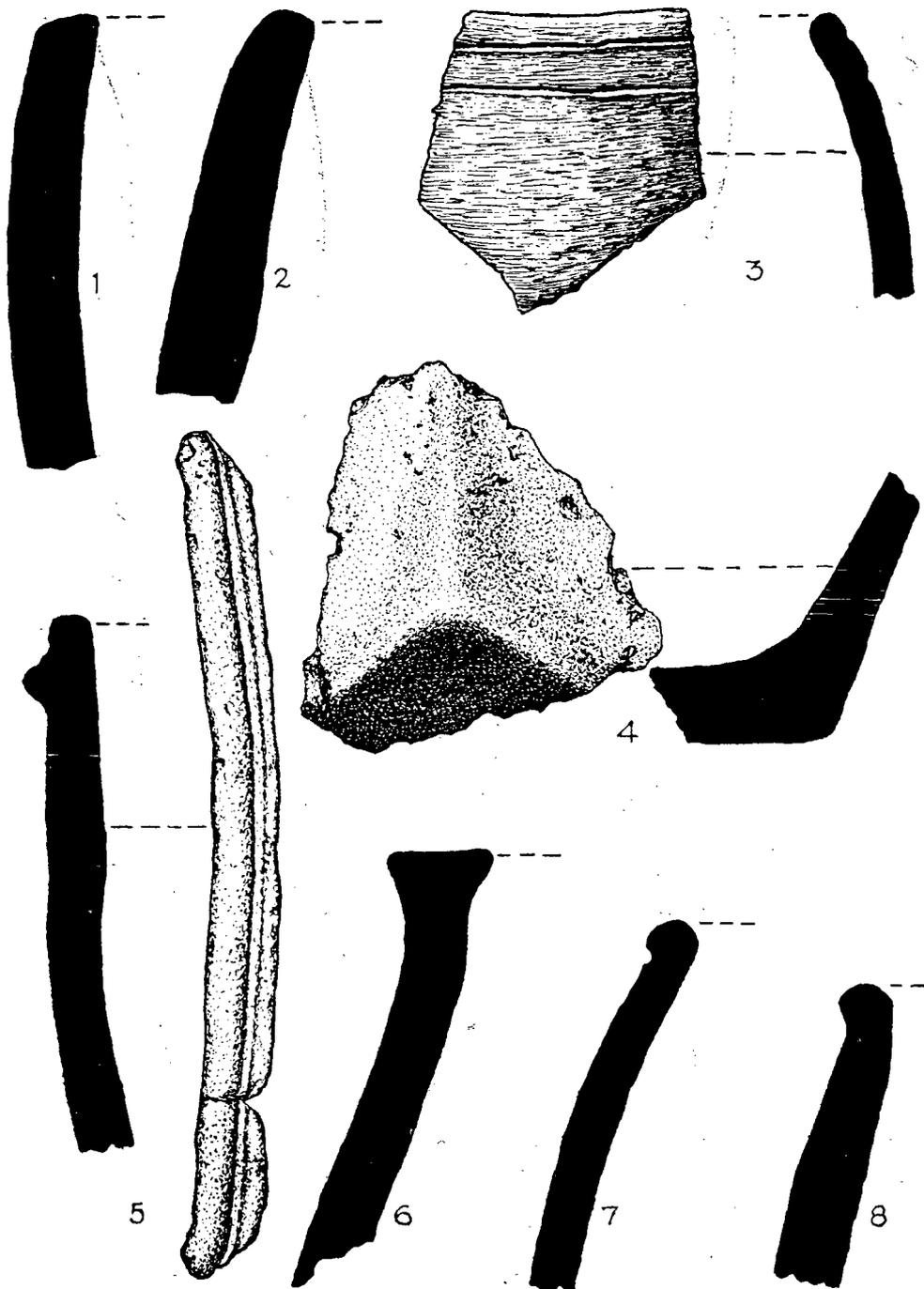


Fig. 53. Sections, etc. of Pottery of the Earliest Period. (1.)

from a spot about 1 foot below the third floor, as found in chamber *f* on the western arc. It is of a fine red body with finely ground particles of steatite in its composition, and is decorated along the mesial line of the upper surface with a row of pin impressions.

A rim of a different pot (fig. 54, No. 7), found on a level with the top of the lintel in *m*, though not showing the same marked projection inwards, is also decorated with pin impressions on the surface.

Fig. 55, No. 1, gives the section of a sherd with a marked projection of the rim to the interior and a hollow and bulge on that surface, while the exterior is straight. This piece came from the level of the red ash hearth of the second period. Fig. 55, No. 3, is a section of a sherd from the same spot showing the shoulder as normally on the exterior.

The pottery of the third class, though mainly a product of the third period, was not absolutely confined to it, as may be gathered from the following examples. A section of a characteristic pot is shown in fig. 55, No. 4. It has been a vessel of large dimensions with an estimated diameter of about 1 foot. The body, much backed with steatite in fine grains, is rough and unpolished in the interior, but polished and blackened on the exterior surface. It was found below the floor-level of the third occupation in *f*. Fig. 55, No. 6, shows a similar section of a sherd of a small vessel, with an estimated diameter of $5\frac{1}{2}$ inches, found in the same spot as the last. Fig. 55, No. 5, shows the section of a rim of a small vessel with an estimated diameter of about 7 inches. It is of a finely finished ware with, on the interior, a slightly vesicular surface, and on the exterior a thin pink slip. It was found in one of the slate boxes in *b* associated with the gate of a sword mould. A piece of a somewhat similar ware was found in Dwelling No. i.

Fig. 55, No. 8, is a section of a rim of a coarse heavy pot with numerous grains of steatite in the body. In section the method of its construction is clearly shown. To fashion the rim of the vessel a strip of clay was drawn upwards to double the height required, and thereafter folded back on itself to form the exterior portion. This sherd was found in the second occupation level. Fig. 59, No. 16, shows a section of a similar ware. The pot seems to have been straight-sided, and from an indication of a corner at one extremity of the sherd it has possibly been square-mouthed. Its find-spot was lower than the third occupation floor-level. Fig. 55, No. 9, shows a section of pot having many grains of steatite exposed on its inner surface, which have obviously been rubbed down when the pot was completed. This sherd, found at the level of the red ash hearth, belongs without doubt to the second occupation. Fig. 56, No. 1, is of a sherd of rough ware with numerous grains of steatite projecting from the surface, also

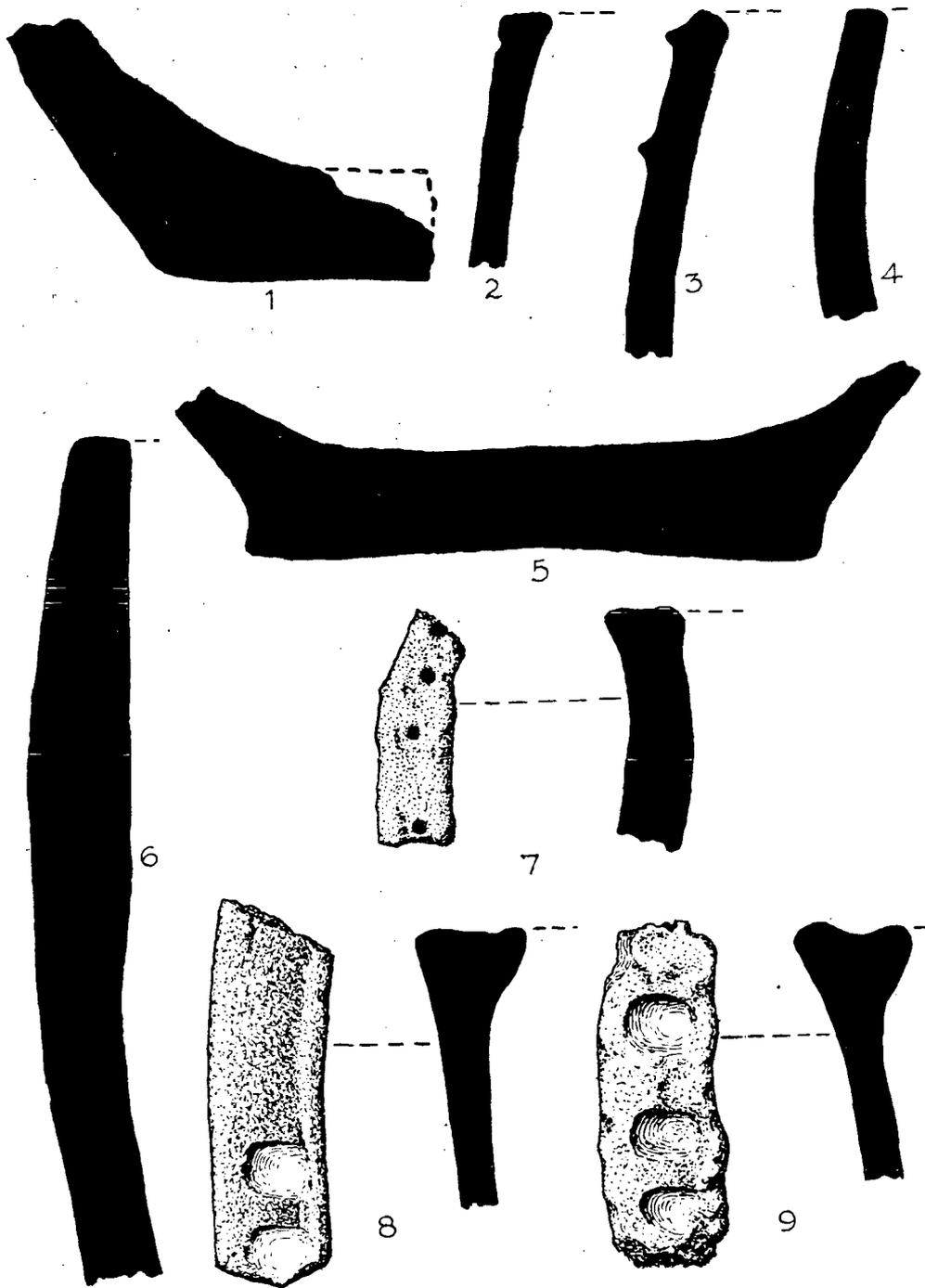


Fig. 54. Sections, etc. of Pottery of the Earliest and Second Periods. (†)

