IV.

HOWER, A PREHISTORIC STRUCTURE ON PAPA WESTRAY, ORKNEY.

By WILLIAM TRAILL, C.E., J.P., F.S.A.Scot., and WILLIAM KIRKNESS, F.S.A.Scot.

This report was illustrated with 400 feet of 16 mm. silent film.

Sandstorms have preserved for Scottish archæology another prehistoric settlement in Orkney. The site under review lies on the west side of the small island of Papa Westray, an island which has already contributed much to our knowledge of a long-forgotten past. Evidence of the occupation of this settlement has been known to the islanders for a long time as each succeeding storm sends huge seas battering the face of the cliff, and carrying away parts of the foreshore on which it is situated.

The name Hower was given to the site by the Norsemen. The word is the plural of "how," a mound, because at one time the site was occupied by more than one mound. To-day the islanders speak of the site as the Knap of Hower, showing that they have forgotten the original meaning of the word. Knap means a cap, and one could not speak of the knap or cap of the mounds.

Encroachment by the sea showed us that unless excavation was done very soon, a survey of this site would be impossible, as it would be entirely swept away. Sand covered the top of the masonry to a depth of some 8 feet. After this was cleared, the work of excavating was comparatively easy. The inside of the building was full of sand, which was very quickly disposed of by throwing it over the cliff. The excavation revealed two buildings lying parallel to each other, the larger being situated to the south of the other, and lying with its main axis N.W. and S.E. (fig. 1). Both buildings are constructed of dry-built rubble masonry. The inside of the larger building somewhat resembles the outline of a figure of eight on plan. The area within the thick enclosing wall is 32 feet long and 16 feet wide, and is divided transversely into two parts or chambers by stone slabs set in alignment but having intervals between them. The side slabs are bonded into the lateral walls, and while these slabs stand as high as the remaining height of the wall, approximately 5 feet, they appear to have been broken off at the top (fig. 2). The slabs forming the middle portion of the partition

are complete and only measure 2 feet 4 inches high (fig. 3). The plan shows kerbstones in the middle of the partition which may be the remains of a small lobby. On the north side of the inner chamber, 2 feet 3 inches above the floor, is an aumbry, 2 feet 2 inches wide and 1 foot 2 inches

