

I.

ACCOUNT OF THE EXCAVATION OF AN IRON SMELTERY,
AND OF AN ASSOCIATED DWELLING AND TUMULI AT
WILTROW IN THE PARISH OF DUNROSSNESS, SHET-
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The site of the group of prehistoric remains to be treated of in this communication lies in an area of enclosed moorland covered with stunted heather, some 200 yards to the north-east of Mr Bairnson's croft at Wiltrow, and as the crow flies, some three miles north of the mansion-house of Sumburgh. A small sheet of water, the Loch of Browbreck, lies a short distance to the north-west.

My attention was drawn to this site a few years ago by Mr Robert Bairnson, the son of the crofter on whose croft the ruins were situated and one of my most enthusiastic workmen at Jarlshof, who in the course of a slight excavation had found specimens of iron slag, some stone implements, and a few sherds of pottery, but it was not until this last summer that I found time and opportunity to make a systematic exploration of the site.

The remains of the smeltery and of the dwelling, which some fifty or sixty years ago had served as shelters for stock, had later on suffered seriously at the hands of the builders of adjacent stone dykes, and both structures had been reduced to little more than their foundations, barely rising above the general level of the moorland, and covered with heather.

The sketch plan (fig. 1) shows the group. The smeltery, which lay nearest to the croft houses, had suffered most, and no part of the external face of the wall remained. As far as ascertainable the building had been oval, or elliptical, with its main axis approximately east and west.

On the northern side of the structure three furnaces had been formed in a very simple manner, by directing a draft along a flue to a throttle formed by converging stones and covered over by a slab, behind which glowed a fire of peat, for the reduction of the bog ore. The flues of these furnaces, shown on the plan, were operated from the north, east, and west respectively (fig. 2).

The flue from the north was in the best state of preservation, and from

the orifice, as it remained, to the throttle it measured 4 feet. It was a narrow channel lined with stones on either side, and measuring some 5 to 6

