

## IV.

NOTICE OF REMAINS OF THE REIN-DEER, *CERVUS TARANDUS*, FOUND IN ROSS-SHIRE, SUTHERLAND, AND CAITHNESS; WITH NOTES OF ITS OCCURRENCE THROUGHOUT SCOTLAND. By JOHN ALEXANDER SMITH, M.D., Sec. S.A. Scor.

Several years ago I called the attention of the members to a curious paper by Dr Samuel Hibbert, a Fellow and former Secretary of the Society, "On the Question of the Existence of the Rein-deer, during the Twelfth Century, in Caithness," published in the "Edinburgh Journal of Science" for 1831; and for many years past I have been anxiously looking out for instances of the occurrence of remains of the rein-deer, in some of our northern counties, as it seemed highly probable their bones or horns may have been overlooked by persons who were not able to distinguish them from those of the common red deer.

ROSS-SHIRE.—*Tain*.—At a meeting of the Society of Antiquaries in March 1866, a paper was read, entitled, "Notes on some Northern Antiquities," from the Rev. James M. Joass, at that time minister of Eddertoun, Ross-shire, and now of Golspie, Sutherlandshire. In this communication Mr Joass stated, that "On the *mor'aich mor*, a sandy flat to the east of Tain, when examining some sections recently exposed by draining four feet deep, I found, near two hut circles, a flint flake near the surface, which is occasionally peat-moss of varying depth, overlying, where it occurs, an undulating surface of sand. I also found the skull of a young ox, several bones of a large deer, one tine of a palmated stag's horn, and the jaw of a large canine animal. All these bones lay beneath the moss, and on a natural shell-bed, in which occurred the *Scaphander lignarius*, believed, from its size and delicacy of structure, to indicate warmer conditions of climate during its existence in such a situation, as well as a considerable subsequent elevation of the sea-bottom. The coast line is now three miles distant."<sup>1</sup> I was much interested in these notes which I have just quoted; and requested Mr Joass to send me the bones for examination, and especially the tine of the palmated stag's horn, thinking it might possibly turn out to be what I was in search of—that of a rein-deer. Mr

<sup>1</sup> Proceedings Soc. Antiq. Scot. vol. vi. p. 386

Joass wrote me in reply, giving some additional details of the locality, and at last the bones, &c., were kindly forwarded to me.

The bones, &c., were part of the frontal portion of the skull, with horn core, of the ancient small ox, the *Bos longifrons* of Professor Owen, the anterior part of the lower jaw, and some leg bones probably of the same ox, half of the lower jaw of a moderately-sized dog, and the deer's tine, which is smooth, compressed, and tapering; it measures about 7 inches long by 2 inches broad at its flattened base, where it is a good deal weathered; also some valves of the spiny cockle, *Cardium echinatum*. The palmated tine seemed to me to differ from those of the red deer, being smoother and more flattened in character, and in this respect to resemble the horns of the rein-deer; accordingly I submitted it to the skilful examination of Professor Owen, and he informs me that it is part of the horn of a rein-deer, *Cervus tarandus*. It is probably the tine that springs from the back part of the middle of the beam. (Specimens of the flint flakes found near the surface, the shells, and the bones, were exhibited; and Mr Joass requested me, if they were found to be of any interest, to present them to the Museum of the Society, which I have now much pleasure in doing; and only regret that various circumstances should have prevented me from doing so before this time.)

The *morbhaich mor*, or great grazing, as the Gaelic words signify, is part of a flat sandy tract, some four or five square miles in extent, which is bordered on the north by the Dornoch Firth, and on the south by an abrupt elevation of the land, which rises in some places to about fifty feet above the plain; on one part of this elevation stands the town of Tain. Mr Joass says, "at the *morbhaich mor*, part of this plain where the bones were found, the surface is now nearly a uniform level, covered, where not cultivated, by a thin and tough coating of turf, with bent and other arenaceous plants. Below this lies sand, close to the surface occasionally, but sometimes overlaid by a few feet of moss. Hearing that in cutting a drain there, four feet deep, some bones had been found, I went to see them. They had been carried away; but in the stuff turned out I found several fragments, the tine among the rest, and also several longer pieces *in situ* in the moss, at the bottom of a curve (a\*), possibly a basin. (See the annexed sketch.)

The shells occurred on the sand, *Cardium echinatum*, *Scaphander ligna-*

*rius*, and the more common shells of our present shore. They extended throughout the cutting so far as I followed it. The moss was in no place more than four feet deep."

This plain is still covered in some places with blown sand, and it is believed that, at the present day, the sea is again encroaching on part of this its old domain. To show how frequently important changes occur, not in the lapse of ages alone, but often in a very short space of time, I may quote from the account of the parish in the "New Statistical Account of Scotland," where it is stated—"Some parts, indeed (of this plain), have been already wrested from the use of man, and converted into barren



Section of part of the *morbhaich mor*, near Tain.

a. Peat Moss in the hollows of the blown sand; b. Natural shell bed; c. Sand.

downs, by the sea-sand with which they have been overblown, especially the large district of the *Morrich mòr*, which the older inhabitants remember to have seen pastured as a common, and which was turned (it is said in a single night) into an arid waste." It is also stated in the same account, that in digging a few years since (the account being written in 1837) for a new channel for part of the Tain river, "a *branching* deer's horn, of extraordinary size, was exhumed." Now, this branching character is one of the characteristics of the wide-spreading horns of the rein-deer; and it is not impossible that this may have been an earlier but overlooked instance of the occurrence of the rein-deer in this same locality.