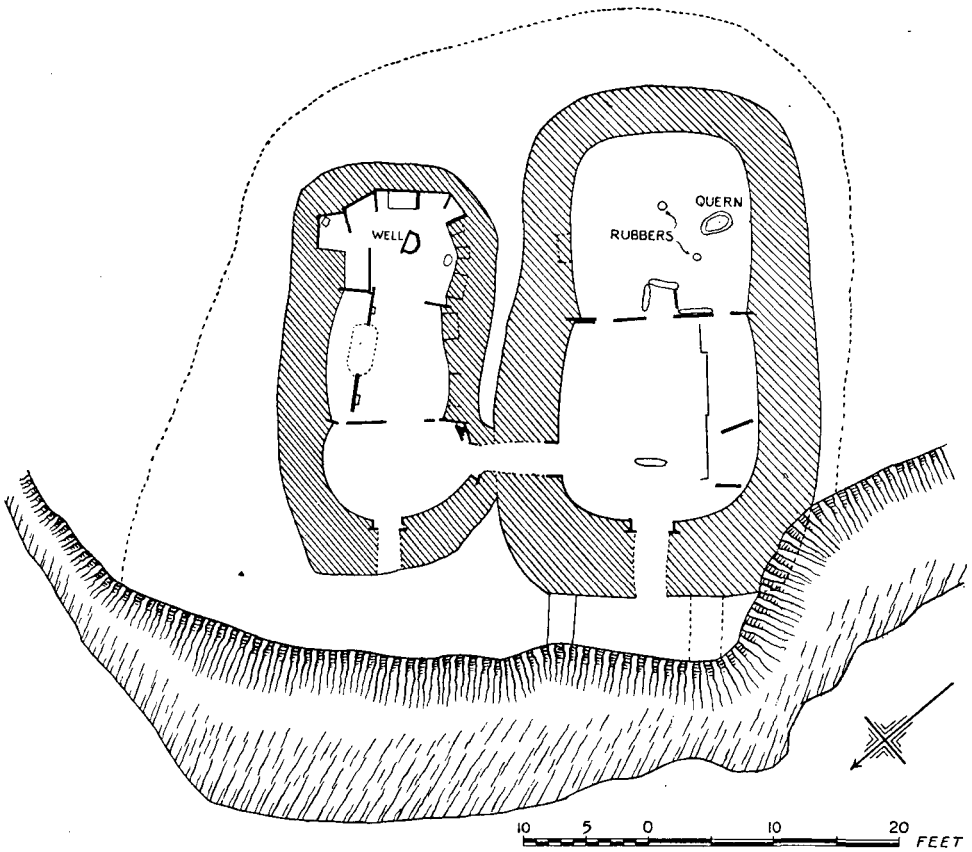

Fig. 1. Plan of Structure at Hower.

high, of the usual type found in early buildings. On the south side and close to the wall in this chamber a saddle-quern was found. Two rubbers, one larger than the other, which had been used with this quern, were got on the floor which at this part was covered with ground shells of shellfish. The entire side of the south wall of the outer chamber of this building was occupied by a low platform 4 inches high. It had been divided by thin stone slabs and may suggest bed accommodation. The plan shows a short length of foundation wall on the outside of the

structure, with a pavement of heavy slabs opposite the main entrance. Erosion by the sea has so destroyed this feature that its purpose is not ascertainable. Entry to the building was obtained by a stone-covered passage-way, 6 feet long, 3 feet wide, and 4 feet 8 inches high, in the centre of the west end. The entrance doorway shows some exceedingly interesting features. The door-checks are formed of stone slabs set on end, which are placed at the rear of the passage-way instead of nearer the middle where one would expect to find them. Apparently the door has been of light framework, because the openings in the stone jambs, which were made to receive the cross-bars used for keeping it shut, are very small.

Fig. 2. Hower: Slab bonded into wall on north side of larger building.

The communicating passage, which gives direct access to the other chamber, is also stone-covered. It measures 8 feet long, 5 feet through the wall of the south chamber and 3 feet through the wall of the one on the north; it is 2 feet 6 inches wide, and 3 feet 4 inches high. The jambs consist of upright slabs, but the door-checks are at the other end of the passage, thus showing that this entry could only be locked from the building on the north. The smaller building, which is 30 feet long and 12 feet broad inside the walls, is somewhat similar in shape to the other. Its walls are not so high and, generally, the structure is in a more ruinous condition, but from the character of the dry-stone masonry and other details it may be regarded as contemporary. Two parallel rows of slabs set across the structure have partitioned it into three compartments. The main doorway has also been built at the shore end. When excavated, this doorway was found to have been blocked up, as was the case with the rear of the doorway leading directly into the adjoining building. This main doorway had checks consisting of upright slabs similar to the other two doors. It may be noted that a piece of cetacean bone was used as building material in the wall of this chamber at the doorway of the communicating passage.

The third or inmost compartment is possibly the most remarkable, as the greater part of the wall had been faced with slabs set on edge with other slabs projected from them to form a series of cubicles or stalls round the end. Filling the entire south wall of this chamber, three

small cupboards of masonry, approximately 1 foot high, had been constructed in the thickness of the wall 1 foot 6 inches above the floor. No indication as to the purpose of these stalls and cupboards was revealed. Two pits were found in the floor of this chamber, of which one in the front of the cupboards, measuring approximately 12 inches by 10 inches,

Fig. 3. Hower: Larger building from the south-east.

contained some bones of a young ox and an immature sheep, also a hammer-stone. This pit was covered with a stone slab. The rough formation of stones round the other pit, which measures 2 feet by 14 inches, suggest a well, as the enclosed space is continuously wet, and in winter contains clear water. Some bones of sheep and ox were got in this pit also, which was similarly covered, and near it on the floor level were two horn cores of oxen.

In the middle compartment, two cupboards or recesses had been built in the south wall, 1 foot 6 inches above the floor, and slabs and very rough masonry of a later occupation formed a partition 2 feet 6 inches in front of the wall on the north side. The space behind reminded

one of the so-called bed recesses found elsewhere in Orkney; but here the space was filled with earth and debris.