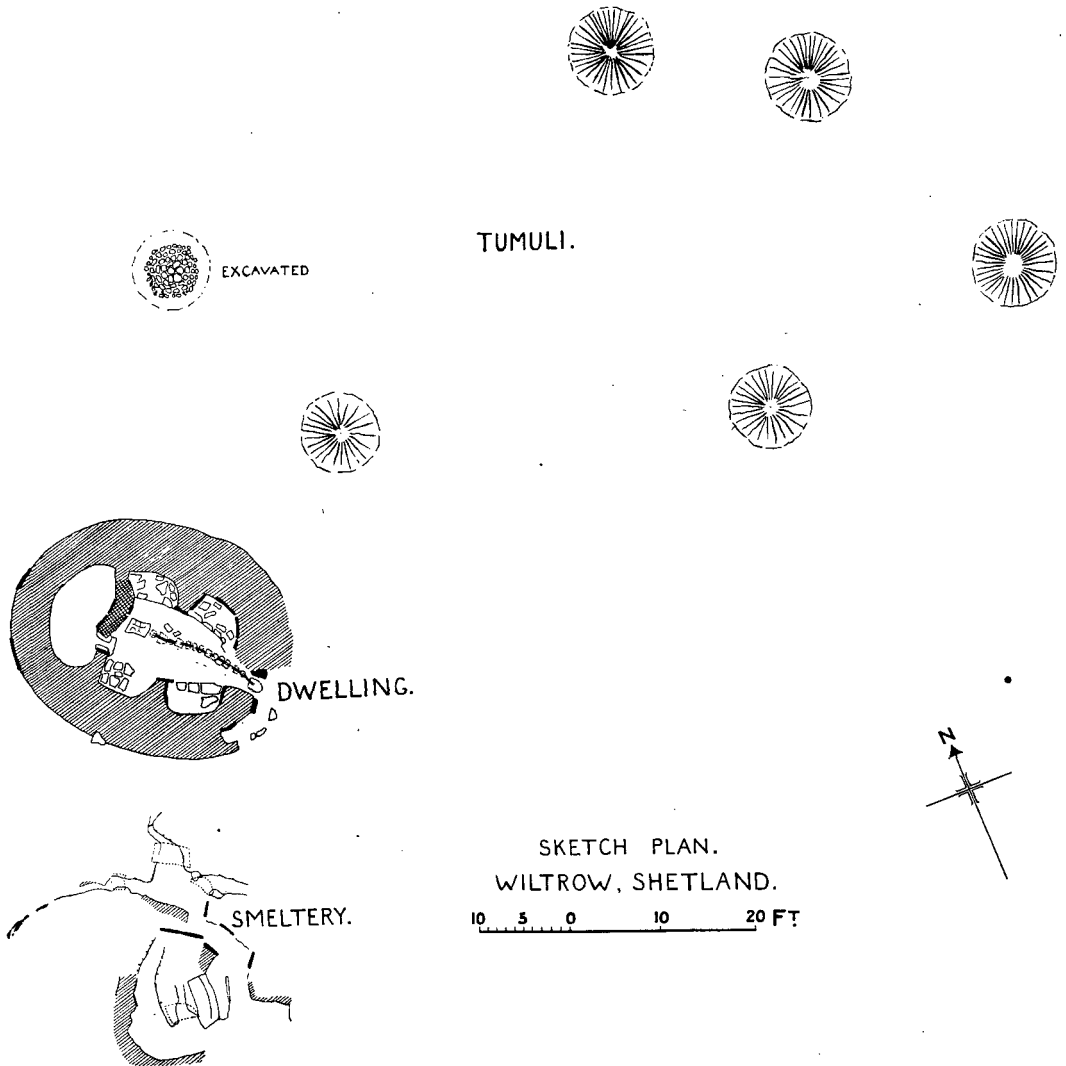


Fig. 1. Plan of Smeltery, Dwelling, and Tumuli at Wiltrow, Shetland.

inches across. At 1 foot 9 inches from the outer end a flat triangular stone, 8 inches across and 2 inches thick, fitted into a slot on either side, and had evidently been used as a shutter to put the flue out of action.

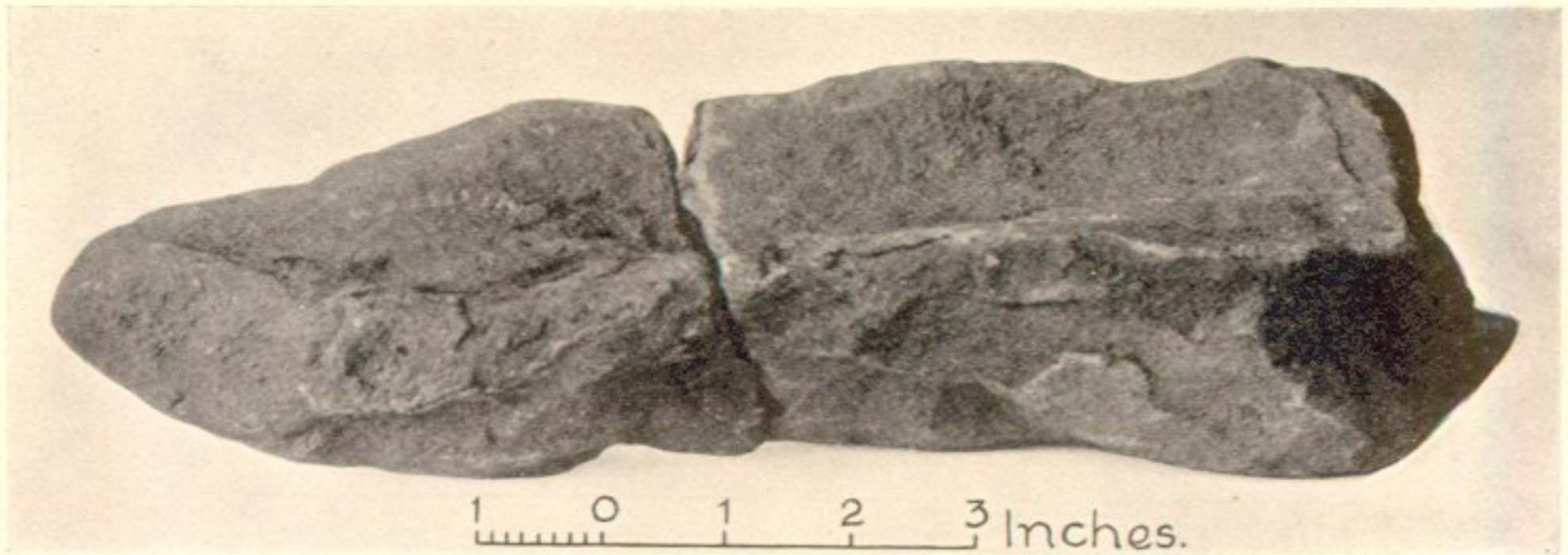


Fig. 3. Spout-like Object of Sandstone.



Fig. 4. Back Chamber of Dwelling, looking outwards.

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The lintel which covered the throttle was from 4 to 5 inches above the bottom of the flue on the outside, and a couple of inches more on the inside. On the site of the fire there was much scoria, thin flake-like pieces of iron, and peat ash.