SUTHERLANDSHIRE.—*Cill-Trölla Broch*.—The Rev. Mr Joass was much interested in this discovery of rein-deer remains; and he informed me that pieces of *flattened* deer's horns had been found among the bones, shells, and other remains found in clearing out the ruins of an ancient circular fort, the *Cill-Trölla Broch*<sup>1</sup> as it is designated, on the farm

<sup>1</sup> The name Broch (gutt.), applied to these old stone towers, is spelled here in accordance with the usual pronunciation of the northern districts of Scotland; it is

of Kintradwell, near Brora, in Sutherlandshire. This broch occupies a commanding position near the sea-coast, and is 30 feet in its interior diameter; the walls being now about 12 feet in height. A guard chamber, 6 feet diameter, 9 feet high, dome roofed, opens on the right from the entrance passage, which is 17 feet long. Inside, on the left, there is a chamber in the wall; and further along, another entrance, leading to a chamber on the left and a stair on the right. In the area is a small chamber sunk 3 feet, and a well 7 feet deep, near which was found a cup formed of steatite, about 5 inches in diameter, with handle. The larger deer horns were all found at the bottom of the debris, with which the place was filled, so as to form apparently a green mound. Outside the tower were grouped a number of stone-built huts and courts, which Mr Joass believes were all secondary, formed from the ruins of the main building. In these were found an iron spear-head and a dagger; ten human skeletons were got in and around the broch, all of which seemed to have been disturbed, perhaps by previous explorers. Mr Joass, I am glad to say, is preparing a detailed account of his exploration to bring before the Society. A short account of his first explorations was read to the Society in February 1864, entitled "Two Days Diggings in Sutherland," and is published, with illustrative plates in volume v. of our "Proceedings," p. 242. He there tells us, that "buried in black mould, and about a foot below the surface, were found jaws of pigs and deer, with part of the frontal bone and horn cores, as well as other bones, of a large animal of the ox tribe, besides fish bones, and shells of the limpet and periwinkle." A stone, showing an incised ornament, figured in plate civ. vol. ii. of the "Sculptured Stones of Scotland" of Mr Stuart, was also found in the immediate neighbourhood; and another, with cup marks and connecting gutters, on the floor of the Broch.

Various broken portions of flattened deer's antlers, found in the broch at Kintradwell, have, at my desire, been sent to me by the Rev. James M. Joass. The horns are generally smooth on the surface, though some portions showed slight channellings and granulations; they are also very

also spelled Brough or Burg, or Bur when conjoined with the names of places. It is the Anglo-Saxon *Beorg*, the Norse *Borg*, and the well-known Burgh, meaning a fortified place or town.

much compressed and flattened in character, and are unlike any horns I have seen of the red-deer; I therefore forwarded them to Professor Richard Owen, of the British Museum, London, our great authority in such matters, and he has since informed me, that he considers all the horns sent were portions of antlers of the *Cervus tarandus*, the rein-deer.

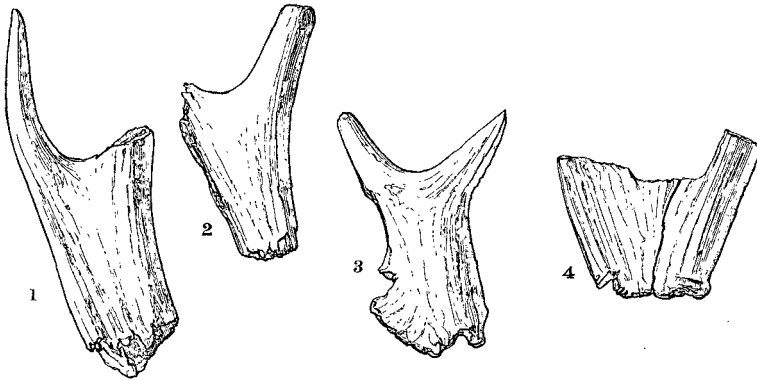
The horns belong probably to different specimens of the rein-deer, varying as they do both in size and appearance. They appear to be principally the terminal portions of antlers, either brow antlers, or probably those of the upper part of the horns. Some of them correspond to several fine specimens of crania and horns of recent rein-deer in my possession, from the neighbourhood of Archangel; in some of these heads the beam of the horn divides into two branches above, and from each of these branches a number of terminal tines rise up, several of which are compressed and flattened in character, and terminate in two distinct tines. These last correspond in character to several of the antlers found at Kintradwell. It is probable that this flattened and forked character was the cause of these antlers being preserved by Mr Joass, while many of the simpler and less distinctly marked antlers were doubtless passed over as being nothing unusual. Other portions of antlers sent include a single smooth rounded tine, and various thin flat pieces of horns split apparently into longitudinal segments, portions of the external surface of apparently much flattened horns.

(As far as I am aware, these Notices are the first that have recorded the presence of remains of the rein-deer, associated with human dwellings in Scotland, or in the British Islands; I have therefore given figures (drawn to the same scale) of some of the horns described, and a somewhat detailed account of the places, and circumstances, under which they were found.)

The first of these horns, I shall describe, is a portion of a terminal antler, much compressed in character, and measuring  $9\frac{1}{2}$  inches in length, the upper part dividing into two rather rounded tines. One of these tines is about 4 inches in length, the other is broken off at the root; at the origin of the tines the horn is  $4\frac{1}{2}$  inches broad by about  $\frac{3}{4}$  of an inch in greatest thickness. (See the annexed woodcut, fig. 1.)

Three other horns are of a similar kind. One is nearly 6 inches in length, and generally smooth or slightly channeled on its surface, like

the last ; it is  $2\frac{1}{2}$  inches broad, although imperfect at the edges ; and also divides above into two terminal antlers—one, broken at the tip, now measures  $2\frac{1}{4}$  inches long, and the other is broken off at the base (fig. 2). The third specimen is almost exactly similar in character ; it has two terminal tines, one 2 inches long, the other longer, but imperfect (wood-cut, fig. 3); and it shows a mark on the side, as if a third or lateral tine had been also present. This portion is about 6 inches long by  $2\frac{1}{4}$  in greatest breadth, but, like the last, one of its margins or edges is broken off or imperfect, and it is about three-fourths of an inch in thickness. The fourth specimen is also somewhat similar, being nearly 3 inches



Rein-deer's Horns found at Cill-Trölla Broch, Sutherland (figs. 1-4).

broad, and terminating in two tines, both imperfect ; it measures about  $4\frac{1}{4}$  inches in length.