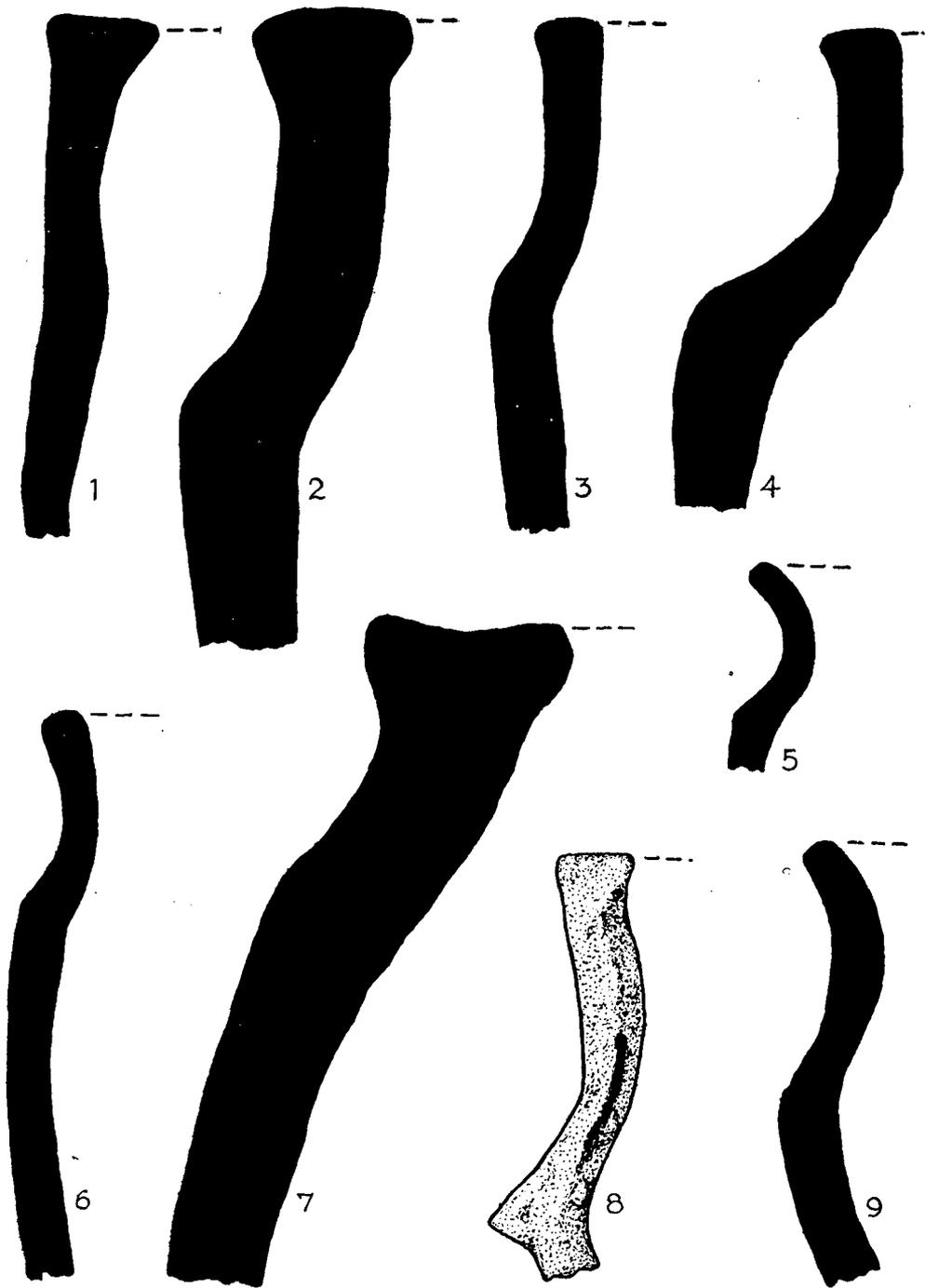


Fig. 55. Sections of Pottery of the Second and Third Periods. (†.)

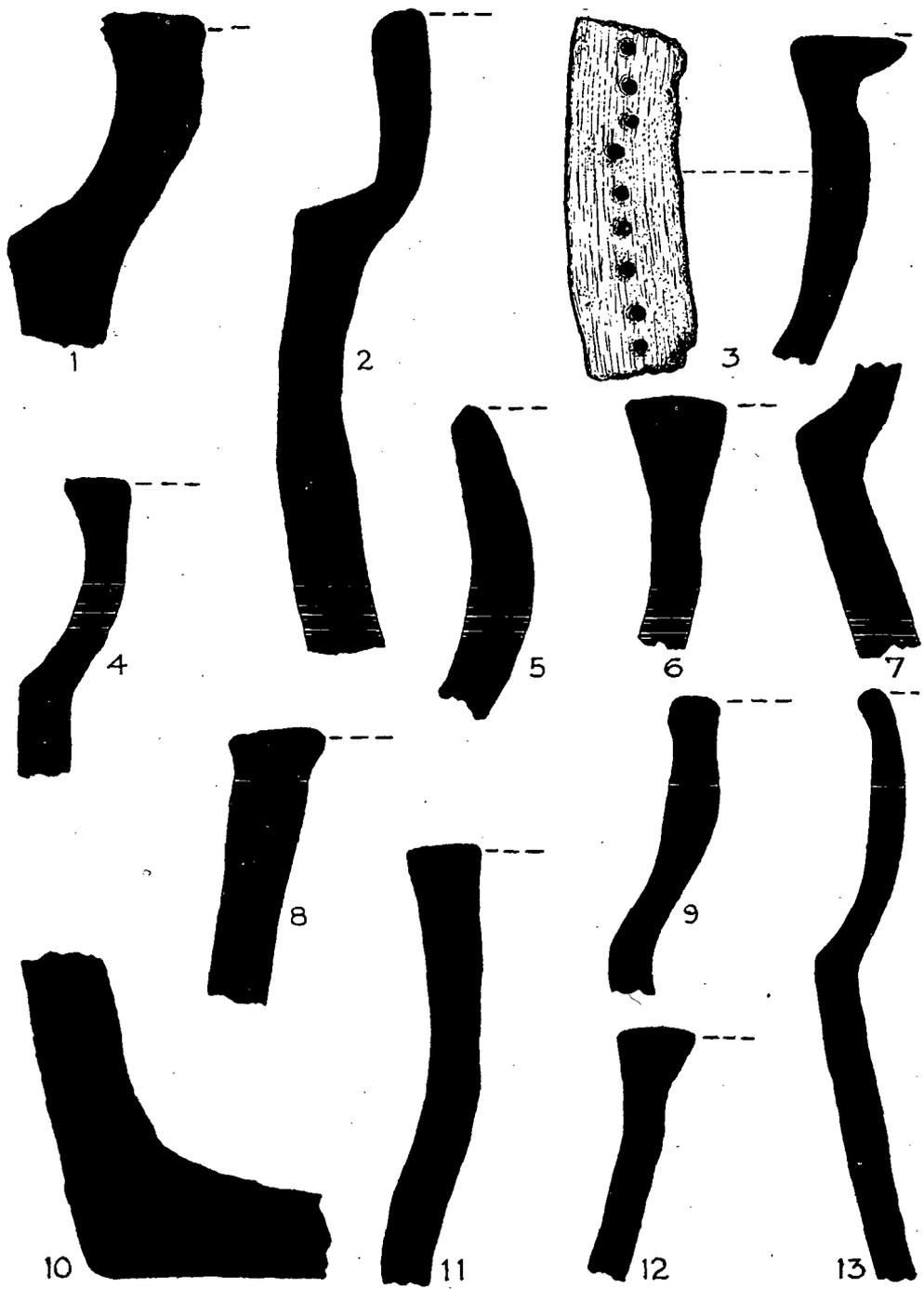


Fig. 56. Sections of Pottery chiefly from the Earth-house *h.* (†)

of a second occupation provenance. Fig. 56, No. 2, shows a section of a sherd with a very pronounced shoulder, found just below the third occupation floor at approximately the same level as the previous example. Fig. 55, No. 2, is a section of a sherd of a coarser pot found at a slightly lower level of the same occupation. Fig. 55, No. 4, is of a sherd, from the same level, of similar character, but with the actual rim flat instead of rounded on the top.

The pottery recovered from the earth-house *h* gives a valuable conspectus of the pottery of the third occupation, as the risk of any casual intrusion from a later level, or of confusion with an earlier one, was absent. The pottery of the third class is well represented and that of the fourth also occurs.

Fig. 56, Nos. 5-9 and 12 and 13, show the sections of the various sherds found therein. No. 5 is of a fragment of a light red pot, black in body, and seemingly coated with a slip on both faces, found at the entrance. No. 7 shows a section, at the shoulder, of a heavy black ware with many grains of steatite showing on the inner surface and found as above. No. 6 is of hard grey ware, and flat on the rim. No. 8 is of a buff ware with much steatite in the body, found near the foot of the stair. No. 9 is also of a buff ware with grains of steatite in the body. The sherd indicates a diameter of 6 inches and was found as the previous piece. No. 11 is of a sherd of a large pot with an estimated diameter of 8 inches, with many grains of steatite showing in the body—buff to red in colour—found also near the foot of the stair. No. 12 is a section of a piece of hard buff ware, blackened with soot, from the same find-spot as the last. No. 13 shows a section of a bowl-shaped vessel of black ware, with grains of steatite showing on the interior surface and polished on the exterior.¹

There also came from the earth-house *h* two sherds of coarser ware (fig. 57, Nos. 2 and 4). No. 2 is grey in tone, with an encrustation on its inner surface, and shows an estimated diameter of 12 inches at mouth. No. 4 is blackish ware, and rather coarse. Akin to the foregoing is a fragment shown in section by fig. 57, No. 1. It is a buff ware, blackened with soot. This piece shows a very slight projection inwards at the lip, and the curve from lip to shoulder is very shallow.

Amongst the debris which lay heaped up outside the entrance to the earth-house *h* were found several fragments of a large, coarse pot, other pieces of which had been found in 1932 adjacent to the hearth of the third occupation in Dwelling No. iii. The ware is heavy, dark

¹ In the National Museum in Stockholm there is preserved a vessel of identical form and character as that represented by the last-mentioned sherd, found at Sjögestad, Östergötland, with a third period La Tène fibula, which is regarded as dating between 200-150 B.C.



Fig. 57. Sections, etc. of Pottery from the Third and Latest Periods. (†)

grey in tone, smooth on the exterior and very rough on the top of the rim and on the interior, with large protruding grains of steatite. A section is shown in fig. 55, No. 7.

Fig. 57, Nos. 8, 9, 10-12 and 14, fig. 58, No. 1, show also sections of other fragments referable to the third or latest occupation, it being impossible to differentiate between the relics of the last two. Fig. 57, No. 8, is of a fragment of a coarse reddish ware, with large grains of steatite in the body. It shows an estimated diameter at the mouth of 10 inches. Fig. 57, No. 9, is of a thin buff ware, blackened externally by fire. The plan of the rim suggests that this has been a part of a four-sided vessel. Fig. 57, No. 12, is of a coarse reddish ware. Fig. 57, No. 14, shown in elevation as well as in section, is apparently the corner of a four-sided pot of the same form as No. 9.

Fig. 57, No. 10, a black ware, polished externally, and No. 11, a fine buff ware, also fig. 58, No. 1, a heavy buff ware, were all found adjacent to the hearth in the centre of the dwelling and among the yellow peat ash. Their association with the third period is therefore also beyond doubt.

The following, shown in fig. 58, Nos. 2, 3, and 7, are sections of other sherds found beside a hearth in chamber *c* of this period. No. 2 is of buff ware with steatite in the body. No. 3 is of light red ware with many particles of steatite in the body. The surface has been rubbed smooth in the interior, and in certain pieces of similar ware from this level on the exterior as well. The ware seems to have been treated with a slip and is in some cases polished. The usual aspect of the interior from the polished chips of steatite, is grey. No. 7 is of a sherd, grey to black, rough on the interior from projecting grains of steatite, and blackened with soot on the exterior.

Fig. 58, No. 4, shows a section of a large vessel of coarse ware with a diameter of 12 inches, rough on the interior surface and coated on the exterior with a drab slip, the remains of which were found among peat ash on a slab adjacent to the furnace above described, which appeared to relate to the third period. The rim of the vessel was fashioned with a flange to the interior. Inside, at a depth of 4 to 5 inches below the rim, the wall was encrusted with carbon, and on the exterior was a black band 1 inch to $1\frac{1}{2}$ inch in breadth just above that level, suggesting that the cooking-pot had been sunk in the ash when in use. The style of this rim corresponds with that of the second period, and as a number of similar fragments were found adjacent at a lower level it possibly dates from that period rather than from the third.