Fig. 2. The North and East Furnaces indicated by crosses.

The two other flues were very similar, but there were more remains of slag and metal beneath the lintel of the east furnace than beneath either of the others.

Adjacent to the furnaces, and to some extent mingling with the slag, etc., were numerous pieces of pottery, on some of which there was an encrustation of iron, also rude stone implements on the faces of some of which there was also traces of iron, and many scrapers made of quartz. There was also found a curious spout-like object of sandstone (fig. 3)

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10 inches in length, broken and incomplete, on both sides of which there were slight encrustations of iron. The stone implements were very similar to those found at Jarlshof, and included spatulate tools and rounded clubs.

Behind these flues was a small chamber measuring some 7 feet 6 inches by 6 feet, the floor of which was covered with peat ash. An opening in the south wall gave access to a passage which led into the remains of

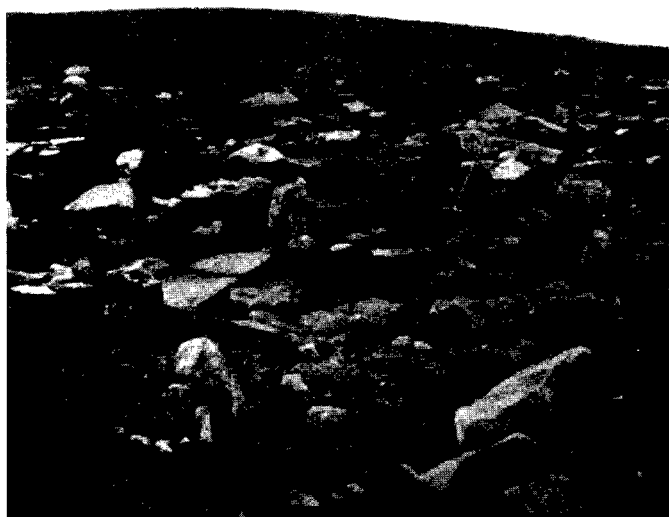


Fig. 5. Lateral Chambers with Paved Floors on Left on entering.

another chamber of irregular shape, on the west side of which there remained a short length of low walling. Within this chamber was found a considerable quantity of bog ore, the raw material for the furnaces. On the north side of it was a lintel covering the end of another flue, which ran in a northerly direction for a short distance, beyond which it was not traceable.

Some 10 feet to the north of the northmost furnace was the dwelling—a circular building, as previously stated reduced almost to ground level by pillage of its material. Though the outline of the outer wall was ascertainable with comparative certainty, only a few of the actual large

blocks which had marked it remained. It had been a structure elliptical on plan, lying with its main axis from north-west to south-east, having the entrance from the latter direction, and measuring 31 feet by 25 feet over all across the centre. Unfortunately at the outer end of the entrance passage there was so much dilapidation of what appeared to be a secondary building, that its original features were unascertainable. The passage had been about 2 feet 4 inches wide, and had extended through the wall

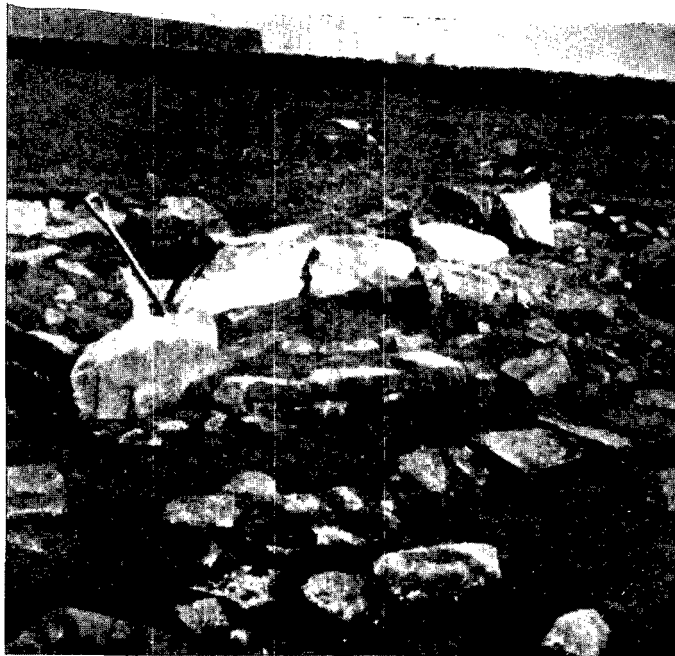


Fig. 6. Lateral Chamber on Right on entering, and Drain Covers in Front.

for some 7 to 8 feet with an elongated chamber on the left on entering. The original plan of the dwelling was identical with that employed in the earlier dwellings at Jarlshof, and consisted of a central court with a long transverse chamber across the inner end, and two small recessed chambers on either side. The length of the interior from front to back was some 21 feet, and the greatest width from the backs of the opposite chambers 13 feet.