One specimen is that of a smooth tine, tapering and pointed, rather compressed at the root, and slightly channeled on its surface ; it measures nearly  $6\frac{1}{2}$  inches long by about  $1\frac{1}{4}$  broad at the root. Another portion of horn is larger and thicker, it may be the dividing part towards the upper part of the beam ; it has a concave and convex surface, and divides above into two branches, both of which are broken off. This specimen is

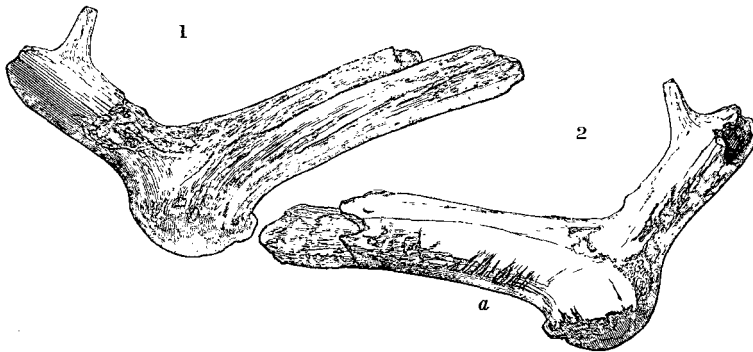
5 inches long by  $3\frac{1}{2}$  in greatest breadth, and about  $1\frac{1}{2}$  inch in thickness at the lower part.

The remaining horns consist of the flat portions which have split naturally in the course of decay ; of these one is about  $7\frac{1}{2}$  inches long and  $2\frac{3}{4}$  inches in greatest breadth, channeled on the surface, and seems to be probably the split half of a terminal forked antler. Another more bent portion of split antler measures  $6\frac{3}{4}$  inches in length, by  $3\frac{3}{4}$  inches in greatest breadth, and may have been a portion of the dividing part of the beam. Still another fragment is similar in character, though belonging to a much smoother and different horn ; it is about 7 inches long by  $2\frac{3}{4}$  inches in greatest breadth, and seems to be a split portion of the beam, with part of a large terminal tine. Other fragments of horn are mere flat plates, slightly channeled on the surface ; they are more or less curved or concave, and vary from  $2\frac{1}{4}$  to 4 inches in length by 1 inch to  $4\frac{3}{4}$  inches in breadth. (See woodcut, fig. 4.) Professor Owen notices these last specimens particularly, as being portions of the outer wall or crust of the antlers, and states that he "thinks this rein-deer must have been killed when the horns' were in 'velvet,' *i.e.*, growing," and the horns therefore soft and splitting easily as they decayed.

It is a fact of much interest to find various remains of the rein-deer in this single broch ; and when we think of the great numbers of these old castles whose ruins still exist all over the north of Scotland, in all of which great quantities of the horns and bones of red deer and other better known animals have been found, we can scarcely doubt that, had more attention been paid to these remains, the discovery of instances of the occurrence of the rein-deer in these northern counties would long ere this time have rewarded the diligent inquirer. Now that attention is at last called to this subject, it is to be hoped that all who have the opportunity will make careful examinations of these and all other early remains, and see if any additional light can be thrown on the history of man's presence, and comparatively short existence (geologically), as I believe, on our island, or even on our earth ; and of the animals with which he has been associated, and which he has himself so largely helped to extirpate and destroy.

CAITHNESS.—*Keiss*.—I have, however, other instances to notice of the discovery of the horns of the rein-deer, also associated with the works of

man, in the adjoining county of Caithness. The members are aware that Mr Samuel Laing made a careful examination of several mounds in the neighbourhood of Keiss Castle, in Caithness, and published the results of his labours in an octavo volume, entitled, "Prehistoric Remains of Caithness (London, 1866)." He very judiciously sent the whole collection of stone and bone relics to the Museum of the Society—the National Museum of Antiquities for Scotland; and the interest of the collection



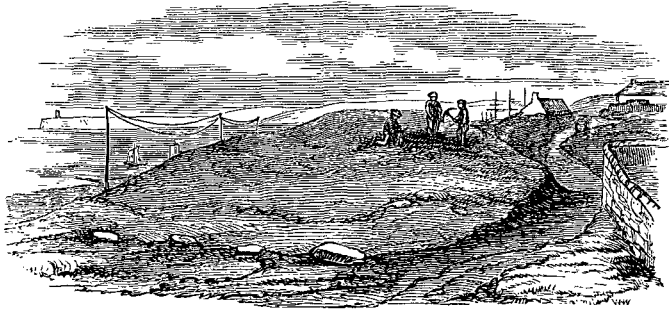
Rein-deer's horn found in a Broch at Keiss, Caithness.

Fig. 1. Front view; fig. 2. Back of same horn, showing marks of cutting (at *a*) with a sharp and thin instrument.

was increased by the fact of most of the bones having been carefully examined and named by various London authorities. In the collection sent to the Museum, however, some additional specimens were forwarded by Mr Laing; and on looking them over, I was at once attracted by a very distinct specimen of deer's horn, which, as it was not named, I supposed had not been before examined. It is part of the beam of a smooth horn, of considerable size, which is flattened in character, and the burr is rounded; this portion of the beam measures 9 inches in length, and about 6 inches in circumference above the burr (see the preceding woodcut). A portion of the distinctive broad brow antler is also present, showing



part of a small projecting tine ; and on the back part of the horn are a number of short, sharply cut lines (fig. 2, *a*), evidently made by man with some sharp and thin-edged instrument. It is undoubtedly part of the horn of an adult rein-deer. I informed Mr Laing of my discovery ; and in reply he tells me that he remembers the horn perfectly, from the resemblance it seemed to have to a light hammer, for which he supposed it might have been made and used ; it was found in the harbour mound at Keiss.

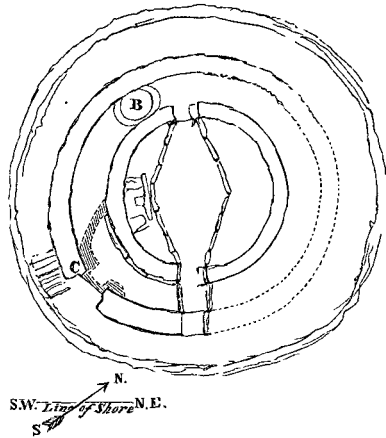


Harbour Mound, Keiss, Caithness.