From the amount of masonry which the spade has laid bare, this site has obviously been one of considerable importance. In considering the evidence as to the date of the structures, let us begin with the buildings, and compare them with the now world-famous settlement of Skara Brae, also in Orkney. Skara is in a different geographical setting. A large sandy bay was selected by this colony of workers, and it would appear that this location was necessary for their work, as despite the sandstorms which repeatedly buried their buildings, generation after generation struggled to clear out the sand. Sometimes they found rebuilding an easier way, but they continued to live on the site. There is no such sandy bay at Hower. As to the masonry of the builders, does it give us any clue in our attempt to establish a date for Hower? The buildings at both places show rounded corners, but the type of masonry at Hower is of a much superior quality to that of Skara, and no feature as elaborate as our door-checks was designed by their architects. We have referred to the cetacean bone built under the lintel of our doorway in the smaller building at Hower. This feature was also found in a wall at Skara, but other builders in prehistoric times used this material similarly, as in a very early building at Jarlshof in Shetland. As in Hower, we find saddle-querns in the buildings at Skara, where four were discovered. But many such querns have been reported from entirely different sites. In the Bronze Age foundry at Jarlshof, Shetland, Dr A. O. Curle, who conducted the excavations there, found similar querns, and suggested that these might have been used for preparing the clay employed in fashioning moulds for casting metal. We found ground shells in abundance on the floor where the saddle-quern stood at Hower, and Dr Callander, in examining the pottery found at Hower, detected similar pulverised shells in the shards found on that site. Thus we may claim that these querns were used for the treatment of clay used in earthenware. Comparing the tools, a list of which is appended to this paper, the hammer-stones and stone anvils, the hammers and borers of bone, and indeed all the movable equipment found at Hower, can be paralleled in the brochs. The same can be said of the pottery. It is also interesting to note that at Hower there are large box-like structures or cubicles, formed of slabs set on end against the wall. Such constructions were quite prominent in the secondary buildings at the brochs of Midhowe and Aikerness.

We find the situation at Hower very puzzling. The site is now sandy, but though found to be full of sand the buildings are erected on red clay,

except at the west end where they stand on the top of an earlier kitchen-midden. Examining the section of sand left after excavation, it was found that at a level covering the top of the walls, vegetation had grown to a depth of about 4 inches. The line of vegetation could be followed along the entire section. Stones found in this line were not water-worn. A closer view showed stone fragments in profusion. The contour of this site at this period must have differed greatly from that of to-day, as a thickness of 8 feet of sand now covers the vegetation which we have noted.

A fragment of black pottery, possibly of an earlier type than that got in the buildings, was recovered from the midden. Indeed the buildings at this part were founded on the top of the midden used by an earlier people. From the amount of bones found, the occupants must have used cattle as food for a considerable time. Shellfish were also a favourite article of diet. After one storm ten years ago, a pit, 4 feet deep, was seen full of limpets. Shells of razor-fish were also got in abundance. But the finding of large quantities of oyster-shells on a site where it is now impossible for them to grow suggests that erosion by the sea may have been so formidable as to have altered the whole outline of the land at this site. A large land-locked bay might have contained suitable breeding beds for oysters, and would also explain the presence of so much sand.

As far as is known, the twin buildings at Hower have no exact parallel in Scottish archæology. The occurrence of door-checks in all the doors is believed to be unique, and the masonry is of an exceedingly high standard for prehistoric buildings. As the pottery and many of the artifacts are similar to those used by the people of the brochs, and as some of the architectural features at Hower are to be seen in some of these structures, a contemporary occupation is suggested.

We acknowledge our indebtedness to Dr J. Graham Callander, Director of the National Museum of Antiquities of Scotland, for much valuable assistance; to the Society of Antiquaries of Scotland, for a grant which enabled us to finish the excavation; to Mr Charles S. T. Calder, A.R.I.A.S., F.S.A.Scot., for his assistance; to Miss Margery I. Platt, M.Sc., for the Report on the Animal Bones and Shells; and to Mr A. D. Lacaille, F.S.A.Scot., for his Report on the Flints.