Fig. 58, No. 5, gives a section of a rim from the floor-level of *f*. The sherd is black and polished on the exterior, and pierced with a hole for a rivet below the lip.

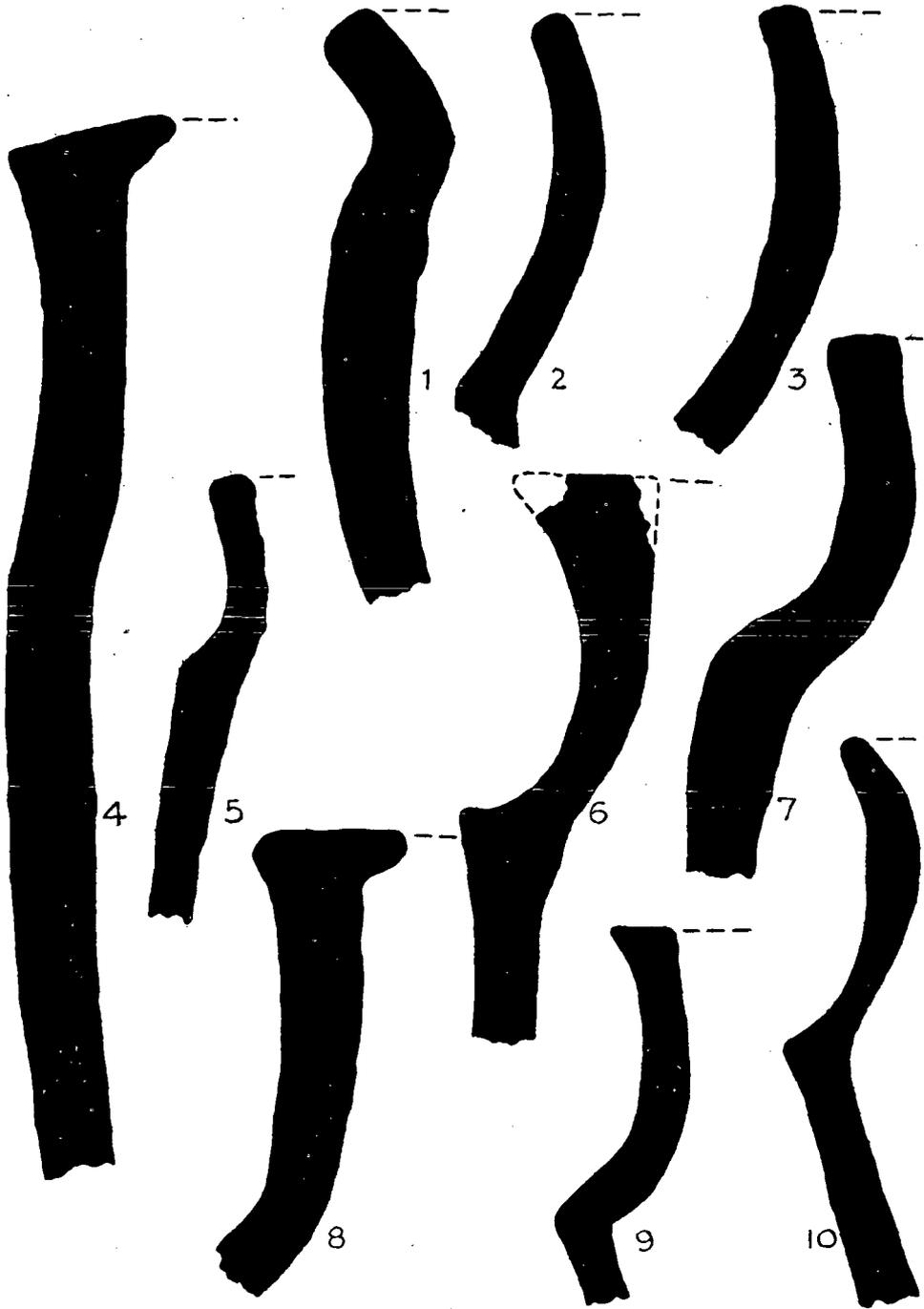


Fig. 58. Sections of Pottery of the Third and Latest Periods. (†.)

Fig. 58, No. 6, is a section of a rim from the floor of chamber *e* of the late occupation. The ware is buff on the exterior, coated seemingly with a slip over a dark grey body containing many grains of steatite. That chamber had evidently been abandoned some time before the occupation of the adjacent chambers *c* and *f*, as its floor-level was lower (16.03 feet above Ordnance Datum, while the corresponding levels of *e* and *f* were 16.55 and 16.89 feet respectively). Pottery from *e* might therefore be of a slightly earlier date.

Fig. 58, No. 8, is of a sherd found in the vicinity of the last mentioned at a level 16.03 feet over Ordnance Datum, which corresponds with the floor-level of *e* above mentioned. The pot appears to have been polished on the exterior and probably coated with a slip. There is a flange on the inner side, and there has been a deep cavetto on the exterior. Fig. 58, No. 10, is of a sherd from the same level with a cavetto and a well-defined shoulder. The ware has numerous chips of steatite in the body. Fig. 58, No. 9, gives a section of pot found on removing the latest peat-ash deposit from the interior of Dwelling No. iii, therefore of the third period.

The pottery recovered from Dwelling No. iii was considerable in amount, and it was remarkable that though odd pieces of rim were fairly numerable, portions of base were comparatively scarce, while in rare instances only did contiguous fragments come to light. These circumstances suggest the question whether discarded and broken pieces of pot were not crushed down for the purpose of supplying grit for the body of fresh pottery. It is extremely probable that one of the industries carried on in the dwelling was the manufacture of pottery, and in addition to finding a film of clay on the surfaces of two of the large querns at a point referable to the second period of occupation, below the slabs that lay on the floor of chamber *f*, there was found a bed of reddish-coloured clay, immixed with particles of steatite, and with a small piece of pot pressed into the surface. In the neighbourhood of this material were found two pieces of hematite, possibly used for coating the exterior of the pots to be finished with a polished black surface, before firing, though it appears to have been possible to obtain the black colouring merely by regulating the firing.¹ The method employed in the manufacture of the pots is well illustrated in a segment found of a body of coarse material showing that from a basal shallow bowl the vessel has been built up in a series of zones, each finished upwards to a fine edge, against and above which the next zone is formed. The employment of this method is illustrated also in Bronze Age urns in the National Museum.

¹ See Bøe, *Jernalderen's Keramik i Norge*, pp. 211 *et seq.*



Fig. 59. Sections of Pottery from other sites than Dwelling No. iii. (4.)

Only three rims were found in chamber *j*, which is situated to the south of Dwelling No. iii. The character of the enclosing walls showed that for the most part they had been built against material which had been employed to fill in the chamber. That this had been done at an early date was evidenced from the finding of a piece of sword mould at a fairly high level, 2 feet 3 inches below the surface. The pottery shows that this filling was done, probably, when the occupation of Dwelling No. iii was commenced. Fig. 59, No. 1, and fig. 53, Nos. 1 and 2, show sections of the rims recovered. Fig. 59, No. 1, is of a sherd of black ware with a bead moulding at $\frac{1}{2}$ inch below the rim. The pot has been roughly made, with no steatite visible in the body, and has had an estimated diameter of over 12 inches. Fig. 53, No. 1, is of a sherd of hard, heavy, reddish pot with a smooth surface and sharp grit in the body. The pot has had an estimated diameter of $7\frac{1}{2}$ inches. Fig. 53, No. 2, is of a sherd of hard, light red pot, very smooth on the exterior and with no steatite in the body. It has had a diameter of about 10 inches.

From the incomplete remains of chamber *k* in the lower levels came rims of class 1 (fig. 59, Nos. 2 and 3).

Many rims were recovered from Dwelling No. iv. Fig. 59, Nos. 4, 6, 7, 9, 10, and 12, show a selection of these. On the whole they appear to approximate more to the second period of occupation of Dwelling No. iii than to the third. No. 5 shows a close parallel to a sherd (fig. 59, No. 16) referable to the second period of Dwelling No. iii.

Nos. 6, 7, and 9 were all found at a high level and are probably late, but Nos. 10 and 12, at 13 to 13.40 feet over Ordnance Datum, were below the level of the floor at which the excavation of Dwelling No. iv has been concluded, viz. 14.27 feet.

Midden A was obviously connected with the early occupations of Dwelling No. iii, as during the third period the passage giving access to it from that direction was closed, and, as already stated, the pottery from it is of the early form.

The pottery from Midden B, rims and a base from which are shown in section in fig. 59, Nos. 8, 14, and 15, also indicate an early date in the history of the site for this midden.

The rims from Midden C, which from its depth appeared to be the earliest of the group of middens, are illustrated in fig. 53, Nos. 7 and 8, and fig. 54, Nos. 2 and 3. The pottery is of a drab or a reddish tone, hard, with specks of mica showing on the surface, and no steatite in the body. This is a similar pot to that recovered from the area east of Midden A, and indicates that Midden C belonged to the period of the erection of Dwelling No. iii.

Numerous rims conforming to one or other of the types previously

mentioned were found in exploring areas in the vicinity of the dwellings and middens, but call on the whole for no comment. One small fragment, however, found to the south of chamber *j*, shown in section in fig. 59, No. 13, is noteworthy for the delicacy of the pottery. It is a fine grey ware, and was associated with fragments suggesting a connection with the second occupation of Dwelling No. iii.

In clearing soil to the north-east of Dwelling No. i at 2 feet below the turf, on the surface of a paving of large flags, such as is frequently met with over the area, was found a heap of food refuse, including fish bones, among which was a sherd of coarse black ware with finger impressions beneath the rim (fig. 60), more akin to the craggan pottery of the Western Isles than to that of the earlier occupations of this site. A single rim fragment of a hard buff ware (fig. 59, No. 11) found at the north-west edge of the excavation shows a characteristic type of the twelfth or thirteenth century of our era.

In conclusion, the following facts emerge from the above review of the pottery. The pottery of the period previous to the erection of Dwelling No. iii, and of the first period of occupation of that dwelling, is of the same character—hard, well-potted ware, usually baked to a brick red, with grains of mica showing on the surface, and an absence of steatite in the body. Clay moulds for swords, etc., of bronze were associated with it in both periods. The pottery of the second period in Dwelling No. iii shows a marked change in form and technique. Rims with flanges to the interior, and profiles with a shoulder and cavetto below the lip, and a body backed with steatite, make their appearance. There is still in Dwelling No. iii the association of the clay moulds. In Dwelling No. iv, however, the flanged rims occur without the association of either the shouldered cavetto form or the clay moulds; the inference being that Dwelling No. iv had a temporary occupation while only the former type of pot was in vogue. The pottery of the third period in Dwelling No. iii continues the shouldered-cavetto forms that appear in the previous occupation, and points the line of the decadence of the form in rims where the cavetto has given place to a mere constriction below an everted rim with a bulging body beneath, *e.g.* fig. 58, No. 1, and fig. 60. With the pottery of the third period there is no association of clay moulds. The occupants have passed definitely into an Iron Age Culture. It is worth remarking that the pottery of the latest period is not in any way pottery characteristic of Broch Culture, only the sherd shown in fig. 60 bearing any resemblance to such characteristic ware. It approximates rather to some of the Hallstatic forms of the Continent,¹ and the British developments of All Cannings

¹ Déchelette, *Manuel D'Archéologie (Archéologie Celtique)*, vol. ii. fig. 329.