To give a correct idea of the character of the harbour mound, I may quote some passages from Mr Laing's work (and I am also able, through his kindness, to add one or two of his illustrative woodcuts). The harbour mound, as Mr Laing designates it, is a large green mound a little to the north of the harbour of Keiss. " It afforded the greatest number of relics, and showed most clearly the architectural structure of these ancient dwellings. At first sight it consisted of a very irregular grassy mound, with some loose stones lying about, and showing faint traces of a low outer circular wall or rampart. On excavating, a great mass of cyclopean building and shell-midden was disclosed, with floors or pavements at different levels, which will be best explained by the accompanying sketches, ground-plan, and sections. It is clear that

this building had belonged to the class of brochs or circular towers common in Caithness and Orkney."

Mr Laing says:—"The remarkable fact in this mound is, that it indicated successive occupation and adaptation of the older parts of the

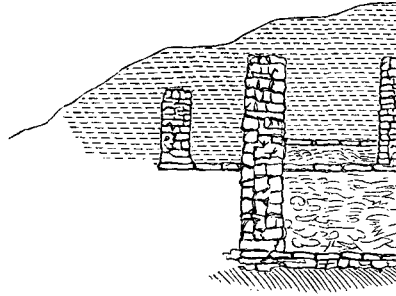


Harbour Mound, Keiss. Ground-Plan.

DIMENSIONS:—		feet.
Diameter of inner circle, about,	. . . . .	24
Thickness of inner wall,	. . . . .	2
Passage between inner and second wall,	. . . . .	3
Thickness of second wall,	. . . . .	4
Space between second and outer wall,—variable,	. . . . .	4 to 15
Thickness of outer wall,	. . . . .	1½ to 2

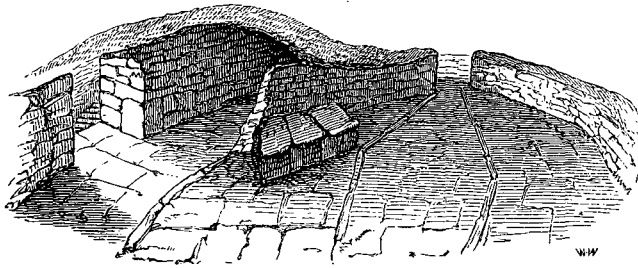
building by newer inhabitants. The primitive part of the structure seemed to be the second or middle circular wall, which was by far the most massively built, and went down to a lower pavement of large flags, resting on a layer of flat beach stones laid on the natural rock. The space for 5 feet above this level was filled up with a midden, or accumulation of

shells, bones, ashes, &c. Then came a second pavement of large flag-stones, on a level with which are the foundations of the two other—or inner and outer circular walls. (See sections of building.) Above this



Harbour Mound. First Section at C of ground-plan.

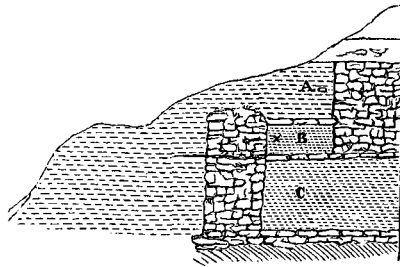
was another midden,  $1\frac{1}{2}$  feet deep, and then an upper pavement forming the floor of the inner circle. This, again, was covered by a midden of its own, mixed with a mass of stones and rubbish which had fallen in and



View of part of building of Harbour Mound cleared out, opposite C of ground-plan.

choked up the building. There were thus three distinct middens, separated by superimposed pavements, which, without expressing any theory, and simply as a convenient mode of representing the facts, I may call the

primary, secondary, and tertiary middens (C, B, and A of sections). Outside the walls these middens were of course less distinct, there being no pavements to separate them; but it was evident that as the refuse had accumulated at each stage on the floors inside, it had accumulated still more rapidly at certain spots where it had been commonly thrown out; and thus the same distinction of a primary, secondary, and tertiary midden, must approximately apply nearly to the same levels of the outside strata. . . . . I am particular in stating these facts, as they have an important bearing on this other fact, that the class of relics found in the upper and lower middens were essentially distinct. Among the various relics from this and the other mounds,



Harbour Mound. Second Section at B.

there is no exception to the rule, that the rude forms of bone and pottery are exclusively confined to the two lower middens, while the few instances of metallic objects, finer pottery, and well-wrought bone implements, are as exclusively confined to the upper one. The same rule applies generally to the stone implements, but these are more intermixed, as might be expected of heavy objects, where so much of the original building has fallen in, or been quarried and disturbed. The skulls, and animal teeth, and bones, were of the same character throughout, and very abundant, so that many cart-loads might be taken, in addition to what had been already taken, as I was told, to manure the land. . . . . The large deer's horns, especially, seemed to be most abundant towards

the top. Several of them bear marks of sawing or cutting, so clean that they must have been made by better instruments, either of metal or sharp flint, than any of those found in the kists or middens. . . . Wood, charcoal, and ashes, were common in the lower middens, while higher up the ashes seemed to be of peat."

In a letter from Mr Laing referring to the discovery of this horn, he writes:—"I distinctly recollect finding it at Keiss in the lower strata of the midden, accumulated about the base of the ruined 'Brough' described as the Harbour mound at Keiss," "from section C of the lower midden of the Harbour mound," close to the base of the lowest foundation of the "Brough" on the "natural rock."

To prevent all doubt as to the correct designation of this horn found at Keiss, and also the other already referred to found near Tain, I forwarded the specimens to Professor Owen of the British Museum, and he kindly wrote me in reply, that he had examined the portions of antlers sent, they belonged to *Cervus tarandus*, and "he could not detect any specific distinction from those of the existing rein-deer."

The broken portions of another and a larger deer's horn, among the bones sent from Keiss by Mr Laing, also arrested my attention. When put together it appeared to be the upper part of a large deer's horn of a remarkably compressed character, expanding above into two divisions, each of which seemed to have terminated in two or more tines; two tines still remain, while of the others, the larger tine has been sawn off at its junction with the beam by a clean and equal cut, while the other has been only partially sawn through, and then broken across. A little behind and below this part of the beam another long and somewhat rounded tine springs from the horn. (It is well shown in the annexed woodcut, fig. 1.)

This portion of a deer's horn measures altogether about 24 inches in length, in a straight line towards the extremity of the middle tine, and no less than  $6\frac{3}{4}$  inches in breadth across the beam, immediately before it divides into its two separate and terminal portions. Two inches below the dividing notch the middle of the beam measures only about 1 inch in thickness.