List of Artifacts.

Point of tongue-shaped piece of cetacean bone, the under side smoothed by rubbing., $4\frac{11}{16}$ inches long, $1\frac{1}{2}$ inch broad, 1 inch thick.

Scapula of sheep, imperfect, measuring $6\frac{1}{8}$ inches long, $2\frac{15}{16}$ inches broad, spine on under side cut off and rubbed down. Point of finely made bone pin, $3\frac{1}{8}$ inches long, point $1\frac{11}{16}$ inch. Sharp end of a pointed bone implement, $3\frac{5}{6}$ inches long. Finely pointed bone borer made from splinter of bone. Hammer of cetacean bone, imperfect at one end,

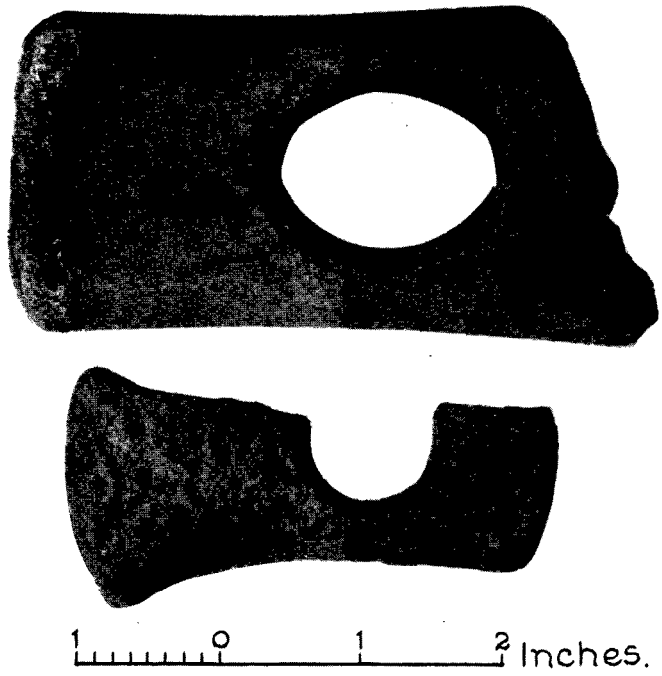

Fig. 4. Hower: Hammers of Cetacean Bone and Deer-horn.

measuring $4\frac{3}{4}$ inches by $2\frac{1}{4}$ inches by $1\frac{31}{32}$ inch, and nearly half of another of deer-horn measuring $2\frac{3}{8}$ inches long and 2 inches broad (fig. 4). One hammer-stone measuring $5\frac{1}{2}$ inches by $1\frac{1}{2}$ inch by $1\frac{1}{2}$ inch. One oval stone with indentations on top and bottom and sides. Stone, $6\frac{1}{2}$ inches by 5 inches by $\frac{7}{8}$ inch, with sharp inworked edge. One saddle-quern made of an irregular-shaped stone measuring 3 feet by 2 feet by 1 foot 6 inches. Two rubbers used for same. Nine flakes formed by splitting a thin water-worn stone, showing the hollow percussion on one side and end. Anvil stone made of a flattened conical stone measuring 3 inches by $2\frac{5}{8}$

inches by $2\frac{1}{8}$ inches, with picked indentations on top and bottom. Oval pebble, $5\frac{1}{8}$ inches by $2\frac{5}{8}$ inches by $2\frac{1}{8}$ inches, abraided on top and bottom and ends. Irregular shaped stone measuring $7\frac{3}{4}$ inches by $6\frac{1}{4}$ inches by $2\frac{3}{8}$ inches, with deep hollow picked on top—perhaps a lamp. Irregular shaped stone, $5\frac{1}{8}$ inches by $4\frac{3}{4}$ inches by $2\frac{7}{8}$ inches, with large hollow picked on top, small one on under side. Two spindle-like stones with one end worn by friction, measuring $6\frac{1}{8}$ inches and $5\frac{1}{8}$ inches in length,