The inner chamber measured 12 feet in length and some 6 feet in greatest width. Originally it had been open to the court, but later a wall had been constructed between the opposite partition walls which

formed the inner ends of the adjacent lateral chambers, with an entrance through it at the south end. The floor of this chamber was covered with numerous flat stones which suggested the ruin of a beehive roof. There was no indication in it of a hearth.

Immediately in front of the secondary cross-wall in the court lay a large rectangular flagstone, the fire-fractured surface of which showed that it had been the hearth.

The lateral chambers, or cells, each measuring some 6 feet in length

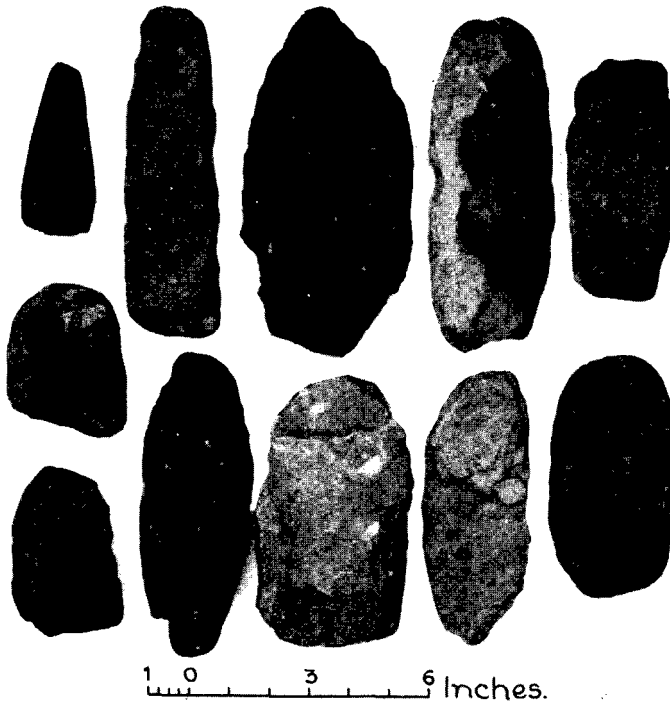


Fig. 7. Stone Implements found in the Dwelling.

by 3 feet in depth, were rounded at the back, and paved on the floor (fig. 5). The floor of the first chamber on the right in entering was completed with a kerb some 7 inches above the level of the court (fig. 6), while the floor of the chamber opposite was also raised. There was evidence of fires having been burned in front of each of these foremost chambers.

From a point adjacent to the front of the hearth there ran a drain to the entrance, measuring some 5 inches across by $2\frac{1}{2}$ inches deep, with a

semicircular section, and covered with flags (fig. 6). Such a drain could only have been intended to carry away surface water, and it is obvious therefore that the court was open to the air, while the chambers only were roofed. We may assume therefore that a similar arrangement characterised the buildings on the same plan at Jarlshof, though no drains were



Fig. 8. Stone Implements found in the Dwelling.

found in these. As the floors on that site were of sand they were probably not required.

In clearing out this building there were found over 50 rude stone implements, complete and broken, representing the numerous types, excepting those of slate, found in the earlier prehistoric dwellings at Jarlshof (figs. 7, 8, 9). There were also recovered a few hammer stones, some pieces of pumice, two small scrapers of quartz similar to those found in the smeltery (fig. 10), and a round anvil stone such as would be used in their manufacture. A few pieces of coarse black pottery were found, not identical with that from the adjacent building, but of the same character as most of it, some stone pot-lids (fig. 11), also a



Fig. 10. Scrapers of Quartz from Smeltery and Dwelling.

cube-shaped block of sponge iron (fig. 12), and fragments of three separate saddle querns (fig. 13). Of these, two pieces of one quern were found in the interior, and the two other contiguous fragments among the debris at the entrance. These querns have been of typical saddle-back type, differing materially from the trough querns found at Jarlshof.