The horn is generally rather smooth in character, though showing various longitudinal channels and a somewhat granular surface towards its edges, and also on some parts of the tines. I was much puzzled as to



Portions of Rein-deer's Horns, found at Keiss (fig. 1), and at Yarhouse (figs. 2, 3), Caithness.

the species of deer to which this horn belonged, as I had never seen any of the red deer at all resembling it, and it seemed to me scarcely smooth enough on its surface to be that of the rein-deer. Accordingly, I forwarded the portions of the horn, with those already referred to, found at Kintradwell, to Professor Richard Owen, and he politely writes me that he has carefully examined and compared the specimens, and adds in reference to this one, "I have not seen any antlers of the red deer showing so much flattening or compression of the 'beam' as in this specimen. I believe them to be parts of the antler of a large rein-deer or variety called 'Carabou.'"

This is, therefore, another example of the occurrence of the rein-deer among the abundant remains of animals found in the human dwellings at Keiss.

Here, then, we have these horns of the rein-deer distinctly marked by the hand of man, belonging probably to the oldest fauna of the broch, and associated with the bones of other animals—the red deer, the small ox (*Bos longifrons*), the horse, the goat, the hog, the fox, the rabbit, and the dog; various birds, including the now all but extinct *Alca impennis*, the great auk; the bones of various cetacea, fish, &c., and shell-fish; on which the inhabitants of this broch had lived, not the rude savages of a remote age, but men able to build those great stone towers, numbers of which still remain to astonish and to puzzle us at the present day.

*Yarhouse.*—I am indebted to Mr Joseph Anderson for the opportunity of examining a peculiarly shaped deer's horn found in the ruins of another broch in this same county of Caithness. The horn is the terminal portion of a tine; it is much compressed and flattened in character, is slightly concave in its outline on one side, and has the other waved by the projection of two lateral and two terminal tines, most of which are unfortunately broken off at the root. It is generally smooth on its surface, showing only a slight channeling or granular roughness towards the back part. It measures  $6\frac{1}{4}$  inches in length, by 3 inches in breadth, and about 1 inch in its greatest thickness. The horn bears a close resemblance to the extremity of one of the large palmated antlers of the rein-deer. (See the preceding woodcut, fig. 2, rein-deer horns found at Yarhouse, Caithness.)

Two small, smooth, and rather rounded tines—one much bent in the

middle, and measuring nearly 7 inches in length (fig. 3), the other about  $5\frac{1}{2}$  inches long, only slightly bent, and having the appearance of its pointed extremity being rudely cut—were also found at some little distance from the other horn in the same broch. I sent these horns, with the others already referred to, to be examined by Professor Owen, who informs me they are portions of antlers of the *Cervus tarandus*, the rein-deer.

The broch of Yarhouse, in which these rein-deer remains were found, is situated about five miles to the south of the town of Wick, on the estate of Thrumster, and at the south end of the Loch of Yarhouse. Mr Anderson, along with Mr Robert I. Shearer, Thrumster, made a careful examination of this broch, and he has favoured me with a few notes of its general structure and character, and illustrated them with the accompanying ground-plan of the buildings. Mr Anderson is preparing a detailed account of the whole ruins, to be brought before the notice of the Society of Antiquaries. He informs me that when they commenced their examination of this broch, it was simply a grass-covered mound, about 200 paces in circumference at its base, on a low lying corner of the shore of the Loch of Yarhouse, immediately below the hill on which two of the peculiar chambered cairns were found. These cairns are distinguished from all the others of the district by their great length, and by their dividing at either extremity into two horn-like projections.\*

The whole neighbourhood of the broch of Yarhouse is rich in early remains. There were about a dozen chambered cairns within a radius of little more than half a mile, and no less than five other brochs or round towers would be included in the radius of a mile around it, besides an equal number of groups or pairs of standing stones, and many small cairns covering single cists.

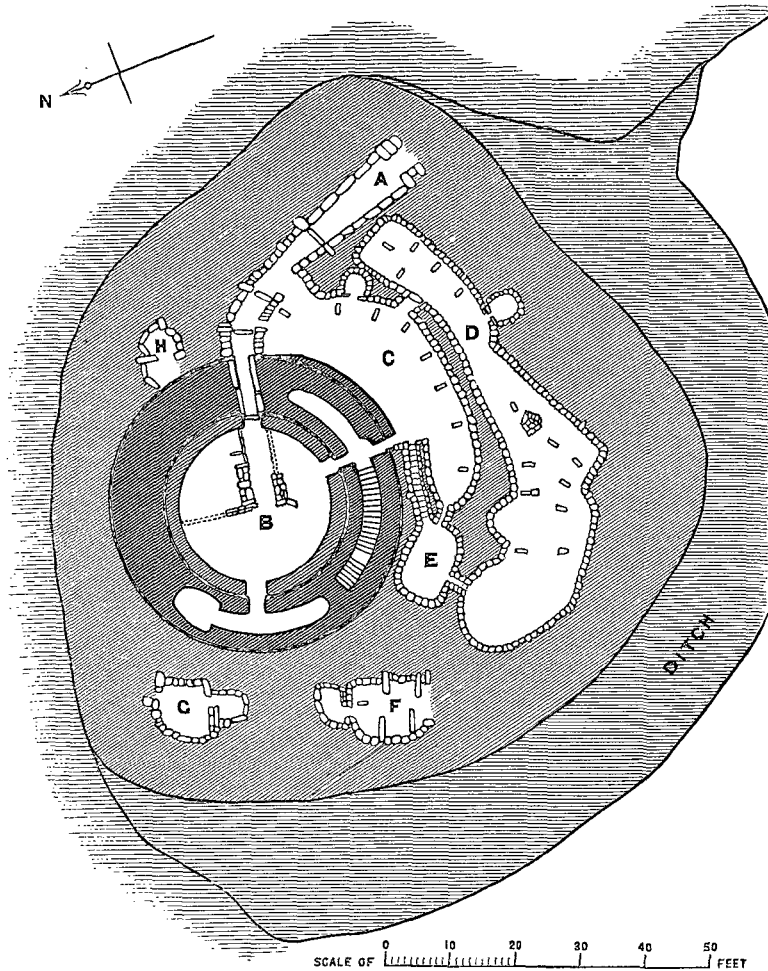
The broch is situated on what had once been an island, a fosse about 20 feet broad having separated it from the land. The fosse is now silted up to the level of the loch, but probing gives a stony bottom at a depth of 3 or 4 feet under the luxuriant vegetation of sedges and other water plants that now cover its surface. The true broch or round tower, which stood boldly up, like the keep of an old castle, amidst its lower buildings and outworks, is 30 feet in its interior diameter, and the highest