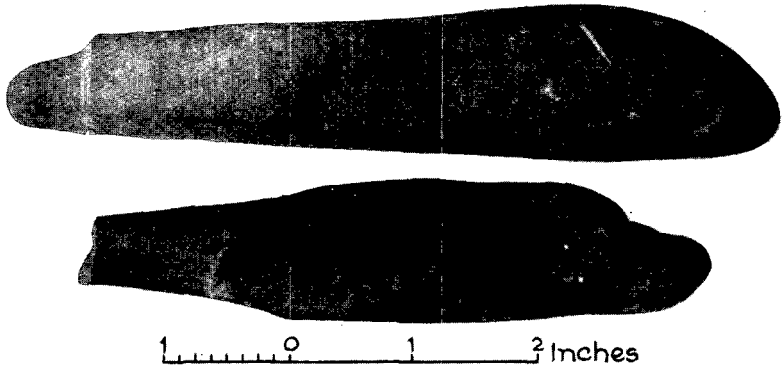

Fig. 5. Hower: Spindle-like Stones.

the second imperfect at the worn end (fig. 5). Several pieces of pumice, largest piece 4 inches by 3 inches by $2\frac{1}{8}$ inches.

Pottery.—Three rim fragments and wall fragments of a vessel of red clay, containing broken oyster- and limpet-shells (chiefly oyster-shells). Rim, flat on top, $\frac{9}{16}$ inch thick, and wall $\frac{7}{8}$ inch thick in parts. Found in midden used during a previous occupation, small rim of dark ware, very slightly round on top, with small projection to inside, $\frac{1}{2}$ inch thick, wall $\frac{3}{8}$ inch thick.

REPORT ON THE FLINTS. By A. D. Lacaille, F.S.A.Scot.

Flakes and Spalls.

1. Although *not* struck, the long edge has been utilised, probably as a knife.
2, 3, 4, and 5. These are "second" or "third" flakes; that is to say, they are not the first removals from a raw nodule, but have

been detached either from a core or from an implement in the making.

At first sight No. 5 appears fractured, but inspection shows break to be a hinged one. The partial surface alteration is interesting.

All the above (2 to 5) show normal phenomena of the intentional fracture of flint, but it is not possible to assert what percussor was used, *i.e.* stone, wood, bone, or metal.

Scrapers.

Possibly the chief point of interest in the scrapers 6, 7, and 8 is the amount of wear to which they testify. Viewing them technologically, 6 and 7 are particularly remarkable, No. 8 less so, as they consist of naturally fractured pieces of flint of convenient size, whose shape readily permitted of adaptation as round-edged scrapers by the most elementary of dressing. The ogival ending of No. 6, although much worn, strongly suggests a graver extremity opposed to the scraper, but this cannot be stressed.

7. This steep end-scraper shows extremely delicate pressure trimming.
8. Shows well the amount of surface alteration of this brown flint, the *corpus* exposed by primary dressing, which has been sufficient to give necessary working edge.
9. Thick spall humanly struck, but is not an implement.
10. A fragment of a flake, and
11. A small fragment of an implement secondarily trimmed.

As regards the period, it is regretted that there is nothing whatever by which one can tell as to what culture the specimens belong. Little can be said typologically, and the only guide will be the other relics with which the flints are associated.

It is not really possible to fix a monetary value upon these flints. As specimens of implements they are extremely poor, but as examples of artifacts worked in the simplest way possible they are scientifically very interesting.

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

A collection of skeletal material excavated by Mr Traill and Mr Kirkness on this northerly placed island of the Orkney group was sent

to the Royal Scottish Museum for identification. With the exception of fragments of a whale's skeleton and a few bones of sea-birds, the whole of the remains represent animals domesticated by man. The relics are extremely well preserved, many have been buried in fine white sand and consequently have a clean white appearance. The bones found throughout the course of excavation (of which this collection is only a small part) were exceedingly numerous, and probably represent the remains of the food animals of an early human settlement. One fragment of a human skull, included among the rest of the bones, has been kindly examined by Professor A. Low, of Aberdeen University, who states that, although it is too fragmentary to classify, it is nevertheless not unlike the human skulls found in other Orcadian structures of neolithic date. The various species of animals found in the general material are recorded below in order of numerical importance.