Lying to eastward of the dwelling, from 12 to 80 feet distant, lay a



Fig. 9. Stone Implements found in the Dwelling.

group of tumuli, six in number. They were small inverted bowl-shaped mounds measuring some 10 to 12 feet in diameter, and from 18 to 20 inches in height, covered with a growth of stunted heather. One of these, which lay some 23 feet distant, was excavated. Beneath the covering of heather on the surface it was composed of stones gathered from the moorland, of a size such as a man could easily lift with one hand. From among these stones came the broken ends of three stone implements similar to some found on the other sites, and an abraded hammer stone. Towards the centre of the mound the stones were larger, and in the heart

of it there appeared to be a rudely defined conical construction, rising from a platform of flat stones, and formed of cobbles surmounted by a small boulder measuring 1 foot in length by 8 inches in thickness. On removing this apparent construction there was disclosed a level bed of rock measuring 3 feet 5 inches in length by 1 foot 7 inches in breadth and seemingly undisturbed. There was not the slightest trace of a burial either by inhumation or incineration. The only other find, in addition

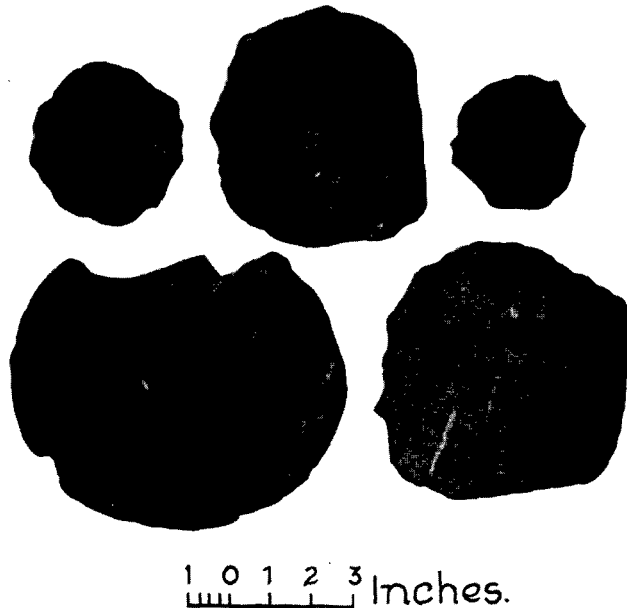


Fig. 11. Pot-lids found in Dwelling.

to the portions of implements, was a sherd of very rotten pot found fairly high up and outside the central cone, similar to that found in the smeltery but more affected by heat, the chips of steatite being entirely burned out of it.

Another tumulus adjacent to the stone dyke, and one of the two furthest from the dwelling, as shown on the plan, was also excavated. In it there was less suggestion of construction but, as in the previous example, towards the centre the stones were larger. It also had been erected on a rock surface. From among the general mass of stones there were recovered eight stone implements of an axe-like form, whole or in part, and one half of a pot lid.

The facts revealed in this excavation call for some consideration.

In the first place it is remarkable to find a group of furnaces for the extraction of iron, associated with rude stone implements of definite types similar to those found in the prehistoric dwellings at Jarlshof, and there associated with the working of bronze. From this it is obvious that such stone implements, to whatever uses they might have been applied, were not superseded by either bronze or iron. It must be noted, however, that certain implements of a class which was common in the earlier levels at Jarlshof are absent from Wiltrow, viz. those fashioned from slate or kindred material, to the shapes of knives and serrated blades, and to heart-shaped perforated shovels. Scrapers of quartz were found at both places, but whereas those from Jarlshof are large and

rather clumsy, those from Wiltrow are small and neatly fashioned, resembling in this respect thumb-nail scrapers of flint. As metal did not

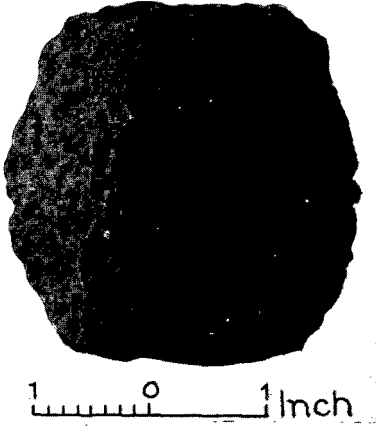


Fig. 12. Block of Sponge Iron.

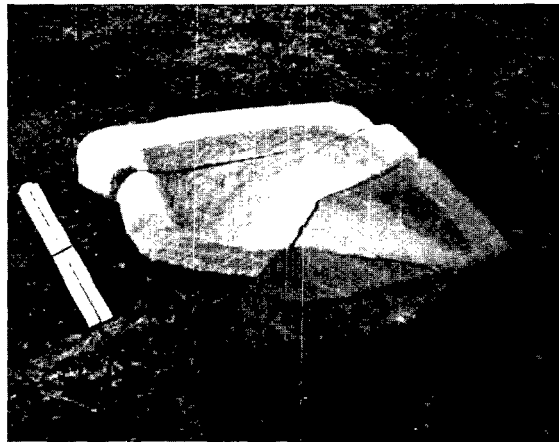


Fig. 13. Remains of Saddle Quern.