Cross¹ and Scarborough.² Both the last-named sites belonged to the latest period of the Bronze Culture, in that respect corresponding to Jarlshof in the earlier phases.

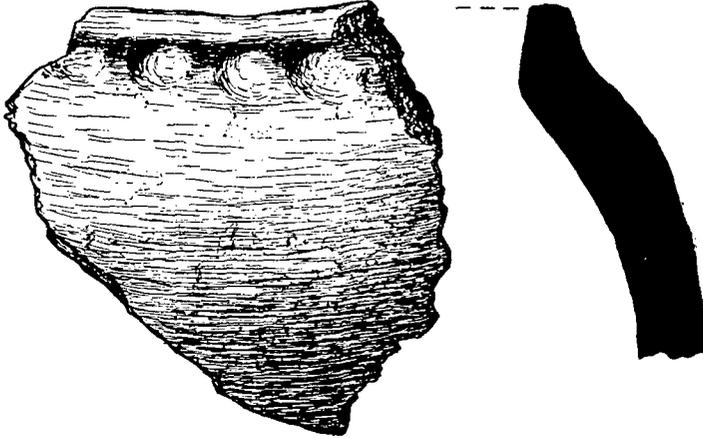


Fig. 60. Sherd of Late Ware. (‡.)

POT LIDS.

Round discs of stone, obviously pot lids, were of fairly frequent occurrence, and two were found in position above the remains of crushed pots, leaving no doubt as to their purpose—one in Dwelling No. iii and the other in Dwelling No. iv. In addition to the discs square lids were also found, two in number, and their identity as such was fully established by the finding of sections of square pots.

POUNDERS.

Oblong pebbles, abraded at one or both ends, were found in considerable numbers, and eighty-four were recorded. They were hard beach pebbles, varying in length from 8 inches or thereby to $1\frac{7}{8}$ inch (fig. 61, Nos. 1-3). Occasionally they were stones, beautifully marked or coloured, such as might possibly have been selected on account of these qualities. They were found throughout the various levels with a preponderance in those of later date. Frequently they occurred in groups, six or eight being found around the one situation.

PUMICE.

A large number of pieces of pumice were found, brought to the shores of Shetland by the ocean currents. Many pieces showed on their

¹ M. E. Cunnington, *The Early Iron Age Inhabited Site at All Cannings Cross Farm.*

² *Archæologia*, 1927, vol. lxxvii. p. 191.

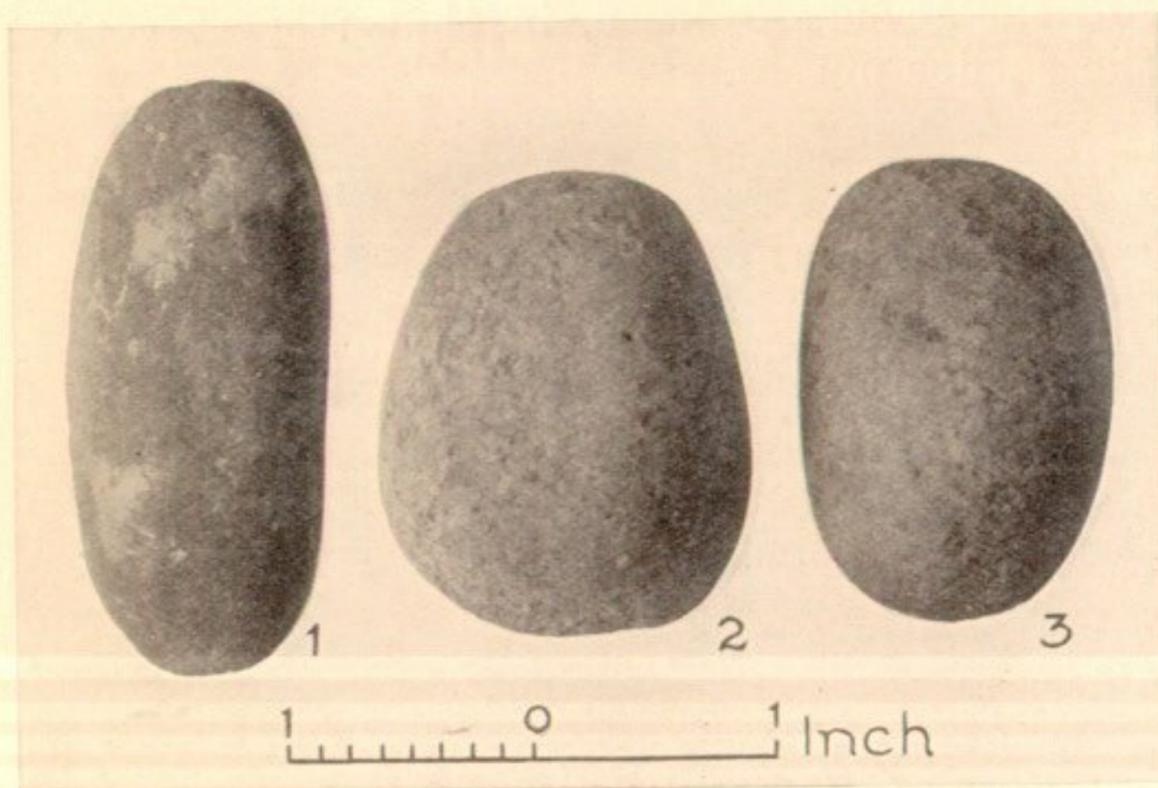


Fig. 61. Pounders of small size.

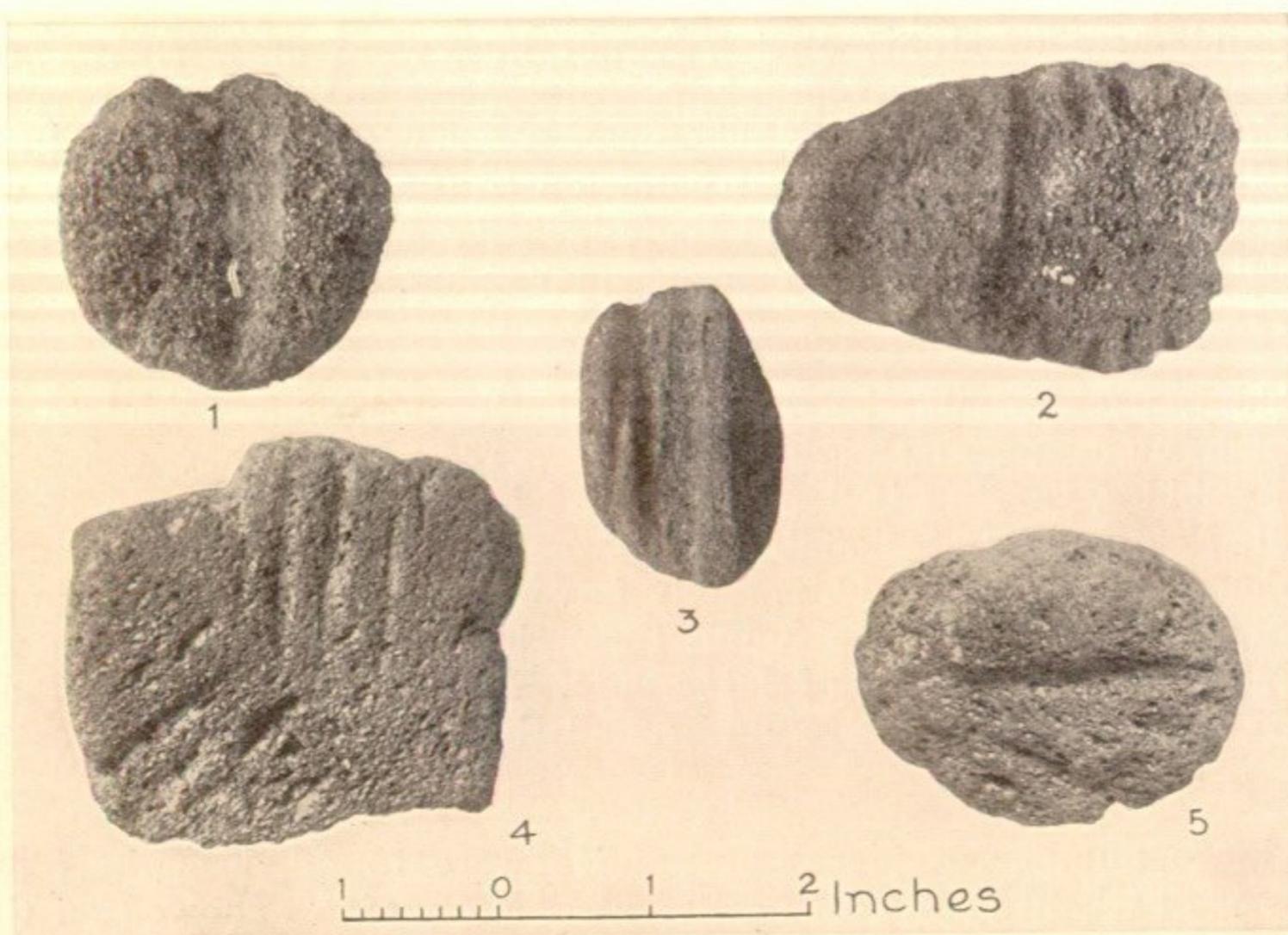


Fig. 62. Examples of Pumice showing marks of use.

surfaces the marks of use as an abrasive, sometimes in smooth polished surfaces, at others in grooves produced in the fashioning of bone pins, etc. (fig. 62, Nos. 1-5).

QUERNS.

In all, some eight large querns were found—five in Dwelling No. iii at various levels, and three broken and discarded examples in middens. From their vicinity were usually recovered the rubbing-stones, oblong pebbles with one slightly convex worked surface, which had been given a curve to fit the bed of the quern. The type of quern was the same wherever found, an oblong block of stone hollowed out like a trough but with one end open. Such querns may sometimes be termed “saddle querns” to distinguish them from “rotary querns,” but the term is inapplicable, as in no aspect do they resemble saddles, and the name “trough querns” would be more descriptive. The largest specimen was found lying on the edge of Midden C. It measured 2 feet 9 inches in length, 1 foot 9 inches in breadth, and 1 foot 5 inches in greatest depth externally, while the basin, which was incomplete, a portion having been broken off, measured 2 feet in length by 1 foot 1 inch in breadth by 8 inches in depth. The rubber was found lying beside it. The earlier the period of occupation the heavier the querns appear to have been. A typical example may be seen in fig. 6.

SCRAPERS.

Twenty-six scrapers of quartz were found within Dwelling No. iii at the level of the first occupation only, while from the floor-level of chamber *p* came several lumps of the quartz matrix from which they were evidently being fashioned. Scrapers were found also in Middens A, B, and C, and in their vicinity. As previously related (p. 257), adjacent to Midden B there was found the site of a knapper's operations, with his hammer, anvils, and cores, also numerous chips and a few finished artefacts.

There was found, in addition to the foregoing scrapers of quartz, a single example fashioned from a flake of red flint, the only flint artefact so far found on the site. It came from Dwelling No. iii at the north end of chamber *b* among the remains of a broken-down slate box at a level of about 13 feet above Ordnance Datum.