Ox.

The bovine remains are an extremely numerous and interesting collection of bones. More than half are from very young animals. Unfortunately most of the relics from adults of large size are broken and, for this reason, it is of little use to record their measurements. Some fragments exceed in size the corresponding bones of the present-day ox, and approach closely the dimensions of those of the European bison now extinct. Notable fragments of massive size are the proximal portion of a radius, a sacrum, a lumbar vertebra, and a patella. This feature is also borne out by the many enormous horn-cores of a breed of very large cattle. It is to be regretted that in no case were the large horn-cores complete to the tip and that their full size therefore can only be a matter of conjecture. The small table below shows the size of the horn-cores of the Papa Westray breed of large cattle as compared with the horn-core measurements of the Urus from Scottish localities now preserved in the Royal Scottish Museum.

	Scot. Urus (R.S.M.).			Papa
	A.	B.	C.	Westray.
Minimum distance between horn-cores .	24·7	22·7	19·8	23·5 cm.
Distance between horn-cores on level of ligmentum nuchæ	27·5	27	19	25·4 ,,
Circumference of base of horn-core .	33·1	35·3	19·3	26 ,,

Other complete bones of the bovine skeleton are not so large as those mentioned above, and belong to one or other of the remaining smaller breeds indicated by the horn-cores. Characteristics in these,

denoting cattle of different types, are seen; one kind is not represented in Britain to-day, but was found in a broch on Rousay, also of course of prehistoric date.[1] This horn-core of cornute shape belongs to the *Bos frontosus* (*Nilsson*) type, being of rugose texture and with a thick collar at the base of it which characterises this variety. Its circumference at the base is 24·2 cm., and its length along the outside curvature 25·3 cm. A third breed present is reminiscent of the modern Kerry cattle, the core having a well-defined upward and outward curvature. Measurements of this are as follows:—

Minimum distance between bases of horn-cores	16·4	cm.
Distance between tips of horn-cores . .	34	,,
Circumference of base	18	,,
Length along outer curvature. . . .	26·3	,,

A remaining type is typically that of *Bos longifrons* (*Owen*), with short curved horns separated by a high convex forehead. These cores are typically oval in transverse section for a greater part of their length, and in general size resemble the last-described breed (Kerry). Measurements are:—

Calculated distance between bases of horn-cores (about)	16·8	cm.
Circumference of base	18	,,
Length along outer curvature . . .	22·2	,,

All these types probably indicate an early domestication of cattle, but to assign to them their actual age is quite an impossibility.

Sheep.

At this site remains of sheep are also numerous, and animals representing all stages of growth from tiny lambs to adults with long slender lower jaws and a well-worn dentition occur. The variety represented has massive horn-cores and resembles the mouflon stock. Two skull fragments of a hornless adult sheep probably indicate the ewes of this breed. The horn-cores are strongly pitted, almost triangular in section, with the widest flat surface seen from the posterior aspect. They curve away from each other at an angle of about 45°, trending upwards and outwards, then slightly backwards and downwards. Horn-cores of very young animals show the same characteristic angularity.

[1] *Scottish Naturalist*, Jan.–Feb. 1933.

Pig.

Relics of this animal are but scanty. The material submitted here contained only part of a large skull, a small scapula, and a well-worn last molar tooth. It would seem, therefore, that both young and old animals are represented, and, from the abrased condition of the single tooth, that the beast was in a wild or semi-wild state.

Whale.

Many large fragments of bones of a whale (species unknown) occur.

Birds.

Indicated by the presence of stray bones, the birds represented are: the eider-duck (*Somateria m. mollissima* (L.)), the cormorant (*Phalacrocorax c. carbo* (L.)), the common gull (*Larus c. canus*, L.), the gannet (*Sula bassana*, L.), and a swan, probably the Whooper (*Cygnus cygnus*).

Shells.

Shellfish of various kinds had probably been utilised as food, according to the numerous shell remains present. These include winkles (*Littorina littorea* (L.) and *L. obtusata* (L.)), oysters (*Ostrea edulis*, L.), mussels (two kinds: the edible one *Mytilus edulis*, L., and the horse-mussel *Modiolus modiolus*, L.), one small "buckie" (*Buccinum undatum*, L.), a small cowrie (*Cyprœa europœa*, Mont.), and lastly a shell allied to the venus shell (*Dosinia exoleta* (L.)).