supersede the rude stone implements we may presume that, notwithstanding the introduction of metal, they continued to be employed in the same industries as formerly. What were these industries? From the finding of

grain in Jarlshof associated with bronze, we know that the inhabitants cultivated the soil, therefore some of these stone objects were used in various processes of agriculture, such as opening up the soil by ploughing or otherwise, in breaking down clods, also probably after harvest in bruising the barley. For building, large stones would have to be levered up from the land surface in which they were embedded: peats were burned and so had to be dug out. Vessels were fashioned from steatite so that material had to be quarried from the rock faces. Clay was required for potting, and had to be extracted, and before being ready for the potter it had to be prepared: sheep and cattle had to be slaughtered and flayed, and the skins cured. There being no timber on the island, except such odd tree trunks as might be brought to the shores by the ocean currents, there was no need for sharp-edged tools in industry.

We have seen from the finds at Jarlshof that bronze was chiefly employed for the manufacture of swords, so in view of the continued use of the stone implements it seems likely that iron, if not being extracted for export, was similarly to be used for weapons. As bog iron, however, is widely distributed in Scotland there was probably no occasion anywhere to import such iron produced from Shetland.

No doubt these implements were specialised, but so far it has not been possible to determine the purpose that each type served. One spatulate tool found at Jarlshof bore clay on its surface, and as it would have answered the purpose of a trowel it may have been so employed. That round stone discs found both at Wiltrow and Jarlshof were pot lids was clearly proved by their being found *in situ* on the tops of pots.

The true character of the small stone heaps known as tumuli which abound in certain regions in Scotland has long been a puzzle. They are almost invariably found in the neighbourhood of hut circles, sometimes within a few feet of the circle, and never very far away. A number have been examined with negative results. It has been assumed that these are burial mounds, but as a rule neither traces of inhumation nor of incineration have been found within them. A notable exception, however, must be stated. In 1908 the presence of unburned burials in a number of small stone cairns was revealed by the senseless action of a crowd of youths on the shore near Gullane, in East Lothian, and adjacent to a cairn of the early Iron Age which had just been excavated. It is noteworthy, however, that these tumuli¹ were situated on the sand and not on cultivable land. The possibility that they are in the majority of cases merely collections of surface stones from small patches of cultivated land is conceivable. The facts elicited by the excavation of two of

¹ *Proceedings*, vol. xlii. p. 332.

these tumuli at Wiltrow lends some weight to the latter suggestion. Obviously if stones were gathered off a piece of cultivable land they would be deposited on a useless surface. Both the heaps at Jarlshof lay on rock. It is natural that the larger stones would be gathered first, and so the larger stones were at the bottom. The fact that so many stone implements, broken and otherwise, were in the heaps indicates that the material was collected from the surface in the immediate vicinity. If there had been a burial otherwise than after cremation the body must have been simply laid on the rock and covered with a very inadequate heap of stones, in which there was little or no soil, a singularly unpleasant arrangement in the immediate vicinity of a dwelling. Finally if the body had been so dealt with, there would have been some arrangement of stones around it to form a space in which to deposit it, analogous to that found in the Iron Age cairn at Gullane, above referred to, but any indication of such an arrangement in this case was absent.

The pottery (fig. 14), which for the most part came from the smeltery, consisted of numerous small pieces, and though there were a few fragments of rims shown by sections, etc., in fig. 15, there were not enough pieces of any one vessel capable of being joined together to show the form. The ware was coarse, and as a rule open in texture, with numerous rather large chips of steatite in the body. Many of the pieces were ornamented with rectilinear impressions of varying depth, taking the forms of chevrons and lozenges. One small portion of a rim showed two diverging horizontal lines suggesting the formation of a late Celtic motive. Unfortunately the piece is too small to be certain of the style the complete decoration would have assumed (fig. 14, No. 7).

The vessels, which had for the most part been cooking-pots, appeared to have been straight sided with edges bevelled towards the interior. One rim section (fig. 14, No. 3) indicated a spherical body with an up-standing rim.

In its ornamentation this pottery bore no resemblance to any pottery found at Jarlshof, though the rim section above referred to was not unlike a section of a sherd found in the latest level of occupation of Dwelling No. iii on that site.¹ In the impressed treatment, however, there is a fairly close analogy with pottery from the Hebrides, notably with that from the earth-house at Foshigarry in North Uist excavated by the late Mr Erskine Beveridge, LL.D., F.S.A.Scot.² There were, however, applied bands on many of the Foshigarry vessels, a feature absent from all the pieces at Wiltrow. Somewhat analogous pottery found at

¹ *Proceedings*, vol. lxxviii. p. 224, fig. 58, No. 7. ² *Proceedings*, vol. lxxv. p. 299, figs. 23, 24.