\* See paper on "The Horned Cairns of Caithness," by Joseph Anderson, Esq. Proceedings Soc. Antiq. Scot., vol. vii. 1867.



part of the wall now standing is 15 feet in height. The circular wall is about 12 feet thick, and, as usual, well built, and there were three chambers in it on the ground-floor, one, 13 feet long by 3 feet wide, being, as is commonly the case, at the foot of the stair. Two other chambers are on the opposite side of the building, and are connected together by a passage. Sixteen steps up the flight of stairs is a landing-place, where there is also an opening in the wall or window looking into the interior circular area of the broch. The whole interior of the area presents the blackened appearance left by fire, and burnt wood and peat ashes filled the crevices of the walls and stair for 5 or 6 feet above the level of the floor. To the west and south of the round castle or tower, there are the remains of an earthen dyke on the inner edge of the ditch, and the whole space between the round tower and the ditch is covered with the remains of irregularly constructed buildings connected together by narrow passages; these have as yet been only partially excavated. Some parts of the walls of these buildings appear to be of a different style of masonry from the massy walls of the broch or round tower itself, and they may probably, Mr Anderson thinks, be subsequent additions to it, of a later date. Two long irregularly shaped enclosures (C and D of ground-plan), one outside the other, surround this south side of the broch proper, and are rendered peculiar by the presence of a row of standing stones set upright and edgewise to the outer wall of each building, a few feet apart from each other, and sometimes within a foot or so of the wall itself, suggesting the idea of some of them being supports for a roof, or possibly also, of separate stalls, as if for cattle, or some such occupation. One or two of these stones, the tallest of which is upwards of 6 feet in height from the surface of the floor, appear to have been broken into shape by blows applied to the opposite sides of the stone.

I have been thus particular in giving these details of the structure of this complicated system of buildings outside of and surrounding the tower of the broch, because it was in the outer enclosure (D) that the rein-deer horns were found by Mr Anderson; they will be understood by reference to the (annexed) ground-plan, which gives a better idea of these extensive ruins than any lengthened description. The floors of all these out-buildings on this side were covered with peat ashes to a depth of 2 or 3



Ground-Plan of the Broch of Yarhouse, Caithness.

A, Entrance Passage to Round Tower and its out-buildings.

B, Round Tower.

C, D, E, F, G, H, Out-buildings of Round Tower.

feet, and among the ashes were an abundance of broken and splintered bones of the ox, horse, swine, deer, sheep or goat; occasionally, also, the teeth of dogs were found. The presence of a few fish-bones, and the shells of the common periwinkle, limpet, and cockle, showed that, though situated at a considerable distance inland, the sea-shore was also visited for their food. The pottery, which was found, was coarse, hand-made, and badly burned, and quite unornamented, with the exception of one or two pieces ornamented with short markings, as if by the nail (and similar to that found in the chambered sepulchral cairns close by). Rude stone mortars, rubbing stones, flat stone discs, "pounders," and spindle whorls, one of which was made of clay and ornamented with concentric circles, were found all over the area. Human remains were discovered in several places about 2 or 2½ feet below the green turf, and in such circumstances that the interments had been probably made after the ruin had become a green mound. Close to one of these interments a circular bronze brooch was found, with an inscription in rude Roman characters. The palmated rein-deer horn was found towards the eastern extremity of the outer enclosure (D, of the ground-plan), it was several inches longer when first discovered, but as the whole floor of the broch had been for a series of years under water, the level of the loch having been raised to supply water to an adjoining mill, it was only by extreme care that it or any of the other softened antlers were preserved. The peculiar flatness of this one attracted Mr Anderson's notice; it was, however, so soft that it required to be carefully lifted out with a spade, along with the earth and ashes in which it was imbedded, and then carefully dried and afterwards steeped in glue. There was a considerable portion of a more rounded antler lying close beside it, in all probability part of the beam of the horn, but it was so soft that on attempting to lift it up it fell to pieces. The two smaller tines were found in different parts of this same enclosure (D). Other portions of deer's antlers, broken, cut, sometimes split, and sawn into short lengths of about 4 inches, occurred throughout the mass of ashes, but Mr Anderson tells me he considered them to be simply those of red deer, although it is by no means improbable that some of them may have also been portions of rein-deer horns, like the examples now brought under notice.

The discovery of these rein-deer remains in another part of the county

of Caithness is of much interest; and it is curious to notice, as contrasted with those found deep in the interior of the round towers at Cill-trólla and Kéiss, that the horns were in this instance found in what was apparently the newest parts of the structure, the mere out-buildings of the broch, and may therefore belong to a somewhat less remote period than those found in the other localities.

The discovery of rein-deer remains, associated with those of the red deer and other animals, and beside the dwellings of men in Caithness, is also of particular interest, as affording corroborative evidence of the previous existence of rein-deer in Caithness; and therefore the probability, at least, of the truth of the statements brought forward in Dr Hibbert's paper "On the Question of the Existence of the Rein-Deer during the Twelfth Century in Caithness," to which I must again refer. In this communication Dr Hibbert quotes the following sentence from Torfæus to show that the Jarls of Orkney, in the twelfth century, were in the habit of crossing the Pentland Firth to chase the roe deer and the rein-deer in the wilds of Caithness:—"Consueverant Comites in Catenesiam, indeque ad montana ad venatum caprearum rangiferorumque quotannis profiscisci."—(Rerum Orcadensium Historiæ, lib. i. cap. xxvi.) The same passage was previously quoted by the Rev. John Fleming, D.D., in his "British Animals," published in Edinburgh in 1828, and he remarks, "it would lead to the belief that rein-deer once dwelt in the mountains of Caithness, were it not extremely probable that red deer were intended. Several attempts have been made by the Duke of Athol and others to introduce the rein-deer into the country, but these have hitherto failed" (p. 27). Dr Hibbert, like Dr Fleming, was at first inclined to think that Torfæus had made a mistake here, and that he should have stated the roe deer and the red deer, instead of the roe and the rein-deer. Torfæus wrote at the close of the seventeenth century; but a learned Icelander, Jonas Jonæus, by whom an abstract and Latin translation have been subsequently published (Hafniæ, 1780), has explained the manuscript sources from which Torfæus derived his account, and has shown that the animals hunted by the Jarls were in reality not the roe deer, but the red deer and the rein-deer living at the same time in that district of Scotland. Dr Hibbert quotes the passage as follows:—"That var sithr Jarla nær hvert sumar at fara yfer á Katanes oc thar upp á merkr at veida *rauddýfri*edr *hrélna*;" which