Scrapers of quartz have also been found in Finmark in Norway.¹

A discoid object of slate (fig. 63, No. 4) found in the vicinity of Midden B had the appearance of having been subjected to use as a scraper.

¹ *Universitets Oldsamlings Skriften*, Oslo, 1929, Band ii. fig. 20, p. 31.

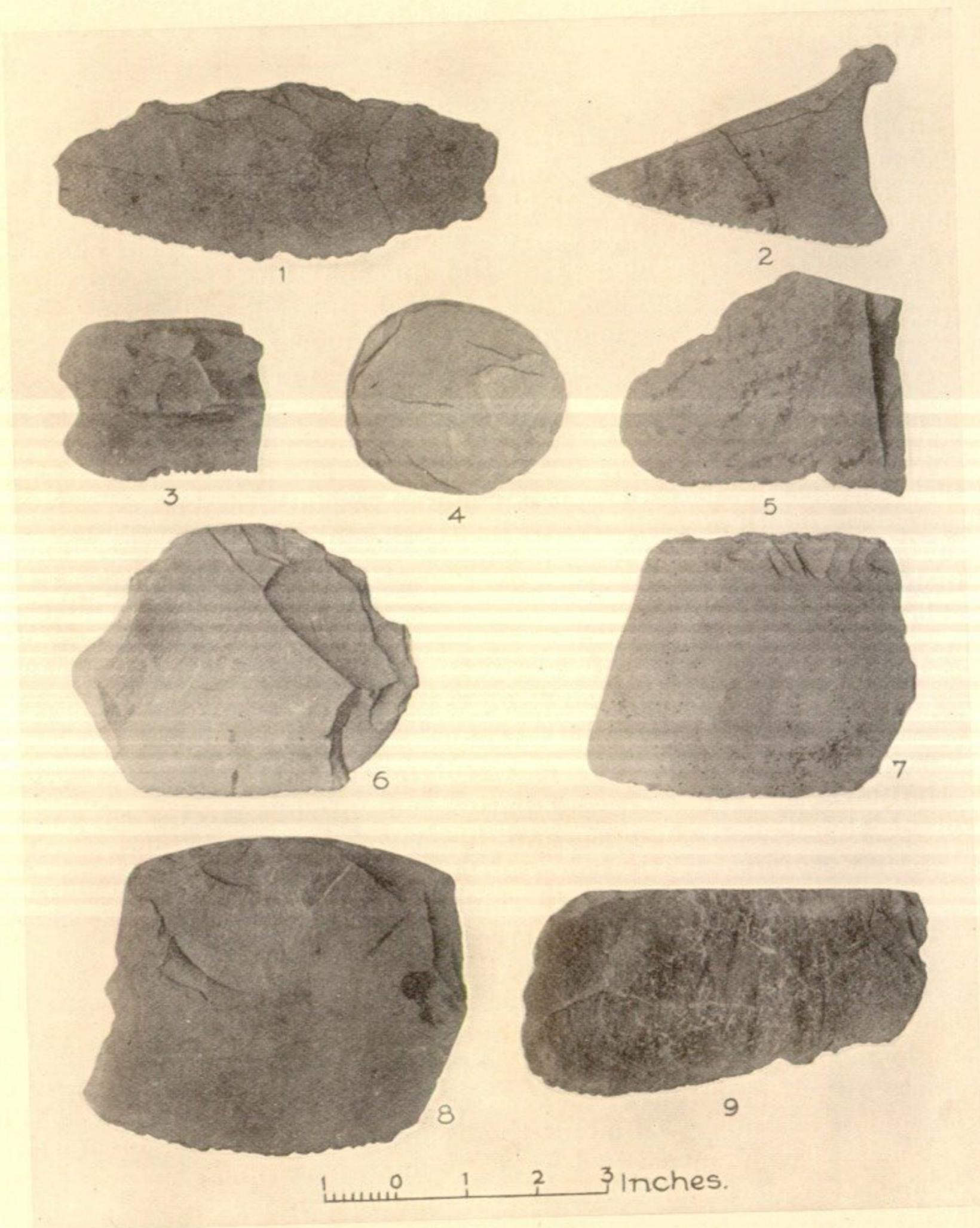


Fig. 63. Objects of Slate with Serrated Edges and a Slate Scraper. (No. 4.)

SHOVELS OF SLATE AND OTHER STONE.

Perforated heart-shaped objects, chiefly of slate, but occasionally of other stone, were represented by one complete specimen and ninety-nine pieces, a number of which amounted to a half. The probability is that these objects were used as shovels, or spades, with the hand inserted in the perforation, and the fingers bent so as to exercise a downward pressure, as signs of wear are frequently to be found on the lower side of the hole towards one side, where the friction from the hand, rather closely confined, would be most likely to occur. The fact that these objects are for the most part found just outside the dwellings and in the middens, and rarely within the dwellings, favours this suggestion for their use.

SLAG.

Slag.—Four specimens of slag were found in the course of the excavation.

(1) An iron slag without any copper in it, found in the lowest level of chamber *p* in Dwelling No. iii, and associated in locality with several large pieces of matrix-quartz, part of a scapula much worn by use as a shovel, two quern rubbers, and a pot rim. (Though the level is that of the first occupation the sherd contains much steatite in the body, which is not in keeping with the composition of the earliest pottery. The section, however, shows no late characteristic.) (2) An iron slag similar to the foregoing was found in the earth-house *h*. (3) A slag containing 22.04 per cent. of copper and 2.88 of lead found while opening up Dwelling No. iv. (It is noteworthy that no fragments of moulds were found as far as the excavation proceeded in this dwelling.) (4) A slag similar to the last, containing 10.56 per cent. of copper and 1.87 of lead, found in Midden B, associated in locality with pieces of clay moulds, slate implements, bone chisels, and a quartz scraper.¹

SLATE TOOLS.

Tools with Serrated Edges.—Twenty-six objects of clay-slate with serrated edges were recovered, and all apparently referable to early stages in the occupation of the area. From the interior of Dwelling No. iii came four pieces, viz. a small fragment from the floor of *l*, a fragment from the central area, found while removing the second occupation hearth, and two from the early chamber *o*. Only one of these is worthy of illustration, fig. 63, No. 2, which is one of the finest specimens so far obtained. Unfortunately it is imperfect—a part of the handle and of the back of the tool

¹ I am greatly indebted to Mr Cecil H. Desch, of the National Physical Laboratory, for having examined the specimens of slag and furnished me with a report on them.

having been broken off. It has been formed from a flake of slate rubbed down by pumice, and shows numerous *striæ* on the surface. It is supplied

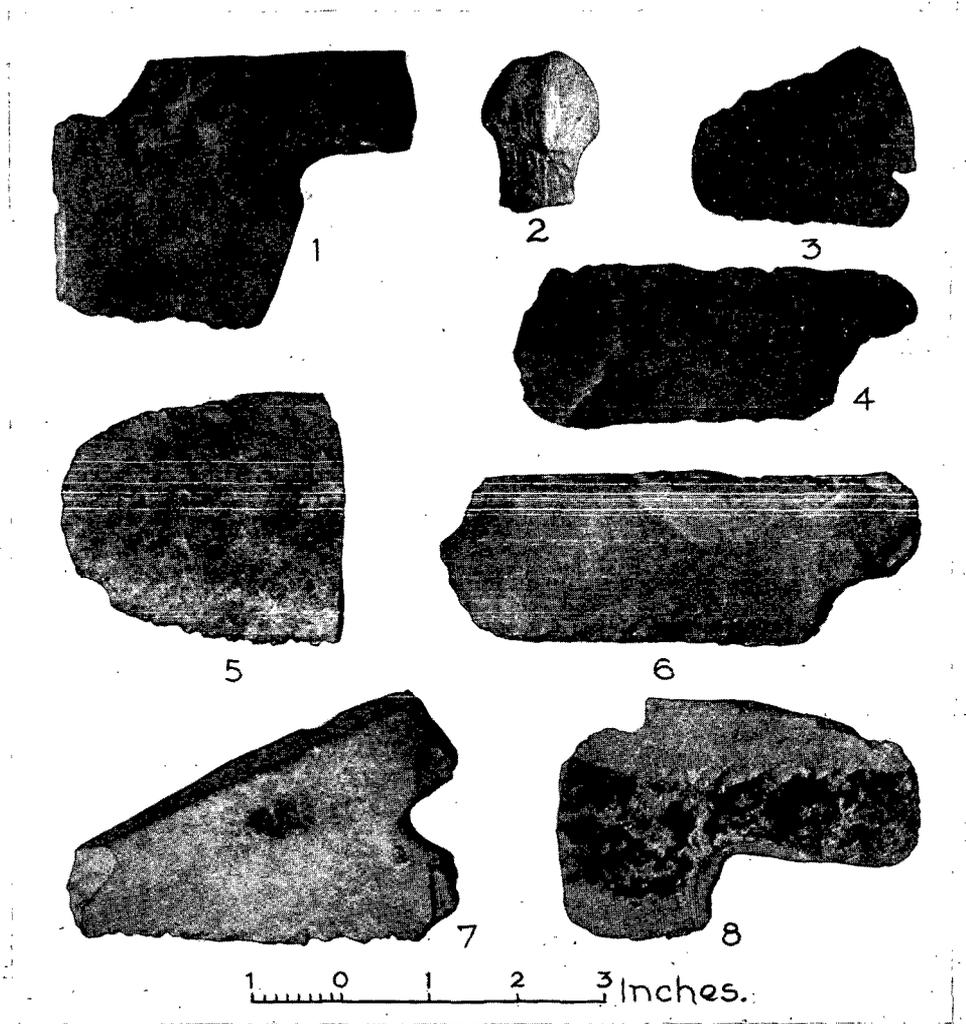


Fig. 64. Objects of Slate with Serrated Edges.

with a small flat projection at one end, possibly for attachment of a handle, as that feature is too small in itself to afford a satisfactory grip. Though no cultural association is suggested between these slate artefacts and the objects of similar material found in Norway, notched ends of

the same character appear on the Norwegian knives, *e.g.* on Nos. 5116 and 7468 of the National Collection at Oslo.

From the floor of *j* one piece was recovered (fig. 63, No. 9). From the area to the south of chamber *j* came two imperfect examples (fig. 63, Nos. 7 and 8). Two specimens, each with a notch at the end, came from chamber *k* (fig. 63, No. 3, and fig. 64, No. 3). One piece came from Midden A; three from Midden B (fig. 63, No. 7, and fig. 64, Nos. 5 and 8), one of them an obvious point, and one a handled butt; one from Midden C (fig. 63, No. 6); and from a low level in Dwelling No. iv came one (fig. 63, No. 5), a point end. From the various indefinite areas in the neighbourhood of the middens eleven were recovered, of which five are shown in fig. 63, No. 1, and fig. 64, Nos. 1, 4, 6, and 7. All the latter have probably been handled tools. The serrations on fig. 64, No. 4, are worn away.

It is difficult to determine to what use these serrated tools were put. It has previously been suggested, on the analogy of certain flint tools, that some may have been employed as sickles.

Where wood was so scarce as hardly to be of any account in the economy of the settlement, it is unlikely that so many saws were fashioned for sawing it, let alone the fact that slate would not be a good material to use for such a purpose. A saw appears to have been employed for cutting the cannon bones to make chisels from them. Further purposes for their use may have been the finishing off of the surface of pots before they were fired, and the skinning of carcases.