Galson, Borve, Port o' Ness, Lewis, and Pigmies' Isle off the Butt of Lewis, is in the National Museum of Antiquities.

The block of sponge-iron and samples of other material found in the smeltery were submitted to Dr C. H. Desch of the National Physical Laboratory, who very kindly examined them. He reported that the sponge of iron had all the appearance of iron made in a bloomery before hammering, but that it had oxidised so completely as actually to be non-

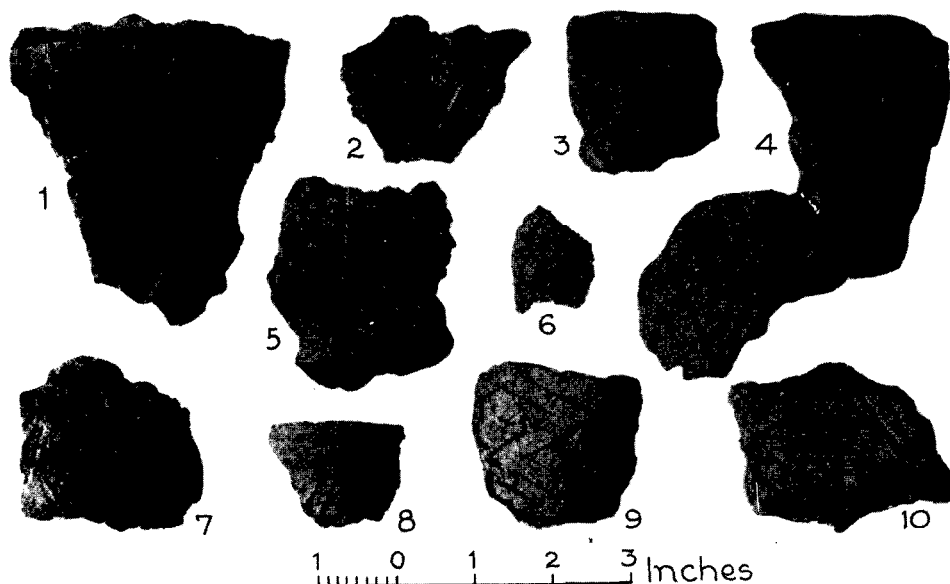


Fig. 14. Sherds with incised Decoration from Smeltery.

magnetic: certain specimens, he reported, were, without doubt, bog ore from which the iron was made, also that it would be in all probability a self-fluxing ore which would lend itself to the bloomery process.

So unusual an occurrence as the association of iron with rude stone implements such as were in use with bronze, requires a statement to show that the association was not merely one of locality but equally so of time. In other words, that the iron furnaces were not constructed in the ruins of a building belonging to an earlier epoch. On that point the evidence was conclusive. The iron and the pottery were on the same floor level, in fact there is iron adhering to more than one of the sherds, and no evidence emerged to suggest that the smeltery was not an original