Jonæus renders after the following manner :—“Solebant Comites quavis fere æstatæ in Katenesum transire ibique in desertis *feras rubras et rangiferos* venari.” The date at which Ronald and Harold, the two Jarls of Orkney alluded to, hunted these animals in Caithness, is assigned by Jonæus to the year 1159. Dr Hibbert says the Skalds were generally accurate in their descriptions of the objects of the chase. Their historical verses were often composed during the lifetime of the heroes whose feats they recorded, and were sung at public feasts; and it would have been as derogatory to their Skaldships to make the Jarls of Orkney kill rein-deer in Caithness, supposing no animals of the kind had then and there existed, as for a modern bard to celebrate a tiger hunt among the red-deer haunts of Athole. Jonæus, moreover, who was familiar with Skalds and their compositions, comments on this passage of the Orkneyinga Saga, and states that what is of the greatest moment is, the fact which it points out, that at that date there were rein-deer in Scotland. He gives references to show that the rein-deer existed in Iceland<sup>1</sup> in the twelfth century, but that they were extirpated by the heedlessness of the inhabitants, who have to their great loss extirpated also some domesticated animals, such as swine, geese, &c.

Unfortunately for these remote historical allusions, says Dr Hibbert, there is no record of the remains of the rein-deer having been found among the wilds of Caithness or Sutherland, but he considers it possible they may have been overlooked; and he refers, in conclusion, to the fact of the horn of a rein-deer, as stated by Leigh in his “Natural History of Lancashire,” having been found under a Roman altar at Chester, and believes this account was probably a correct designation.

It is interesting to be able to supplement this defective evidence, by these various examples of the rein-deer's horns now discovered in these northern counties; and I may state, whatever may be said of the supposed changes of climate which may have taken place, that the food of the rein-deer, the brushwood, and especially the *Cladonia rangiferina*, the rein-deer moss, is still found extensively over Scotland. The abundance and great variety of lichens, indeed, is specially noted as a peculiarity in the Statistical Account of the parish of Wick, where the rein-deer moss is stated to grow to the height of three or four inches among the heather.

<sup>1</sup> See *Note* at the end of this paper.

The following notes include all the other instances of remains of the rein-deer found throughout Scotland, as far as I am aware ; which, however, are as yet but comparatively few in number.

LINLITHGOWSHIRE.—*Craigton*.—The earliest instance I am aware of, is that recorded by Pennant in his "History of Quadrupeds," 4to, vol. i. p. 100, 1781. In his account of the rein-deer, Mr Pennant says, "My worthy friend, the late Dr Ramsay, Professor of Natural History in Edinburgh, assured me that the horns of this species were found fossil in 1775, in a marl pit, five feet below the surface, near Craigton, in the shire of Linlithgow."

LANARKSHIRE.—*Clyde*.—In 1833, when operations were in progress in the alluvium of the Clyde, for improving the navigation of the river, a cranium of the large ancient ox, the *Bos primigenius*, and some imperfect fragments of deer horns, were found in beds of finely laminated sand, on the north bank of the river, below the junction of the Kelvin. These bones were preserved through Mr James Smith of Jordanhill, and were deposited in the Museum of the Andersonian University, Glasgow. The deer horns were afterwards examined and described by Dr John Scouler of Glasgow ; they were smooth, and somewhat compressed, and one of them was a distinctive brow antler of the rein-deer ; it was flat and smooth, measured 10 inches in length by 3 inches in breadth, and terminated in three distinct digitations, corresponding precisely to that of a recent rein-deer in the Andersonian Museum. An account of them was read by him before the Natural History Society of Glasgow, 2d December 1851, and afterwards published in the "Edinburgh New Philosophical Journal" for 1852, in a communication entitled, "On the Occurrence of the Remains of the Rein-Deer in Scotland." Dr Scouler quotes a Danish authority<sup>1</sup> to show that in Denmark the remains of the rein-deer and *Bos urus* (or *primigenius*) are found associated with flint arrow heads, stone hatchets, charcoal, and other relics of man, but no such direct evidence (he says) is to be obtained in the present case. It is, however, certain that remains of human art of equal, if not greater, antiquity are to be found in the same alluvial deposits of the Clyde as that in which the horns of the rein-deer were found ; and Dr Scouler then refers to the various

<sup>1</sup> Undersøgelser i Geologisk—Antiquarisk Retning af Forchhammer. Steinstruup og Worsaae. Kopenhagen. 1851.

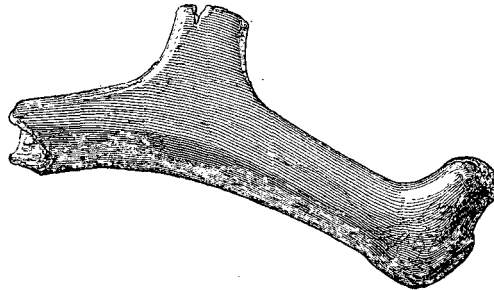
canoes that have been discovered there ; some of which, from their distance from the river, and others from their depth from the surface, as under seventeen feet of finely laminated sand, he considers to be of much greater antiquity than these rein-deer remains.

*Raesgill.*—I am indebted to Mr John Young, of the Hunterian Museum, Glasgow, for another and recently noticed instance of the occurrence of the rein-deer in this same county, belonging, however, to a much more ancient period. I had been corresponding with Mr Young in reference to the rein-deer's horn in the Museum found in Ayrshire, to be afterwards described, and he made a careful examination of the other horns of deer in the Museum, and found this one, which closely corresponded, in its general characters, to the one found in Ayrshire, but was considerably less in size.