Knife-like Tools.—Tools of slate with their surfaces abraded with pumice, but with their edges unserrated, were of less frequent occurrence than saw-edged tools. They seem to have been more frequently fashioned with handles, and the levels at which they occur are also those of earlier occupation.

Five examples came from Dwelling No. iii.

One (fig. 65, No. 8) was found in the lowest level of chamber *o*, and is made with a notched tang at one end as if for attachment to a handle, in a manner similar to the Norwegian examples referred to previously.

A second (fig. 65, No. 7) came from below the second occupation hearth. It appears also to have had a tang or handle. Another specimen from this site is a mere point, which was found at the bottom of the hearth of the second occupation. Two other imperfect specimens (fig. 65, Nos. 3 and 6) were found below the second occupation level in *p*. One of these, No. 3, is fashioned with a handle. Fig. 65, Nos. 1, 2, 4, 5, show other handled specimens, all found in the area to the west and north-west of Dwelling No. iii.

These objects were also possibly used in the manufacture of pottery.

STEATITE VESSELS.

Although no complete vessel of steatite was recovered fragments came from all levels.

STONE IMPLEMENTS.

Roughly fashioned stone implements, for the most part peculiar to Shetland, were found in great numbers on every site, and almost entirely associated with the earlier occupations. A few were found in Dwelling

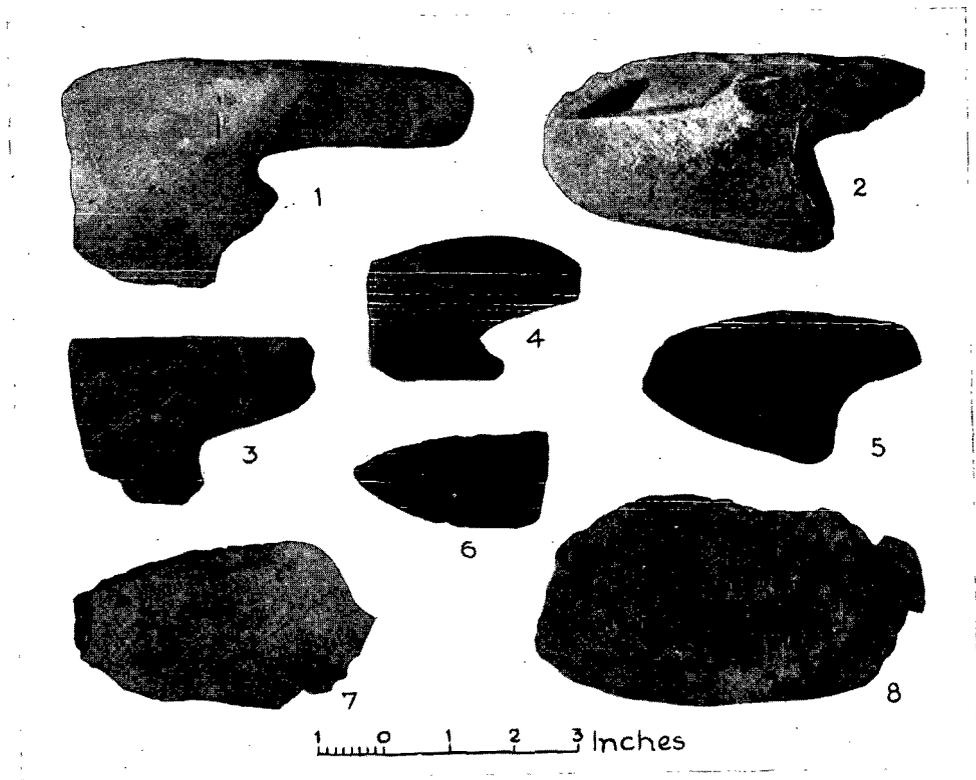


Fig. 65. Knife-like Tools of Slate.

No. iv, but these also on a low level. As the specific purposes of these tools or implements are unknown, and as they do not group themselves into well-defined forms, it is considered best not to classify them particularly. In all, from Dwellings Nos. ii, iii, iv, the middens, and their immediate environment, there came, exclusive of the so-called saws and knives, 329 artefacts made from slate or stone. With the limited accommodation

at the disposal in the Museum of Antiquities it was not desirable to bring this mass of material south, so sample specimens showing the different leading forms were brought to Edinburgh and are illustrated in fig. 66, Nos. 1-11.

From Dwelling No. ii and its immediate vicinity came 48 specimens. There was one good example of a club with a fashioned grip and several broken pieces of other club-like implements of sandstone. The majority were flat oblong implements of slate, such as might have been used in the manipulation of clay, of which so much was found on the site; and the fact that one was actually recovered with clay upon it lends colour to this suggestion. The form is illustrated by fig. 66, No. 1. A number of these slate tools from this site showed a peculiar shape, terminating at one end in a curve like the bow of a ship (fig. 67). This form did not seem to occur on the later sites. Implements with serrated edges and knife-like tools were conspicuously absent.

On the lowest level of Dwelling No. iii, upon the floor of chamber *l* (as previously stated), a remarkable collection was found (over 40 in number), associated with large unwrought pebbles, as if there had been a manufactory of tools on the spot, and fragments of sword moulds. A number of these specimens were imperfect, or merely broken fragments, and may have been remains of implements broken in the making, or material about to be remade. Among the few other specimens found in Dwelling No. iii was a fine-handled club-like implement (fig. 66, No. 11), found on removing the second occupation hearth. The majority of these objects were found in the middens, and in the unoccupied areas in their vicinity—no less than 73 coming from Midden C, and 18 from Midden D the earliest of the series of middens. Heavy club-like implements, with or without a grip, measuring as much as 14 inches in length, were fairly common, and there was also represented a heavy, curved, pick-like tool (fig. 66, No. 6). Flat oblong implements, sometimes pointed to one end, were most numerous (fig. 66, Nos. 1, 4, 7, and 9), and one of these, at least (No. 7), shows a depression on one edge as if to rest the thumb in while the implement was held so as to strike with the edge.

A certain number of handled tools were found (fig. 68, Nos. 1-3), and also the broken handles of others.

The purposes for which these tools and implements were used can best be determined by considering the requirements of the dwellers in the settlement. In a region in which timber was almost entirely lacking there was little need for sharp-edged tools such as a woodworker requires, and the necessities of the inhabitants would no doubt be met with cheaper material than bronze, while that metal was scarce and costly on the mainland. Slate, which was ready to hand in an outcrop at

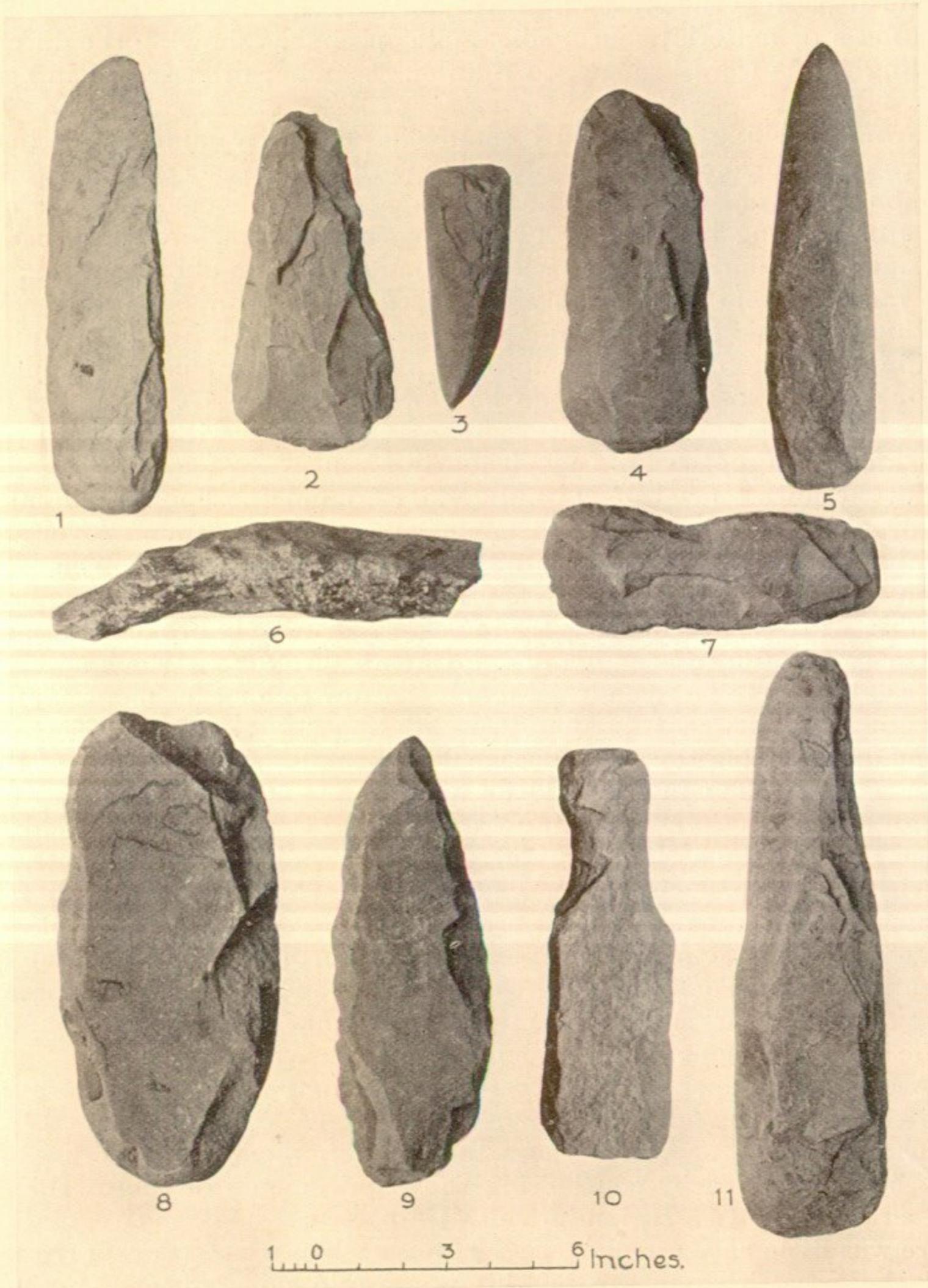


Fig. 66. Roughly-fashioned Stone Implements.

Grootness on the other side of the isthmus, served the purpose. For extracting the slate, quarrying tools were required, and for this purpose the club- and pick-like implements would suffice. To fashion the slates lighter stone implements, such as are shown in fig. 68, would be needed. The hammer-stone found on the site of the quartz-knapper's operations (fig. 29) shows the class of implement that was employed for that purpose, the indentations on the tapered end indicating that it was held by the butt. Some of the tools were no doubt used for quarrying and fashioning steatite. Much use was made of this material, both for vessels, of which numerous fragments have been found at all levels, and also for supplying grit to be mixed with the potters' clay.

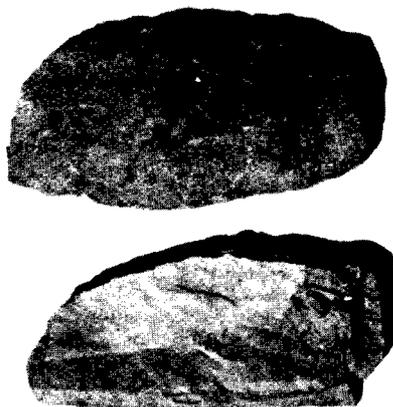


Fig. 67. Tools terminating in a Curve. (½.)