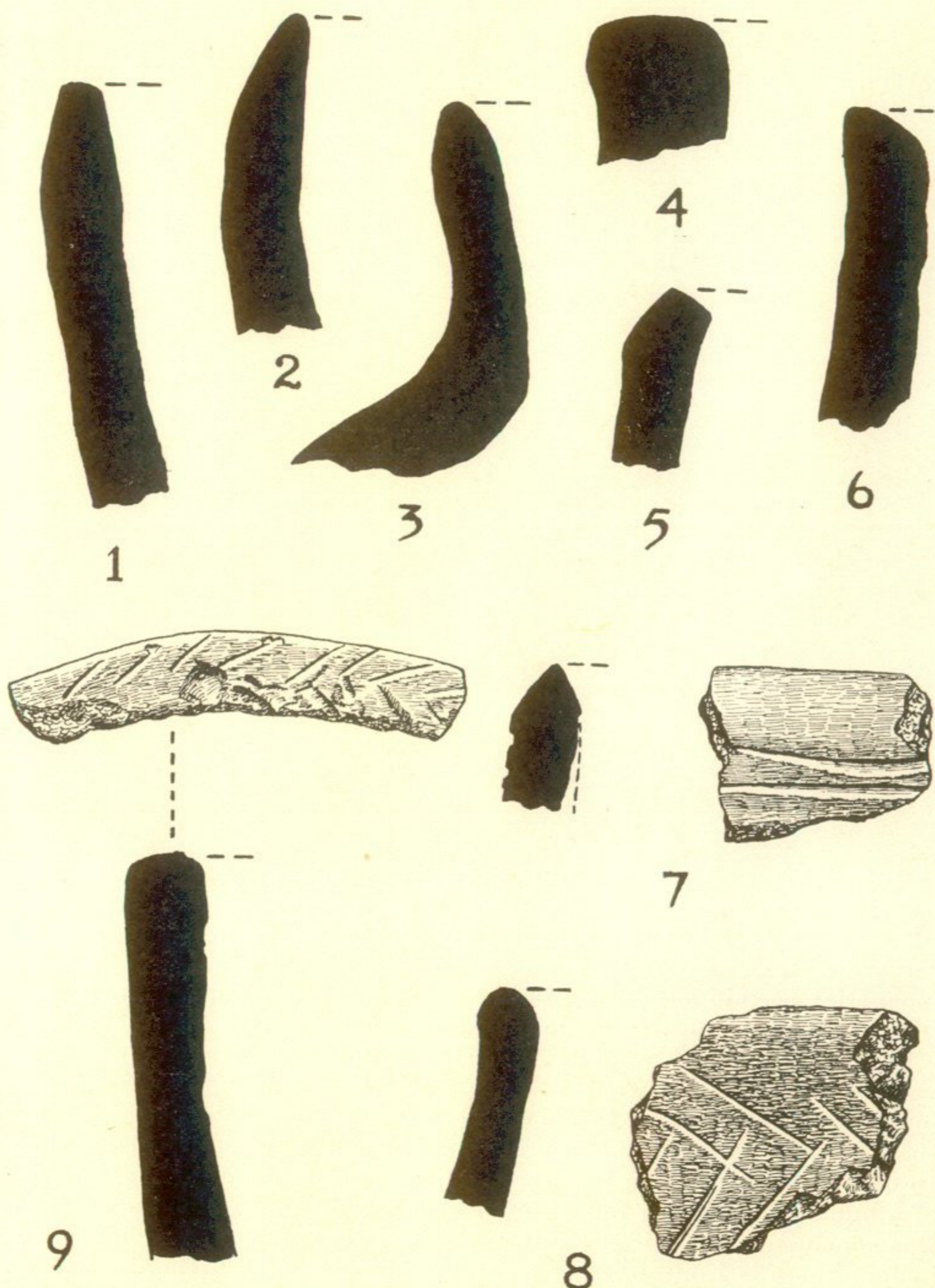


Fig. 15. Sections, etc., of Rims from the Smeltery.

construction. Remains of iron, moreover, were not confined to the furnaces. A considerable quantity was found on the floor of one of the chambers in the dwelling, and the sponge of iron actually came from the latter site.

The chronological relation which the occupation at Wiltrow bears to that at Jarlshof is more or less determined by a comparison of the relics. We have seen that the rude stone implements, which continued through the Bronze period in the latter site, were still in use at Wiltrow. The same may be said of quartz scrapers, though the form of these objects had changed in that they were smaller. But in the third occupation level of Dwelling No. iii at Jarlshof, which was clearly referable to the Iron Age, rude stone implements were not numerous and quartz scrapers were entirely absent; the pottery also from being straight sided in the earliest period had become shouldered, often with a sharp angle at the shoulder. At Wiltrow, as we have just seen, the pottery with one exception, as far as ascertainable, was straight sided. The Wiltrow occupation appears therefore to have occurred very early in the Iron Age of Shetland, before an extension in the use of iron had brought about its substitution for the rude stone implements with which the people carried on their ordinary vocations. The exploration during the last summer of a hut circle and earth-house adjacent to the group of prehistoric dwellings at Jarlshof, and to be described hereafter, revealed the fact that the rude stone implements, as well as the scrapers of quartz, had entirely passed out of use before its construction. This, to judge from the pottery, had occurred not long after the date of the latest occupation of the Dwelling No. iii, and some time before that of the neighbouring broch.

In closing I desire to express my indebtedness to Miss Cecil Mowbray, F.S.A.Scot., for having surveyed and planned the remains at Wiltrow, also to Mr Calder, F.S.A.Scot., of the Royal Commission on Ancient Monuments, for assistance in the planning. My thanks are due also to Dr C. H. Desch of the National Physical Laboratory for sparing time to examine the iron relics; to Mr Knox of the Geological Survey of Scotland for giving me a report on the stone chip used in the pottery, and I must not omit to acknowledge my indebtedness to Mr Robert Bairnson for having directed my attention to the site and to his father for affording me every facility to excavate it.