Included in the material just recorded is the portion of human skull referred to already in the introduction.

Bones from a large hole in the floor of Chamber 3 in smaller building.

Here sheep and ox remains are represented in equal proportions. Those of the former are from young and matured animals. One complete metacarpal has on the surface innumerable tooth impressions resembling those of a dog. No bones of the latter have been found in this material. The few bovine relics in this section are all from immature beasts.

Bones from a small hole in Chamber 3 in smaller building.

These for the most part are remains of very young ox. A few ribs, a metatarsal, and terminal facet of a femur alone represent immature sheep.

In conclusion, I am indebted to Mr William Traill for forwarding the skeletal material found at Hower for examination here, and for kindly allowing the Royal Scottish Museum to incorporate them in the cabinet collections of sub-fossil material from Scottish sources.

MONDAY, 12*th April* 1937.

SIR GEORGE MACDONALD, K.C.B., President, in the Chair.

A Ballot having been taken the following was elected a Fellow:—

Mrs H. NUGENT YOUNG, 10 Onslow Court, Drayton Gardens, London, S.W. 10.

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

(1) By J. A. CARFRAE, 3 Queen Street, Edinburgh.

Two Old Dutch Grate Tiles taken from the Duke of Gordon's House on Castlehill, Edinburgh, when it was pulled down.

(2) By Major HARRY H. HEBDEN, M.C., of Eday.

Collection of Neolithic and Iron Age Pottery, and other Objects found at Calf of Eday, Orkney. See previous communication by C. S. T. Calder and J. Graham Callander, LL.D.

(3) By Dr W. A. MUNRO, F.S.A.Scot.

Two fragments of a star-shaped Bead of blue vitreous paste, found on Dryburgh Mains, Berwickshire, by the donor.

(4) By WILLIAM BROOK, F.S.A.Scot.

Twenty-six Communion Tokens of various parishes.

(5) By Miss CHRISTIE, F.S.A.Scot., of Cowden.

Candle and Rush-light Holder of Iron on a wooden pedestal. Smiddy-made Roasting Fork on a sliding standard of Iron.

The following Donations to the Library were intimated and thanks voted to the Donors:—

(1) By HIS MAJESTY'S GOVERNMENT.

Calendar of State Papers relating to Scotland and Mary, Queen of Scots, 1547–1603. Edinburgh, 1936.

Register of the Privy Seal of Scotland, vol. iii., A.D. 1542–1548. Edited by the late D. Hay Fleming, LL.D., and James Beveridge, M.A. Edinburgh, 1936.

(2) By Miss WHYTE, Bennan, Prestwich, Manchester, through Donald S. Macdonald, W.S., F.S.A.Scot.

The New Picture of Edinburgh for 1818. Being a correct Guide to the Curiosities, Amusements, Public Establishments and Remarkable Objects in and near Edinburgh. To which is added a Description of Leith and the Trossachs. Edinburgh, 1818.

(3) By Sir GEORGE MACDONALD, K.C.B., President.

Scandinavian Archæology. By Haakon Shetelig and Hjalmar Falk. Oxford, 1937.

(4) By Professor V. GORDON CHILDE, D.Litt., F.S.A.Scot., the Author.

The Antiquity of the British Bronze Age. Reprinted from *American Anthropologist*, vol. xxxix., No. 1, January–March, 1937.

(5) By THE DIRECTOR, Russell-Cotes Art Gallery and Museum, Bournemouth.

Bulletin. Vol. xvi.

(6) By R. CUNLIFFE SHAW, M.Sc., L.R.C.P., F.R.C.S., F.S.A.Scot., the Transcriber and Editor.

The Clifton Papers: A Miscellaneous Collection of Papers referring to the Districts of Kirkham and Lytham in Amounderness. Including a Sixteenth-century Rental of Sir Richard Molyneux of Sefton. Preston, 1935.

The following Communications were read:—