Near Cunningsburgh, on the banks of the Catpund Burn at the roadside, may be seen the outcrop from which the material has been quarried, and, *in situ*, a block, shaped for a bowl-like vessel, partially cut out and not detached from the rock. Steatite was largely used by the American Indians for cooking utensils on account of its fire-resisting properties, and its extraction from quarries was effected in exactly the same manner as in Shetland. For this purpose chisel-like tools of several varieties made of tough stone were employed, in appearance closely resembling some of the stone implements with which we are dealing.¹

Tools for working clay have already been referred to, and as working in clay was evidently a large part of the industry of the township, many of the flat tools were no doubt used for extracting clay as well as for working it in the manner of the mason's trowel.

The discovery of grain in Dwelling No. 1² was proof of the practice of agriculture. Pointed tools much worn at the point, such as Nos. 3 and 5, fig. 66, might well have been used for working in the soil.

The finding of large lumps of matrix quartz shows that that mineral was obtained from the rock rather than from pebbles, as it probably was more readily fractured in the former case. This would supply another demand for heavy quarrying tools.

It has been said that heavy clubs, such as found in prehistoric

¹ Bureau of American Ethnology, *Bulletin* 60, pt. i. p. 228.

² *Proceedings*, vol. lxvi. p. 118.

environment, were employed for removing blubber from whales in comparatively recent times. While it is possible that they were so employed in earlier times also, the scarcity of whalebone, and the circumstances in which the clubs are found, do not afford plausibility to that explanation. Specialisation had not reached a fine point when such tools were in use, and a quarrying club would be as readily used

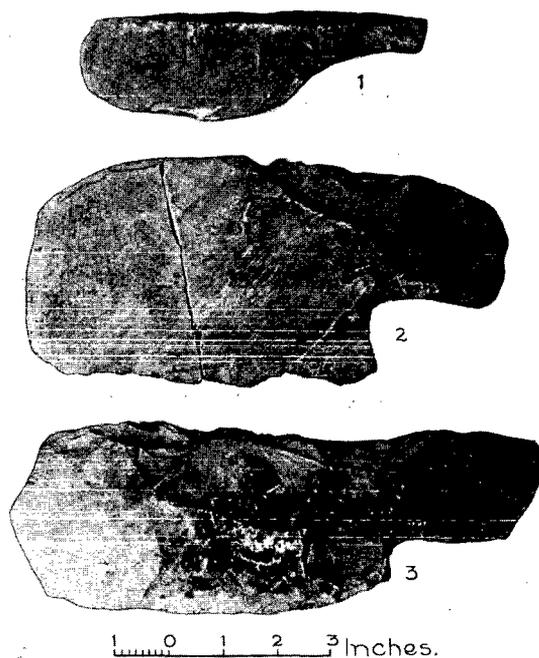


Fig. 68. Handled Tools.

for breaking rock and removing blubber as for pole-axing an ox or clubbing a seal.

Fig. 69 shows a curious object of stone, imperfect, which does not suggest use as a tool or implement. It is of sandstone, and was found at a level about 15 feet over Ordnance Datum on the east side of the interior of Dwelling No. iii. Presumably the object was originally symmetrical with two projections on each side, and so resembled a rudely shaped figurine. It has a peculiar interest in being one of the few relics from Jarlshof which has a parallel from Skara Brae in Orkney.¹

¹ *Proceedings*, vol. lxxv. p. 71, fig. 30. The Abbé Breuil has informed me that very similar objects are used as toys among the Tuoarags in North Africa.

A small stemmed fan-shaped object of slate, $1\frac{1}{2}$ inch long (fig. 64, No. 2), which appears to have been the somewhat elaborate terminal of a handle, was found at a level 13·81 feet over Ordnance Datum while searching for the wall-face of Dwelling No. iv.

WHORLS.

Only two whorls have so far been found on the site, and both near the same spot in Dwelling No. iii. Fig. 70, No. 1, is a thin irregularly circular disc fashioned from a piece of pottery, perforated eccentrically; and No. 2 is of steatite, with a large circular perforation made from both sides. Both specimens were found at a high level on the floor of chamber *f*.

GENERAL OBSERVATIONS.

Three dwellings have now been completely excavated at Jarlshof, and a fourth partially, so as to leave exposed a late level of occupation. Examination has also been made of various kitchen-middens.



Fig. 69. Stone Object resembling a Figurine.

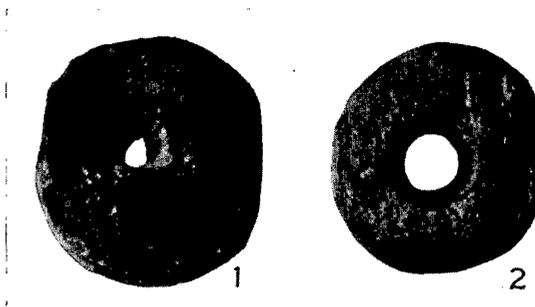


Fig. 70. Spinning Whorls. (†.)

Dwelling No. ii, from the relative position of its floor, was the earliest. It produced no fragments of moulds for casting objects of bronze. One sherd of decorated pottery (fig. 3) was found in it, but that pottery is in no way characteristic of Bronze Age material.

Dwelling No. i showed two main periods. One disclosed in the larger part of the dwelling which extended from the original entrance eastward, and yielded numerous fragments of moulds for bronze swords and axes. The other in the lower levels of chambers G, H, and L, in which there were no fragments of moulds.

Dwelling No. iii disclosed three main periods of occupation, the two lower of which yielded numerous fragments of moulds, and the upper none. The pottery of the lowest level, however, differs markedly from that of the two later occupations, while no such distinction separates that of the other two. None of the pottery could be called characteristic Bronze Age pottery, and it is not surprising that a piece of iron slag should have been found at the level of the earliest occupation.

Dwelling No. iii was erected on the site of an earlier habitation, remains of which are chambers *j* and *k* and the passage *r*. The mass of debris between Dwellings Nos. iii and iv has been derived from this earlier construction, and contains numerous relics from it. The pottery found from these sources is akin to that of the first occupation of Dwelling No. iii.

Dwelling No. iv has been excavated partially so as to leave exposed late features similar to those which were removed from the higher level of Dwelling No. iii. There is no doubt that remains of earlier occupation lie beneath. The pottery from Dwelling No. iv indicates a connection with the second occupation of Dwelling No. iii, but there is an absence of moulds from it, a fact which suggests a later date.

The middens, as disclosed by the relics, are all referable to the earlier occupations.

The details of the latest construction do not correspond to those of the brochs, nor does the pottery resemble characteristic broch pottery.

I cannot conclude without acknowledging the help of many friends. I am greatly indebted once more to Miss Margery I. Platt of the Royal Scottish Museum for the examination and report on the animal bones. From Mr James S. Richardson, Inspector of Ancient Monuments, I obtained valuable assistance in recovering the dog's skeleton and in making a measured drawing of it. For many weeks my son, Mr A. T. Curle, attended daily and washed the numerous relics as they were recovered from the soil. Major A. A. Gordon, C.B.E., also helped in a similar manner, while at the close of the season The Hon. J. M. Balfour took a share of the supervision. Nor must I omit to thank Major Gardner, F.R.I.A.S., who took considerable pains to make me a sketch of a crushed earthen pot with its stone lid upon it, which I was unfortunately unable to make use of as an illustration. Mr J. B. Mackay

of H.M. Office of Works, as in the previous year, afforded me much assistance and was resourceful on all occasions; Mr Baird, the official foreman of the Department, was invaluable; while the staff of local workmen showed, as heretofore, intelligence and enthusiasm in the execution of their work. Lastly, I have been indebted to Dr Graham Callander, the Director of the National Museum, and to Mr A. J. H. Edwards, the Assistant Keeper, for much help while this paper was in preparation and passing through the press.

REPORT ON THE ANIMAL BONES FROM JARLSHOF, SUMBURGH, SHETLAND. By MARGERY I. PLATT, M.Sc., Royal Scottish Museum, Edinburgh.

The animal remains obtained in the course of excavation at Jarlshof, Sumburgh, in 1933, resemble in kind those found in Dwellings No. i and No. ii in the previous year, and are quite typical of a Bronze or Early Iron Age settlement. Early domesticated or semi-tame animals of use for food, *e.g.* sheep, ox, and pig, are, of course, most abundant. Other species represented by more scanty remains may have been also utilised in this way. The various species are recorded below in order of their numerical predominance, so far as the mammals are concerned; other groups are of minor importance.

Sheep.

The bones of the sheep obtained last year occurred in varying proportions in different parts of the excavation. As on previous occasions they exceed in number those of any other domestic animal. Skulls, even of a fragmentary nature, are not numerous, and there is no indication of the presence of many varieties of sheep, as there was in previous years. In particular there are no remains of the typically small Shetland sheep, or of the hummel type. All the smaller bones apparently belong to immature sheep, judging by a lower jaw of comparatively large size, which has not the adult dentition. There are, however, a few horn-cores and odd limb bones indicating a sheep of unusually large and slender build. These were obtained in parts of the excavation of early date, *e.g.* from the passage known as the "South Corridor" between Dwellings No. iii and No. iv and Midden C. Therefore, in the absence of skulls of varying adult type, it may be safely assumed that the numerous smaller bones represent early growth stages of a heavy-horned, large-limbed, yet slender sheep, which is the only type present. The large horn-cores are reminiscent of those of the Soay sheep. Where horn-cores remain attached to a fragment of skull, these are seen to diverge from one

another at an angle of about 105°; sweeping in a wide gentle curve slightly upwards, but chiefly outwards and backwards. There is a prominent ridge on the upper surface along the whole length of the core, and a second on the under surface; anterior to these the core is rounded, but flattened posteriorly. Hence, at any point the core is semicircular in section, with the flattened surface posterior. The surface texture is smooth and finely pitted. The cores do not appear to have been so long as those of the Soay sheep, but since all the specimens from Sumburgh are broken and incomplete at the end, it is impossible to state their original length. Nevertheless, in their solidarity, massive size, angular shape, and surface texture they resemble the horn-cores of the Soay. A few other bones of this large variety of sheep from this excavation have been preserved, fortunately whole or nearly complete, so as to admit of measurement and allow of interesting comparison with the corresponding bones of the Soay skeleton in the Royal Scottish Museum. It will be seen from the measurements recorded below that the cannon bones compare very closely, the Sumburgh bones being actually slightly longer than those of the Soay species, yet the former are even more slender, as shown by the shaft measurement:

	Sumburgh.	Soay (R.S.M.).
<i>Metacarpal:</i>		
Max. length	13·0 cms.	12·75 cms.
Max. width of proximal end	2·4 "	2·4 "
Max. width of distal end	2·55 "	2·5 "
Min. width of shaft	1·45 "	1·6 "
<i>Metatarsal:</i>		
Max. length	14·15 "	13·8 "
Max. width of proximal end	1·9 "	2·0 "
Max. width of distal end	2·2 "	2·45 "
Min. width of shaft	1·1 "	1·25 "
<i>Radius:</i>		
Max. length	14·35 "	16·2 "
Max. width of proximal end	2·85 "	3·5 "
Max. width of distal end	2·55 "	3·1 "
Min. width of shaft	1·5 "	1·8 "
<i>Tibia:</i>		
Max. length	21·1 "	22·4 "
Max. width of proximal end	3·8 "	4·3 "
Max. width of distal end	2·45 "	2·75 "
Min. width of shaft	1·4 "	1·65 "
<i>Humerus:</i>		
Max. length	*(11·8 ")	15·5 "
Max. width of proximal end	4·25 "
Max. width of distal end	3·0 "	3·35 "
Min. width of shaft	1·4 "	1·75 "

* The figure in brackets is the length of a fragmentary bone.

FURTHER EXCAVATION AT JARLSHOF, SHETLAND. 315

	Sumburgh.	Soay (R.S.M.).
<i>Femur:</i>		
Max. length	(16.1 cms.)	19.0 cms.
Max. width of proximal end	4.3 ,,	4.85 ,,
Max. width of distal end	4.15 ,,
Min. width of shaft	1.4 ,,	1.65 ,,

Skulls and lower jaws are either immature or, if adult, badly broken. Measurements of a few of the fragmentary horn-cores are recorded below for comparison with those of the Soay sheep:

	S. Corridor.	Sumburgh.		Soay (R.S.M.).
<i>Horn-cores:</i>		Midden C.	Midden C.	
Outside length of curve	(16.8 cms.)	(19.5 cms.)	(18 cms.)	32 cms.
Girth at base	13.8 ,,	18.0 ,,	16 ,,	17.8 ,,
Distance between bases	3.4 ,,	3.3 ,,

These measurements, few as they are, point to the presence of a sheep greatly resembling the Soay, heavy-horned and with long slender limbs of even more deer-like proportion. With few exceptions the bones of immature animals only are found in the middens. Many bones show teeth marks and evidence of gnawing, this being an indication in itself that dogs were kept, a fact of which there is further verification in the discovery of a complete dog's skeleton, to be described later.

Ox.

Bones of the ox from Sumburgh this year are quite numerous, but do not represent so many individuals as those of the sheep. There are also more young animals represented than adults, although it is always difficult to judge the number of adults since their bones are invariably more broken up. The large fragments probably are all that remain of bones which have yielded a good supply of marrow. Every bone of the skeleton may be recognised in whole or in part—small ones such as carpals, tarsals, and phalanx bones have escaped damage and are particularly numerous. Measurements have been taken of a few complete bones for comparison with those of the small Shetland ox and are recorded below:

	Sumburgh.		Shetland (R.S.M.).
<i>Metacarpals:</i>	A.	B.	
Max. length	18.3 cms.	17.5 cms.	17.5 cms.
Max. width of proximal end	5.2 ,,	5.4 ,,	5.25 ,,
Max. width of distal end	5.3 ,,	5.5 ,,	5.55 ,,
Min. width of shaft	2.95 ,,	2.8 ,,	2.95 ,,

	Sumburgh.		Shetland (R.S.M.).
	A.	B.	
<i>Humerus:</i>			
Max. length	32.5 cms.	...	26.5 cms.
Max. width of proximal end	11.05 ,,	...	8.75 ,,
Max. width of distal end . .	8.9 ,,	...	6.7 ,,
Min. width of shaft	3.05 ,,	...	3.65 ,,
<i>Atlas vertebra:</i>			
Length of centrum	4.6 ,,	3.95 cms.	3.8 ,,

It is unfortunate that there is not more complete material for measurement and comparison, but from the evidence it is apparent that the Sumburgh oxen are not far removed from the typically small Shetland race of oxen found in the island to-day. The cannon bones are almost identical, whereas two humeri are only slightly longer though more slender of shaft than those of the small Shetland ox. These early oxen were probably slightly taller with more slender limbs. No skulls were found, and only an occasional lower jaw with remains of a milk dentition. The few horn-cores found point to a shorthorn type. They are small, heavy, and cornute, rapidly becoming pointed distally. Their girth at the basal point of origin is roughly equal to the length of the outer curvature, as seen below:

<i>Horn-cores:</i>	Sumburgh.	
	A.	B.
Length of outer curvature	14.75 cms.	15.9 cms.
Circumference of base	14.75 ,,	15.3 ,,

The ox bones appeared in quantity in all parts of the excavation, except in the "South Corridor," where they were only sparsely represented. There is no indication of an ox of larger breed, the small-sized ox of rather slender build being evidently the only kind present.

Pig.

As in previous years remains of pig are much less numerous than those of sheep and ox. Very young or small-sized pig remains were found dispersed in different parts of the excavation; yet only a few fragments of skulls, lower jaws, and metatarsal bones are representative of adult animals. The bones appeared sparsely everywhere except at the very lowest levels, in *h* and in the uppermost layers, *i.e.* the surface of Dwelling No. iii. Many of the lower jaws had milk molars present and the last molars not fully grown. One fragment of skull from earth-house *h* contained an adult tooth row showing wearing of the last molar tooth. This furnishes a slight difference from the domestic variety of to-day, in which the last molar is not usually so worn. The total length of the upper tooth row as taken from this last fragment

is 10.35 cms. In another similar adult skull fragment from the "South Corridor," the tooth row measures 9.9 cms. Neither of these indicate pigs of very great size.

Pony.

With the exception of one bone—a phalanx of small size—the pony is not represented this year. This is rather surprising, since remains of pony were thinly scattered throughout all parts of Dwelling No. i excavated in 1932.

Dog.

Under this heading is recorded the most important animal find of the year, *i.e.* the almost complete skeleton of a dog. Its association with these early dwellings makes it of late Bronze Age, or Early Iron Age date, and as such it is certainly the earliest and most primitive dog so far found in Scotland. Its position was quite natural, and gave no suggestion of disturbance of the remains since the animal lay down and expired at the entrance to Midden B. The dog was about 18 inches high at the shoulder and resembled in other proportions a terrier. The maximum length of the skull is 175 mms., and though slightly larger, compares closely in most respects with a dog's skull (preserved in the British Museum) from the Swiss Lake Dwellings. The Sumburgh dog differs mostly from these early Swiss Lake Dwelling dogs in the markedly greater width of the cheek-bones. In this respect it differs also from most other dogs of early date, *e.g.* those of Early Stone Age figured by Rütimeyer¹ and Bronze Age dogs, as recorded by Degerböl,² on the Continent. The only specimen which resembles the Sumburgh dog in its proportional width of cheek-bones is the skull of a larger dog in the British Museum labelled "*Canis familiaris*, Early Iron Age, from Hanging Langford Camp, Wilts." However, in its smaller size and general features the Sumburgh dog's skull appears to be much more closely related to the Stone Age type (*Canis palustris*) than to the larger species typical of the Bronze Age (*Canis inostranzewi*).³

Seal.

Remains of the Grey Seal (*Halichoerus grypus*) were very sparsely distributed in all parts of the excavation. A few lower jaws, claws, leg-bones, and vertebrae of adult size occurred in Midden A, also in *i* and earth-house *h* associated with Dwelling No. iii. Bones of the young of this species occurred. The common seal (*Phoca vitulina*) was not represented.

¹ "Die Fauna der Pfahlbauten in der Schweiz," von Dr L. Rütimeyer, *Nouveaux Mem. de la Soc. Helvétique*, vol. 19 (1862).

² "Über prähistorische, dänische Hunde," von Magnus Degerböl, *Publikationer fra Universitetets Zoologiske Museum, København*.

³ A separate and more detailed report of the entire skeleton will be shortly submitted for publication to the Royal Society of Edinburgh.

Whale.

In Middens B and C and in earth-house *h* a few fragmentary remains of whale of unknown species occurred. These included parts of vertebra, a first rib, and part of a lower jaw.

Field Mouse.

The skull and limb bones of a Field Mouse (*Apodemus sylvaticus*) were found in earth-house *h*. Since these small animals burrow extensively to-day, their remains are not of prehistoric interest.

Birds.

The remains of these are thinly scattered in most parts of the excavation. In Dwelling No. iii and its associated earth-houses odd bones of the Eagle, Falcon, Gannet, Skua, Cormorant, Shag, and Lapwing occur; while in Middens A and B, Cormorant, Gannet, Shag, and Goose are represented. Of these remains those of the Gannet are the most numerous.

Fish.

Very few fish bones were found this year, some in Dwelling No. iii, others in earth-house *h*. Only two species are represented—the Cod and the Wrasse—parts of the skull and teeth or vertebra of these only being found.

Shells.

Shells of the Limpet (*Patella vulgata*) were very numerous in the middens. Those of the spout-fish (*Ensis ensis*) were only found in one midden preserved beneath a stone, elsewhere they had entirely disintegrated.

Sponge.

In the corner of chamber *p*, Dwelling No. iii, a curious light grey substance was found, resembling a piece of cotton-wool or some kind of fabric. This, on microscopic examination, was found to be composed of tiny glassy monaxon spicules, proving it to be the remains of a specimen of the Bread-crumbs Sponge (*Halichondria panicea*) found commonly in the shallow waters round our coasts. Its presence within the dwelling at Jarlshof is puzzling, as it must have been brought by human agency to the spot where it was found. Such glassy sponges from time to time have been used for only two purposes by man: firstly, as fertilisers, and secondly, in lieu of cosmetics. It is highly improbable that the inhabitants of the dwellings at Jarlshof should have been aware of their former use, and very remarkable should they have employed the material for the

latter. I am indebted to Mr M. Burton, M.Sc., of the British Museum, for the information that some primitive people make use of glassy sponges in place of cosmetics. The practice of using freshwater sponges for this purpose has been attributed to the early Russian people. The minute glassy spicules of the sponge rubbed on to the skin cause slight irritation, and produce in consequence a natural bloom. From an isolated instance of a discovery of this kind it is unwise to draw conclusions.

Human.

Among the remains of Dwelling No. iv, very early in date, occurs the parietal bone of a human skull. Miss M. L. Tildesley of the Royal College of Surgeons kindly examined this for me. She suggests it possibly belonged to a man under thirty-five years of age, having a broad-headed type of skull. This latter type is quite in agreement with a Bronze Age date.

Derived as they are from the middens of an early dwelling, the bones are of a fragmentary nature, as would be expected: the extent of this has been noted already under the various sub-headings. Apart from the unique find of the dog's skeleton, the sheep remains create perhaps the greatest interest this year. More curious even than the lack of variety found last year is the apparent absence of the small Shetland breed. This typical remnant of an early domestic variety—the Peat or Turbary sheep—which has always been regarded as having had especial preservation in Shetland from an early date. So far as evidence goes, and providing that the Dwellings exposed this year are earlier in date than those of last, it is a sheep having affinities with the other primitive domestic breed—the Soay—which has gained priority in Shetland. This is quite consistent with the fact that this large-horned early domestic race (according to Professor Ritchie¹) was widely spread in Europe in the Bronze Age. The question as to which of these two early breeds was the first to inhabit Shetland may be answered as the result of further excavation, and, following from this, the subsequent history of the various breeds of sheep in these islands.

An interesting agreement with early excavations in Denmark is the presence of bones of the Grey Seal (*Halichoerus grypus*)—rather than those of the Spotted Seal (*Phoca vitulina*) most common to-day. The latter species, according to Degerböl,² was rarely present in seas of the Early Stone Age, having apparently become increasingly more common as time has gone on.

¹ J. Ritchie, M.A., D.Sc. (1920), *Animal Life in Scotland*.

² Magnus Degerböl, Köbenhavn (1933), *Danmarks Pattedyr i Fortiden*.