The horn which I have had the pleasure of examining is the lower portion of the beam, of the left side, having a rounded burr, and, rising close to it, there is part of a small brow antler, about an inch in breadth. It is smooth, much compressed, and expanded above, and about 5 inches from the burr gives off a second antler very much flattened in character, and about 2 inches broad at the root. The whole fragment of the horn is about  $8\frac{1}{4}$  inches in length, the surface being smooth, and showing none of the granulations or channels as on horns of the red deer (see the annexed woodcut). It has apparently been slightly rolled by rubbing in water, the broken corners being somewhat rounded off ; the general smooth and polished character of the horn, however, is quite natural, and not due to this cause. It corresponds, also, very closely in its shape and appearance to some recent horns of the rein-deer in the Hunterian Museum. There is no doubt, therefore, of its belonging to the same species. The horn was presented to the Museum in 1862 by Mr William Grossart, surgeon, Salsburgh, in the parish of Shotts.

On communicating recently with Mr Grossart, who is a geologist, and has paid much attention to the local geology of the district, I learn that the horn was found about the year 1849, in the rather appropriately named Raesgill or glen, on the north side of the river Clyde (all the glens being named gills in this district), in the neighbourhood of Carluke, where he was at that time residing. There are extensive beds of black shale, containing bands of clay iron-stone, round about Carluke, and at

that time the iron-stones were worked in Raesgill. The surface soil and true boulder-clay, several yards in thickness, were removed from the surface of the beds, which were worked "open-cast," as it is styled. It was in the course of removing the boulder-clay, and in the bed of the clay itself, that the horn was found; and it was the only animal remains of any kind that was observed. Mr Young says he knows the district well, and is quite satisfied that the clay bed was the true boulder-clay, being full of ice-worn and striated stones. He thinks, from the somewhat rolled appearance of the horn, that it may probably have been originally derived from some pre-glacial deposits, most likely corresponding in character to those, to be afterwards referred to, found in Dumbartonshire and in Ayrshire.



Rein-deer's Horn, found at Raesgill, Lanarkshire.

PERTHSHIRE.—*Marlee*.—Professor Owen, in his valuable "History of British Fossil Mammals" (1846), has called attention to the probability at least of the occurrence of the remains of the rein-deer in the marl-beds of this county. The loch of Marlee, in the parish of Kinloch, Perthshire, near the foot of the Grampian mountains, had been partly drained for the sake of the marl, and in a marl-pit on its margin, under a covering of peat moss 5 or 6 feet thick, the skeleton of a beaver was discovered. The



skull was preserved, and was presented to the Museum of the Society of Antiquaries of Scotland, in December 1788.<sup>1</sup>

In a neighbouring marl pit, Mr Neill says, "a pair of deer's horns, of large dimensions, and branched, were found nearly at the same time;" and, along with these, two "leg bones, so deeply grooved as to appear like double bones." These last bones were supposed by Dr Barclay to belong to an extinct species of large deer which had been contemporary with the beaver. The large and branching character of the horns so specially referred to, suggest the idea of a deer different from that of the red deer, and would agree much better with the usual branching character of the horns of the rein-deer; and Professor Owen points out the fact, that the peculiar grooved appearance of the leg bones, also described, is a remarkable character of the metacarpal, and especially of the metatarsal, bones of the rein-deer. It is therefore probable that the remains were in reality those of a rein-deer; and it has been found in a similar situation in Linlithgowshire and in Dumfriesshire, to be afterwards described.

Sir Charles Lyell states, that the bones found in the shell-marls of Scotland include the red deer, ox, boar, dog, hare, fox, wolf, and cat, and the beaver (I quote from Professor Owen's work), the animals being arranged in this list nearly in the order of their relative abundance; to these we have now to add the bear and the rein-deer. Sir Charles also makes the interesting remark, that the animals found in the lacustrine shell-marls of Scotland all belong to species which now inhabit, or are known to have been indigenous in Scotland; and the addition of the bear and the rein-deer to the list does not alter this generalisation.

In the old "Statistical Account of Scotland," vol. xvii. p. 478, Edinburgh 1796, it is stated by the Rev. John Brodie, minister of the parish of Kinloch, that "a pair of very large deer's horns were found a few years ago in a bed of marl, in Mr Farquharson's marl-pit at Marlee. From their superior size, and palmed form, they appear to be the horns of the elk-deer," &c. Now, it is much more likely, when we take into account Professor Owen's remark, referred to above, as to the resemblance of the leg bones of a deer found in the same place to those of the rein-deer, that this large palmed horn was also that of a rein-deer.

<sup>1</sup> See Mem. of Wern. Nat. Hist. Soc., vol. iii. 1821, "On the Beavers found in Perthshire and Berwickshire," by Pat. Neill, Esq., p. 214.

The next two instances belong more, perhaps, to the geological than to the archaeological branch of inquiry,—still, I take the liberty of including them in my enumeration, as I am anxious to give a complete list of all the discoveries of the rein-deer in Scotland; and besides, at the present time, it is not easy to say where the line should be drawn between these so closely allied sciences.

DUMBARTONSHIRE.—*Croftamie*.—On 26th March 1856, I had the pleasure of exhibiting to the Royal Physical Society here, a portion of the smooth beam of the horn of the right side of a young or female reindeer. (See the annexed woodcut, fig. 1.) The horn is small, measuring  $11\frac{1}{2}$  inches in length and 1 inch in breadth, midway between the origins of the antlers. It has been broken off obliquely, just below the slightly prominent burr, and shows the origin of the brow antler close to the burr, and at about two inches distance that of a second antler or tine, at which part the horn is much compressed, the origin of the antler being quite flattened. Beyond this we have the smooth and rounded beam, becoming again compressed and angular at the upper part, where it is broken across.

The horn was found in the formation of a cutting of the Forth and Clyde Junction Railway, in the basin of the Endrick, at the distance of nearly a mile from that stream, and adjoining the hamlet of Croftamie. The Endrick flows into Loch Lomond, and the nearest part of the loch is about four miles distant. This rein-deer horn belongs, however, to a much older period than those first described; for in this case the horn was found close upon the rock, in the lower part of a bed of blue clay, in which, at a few yards distance, various shells were found, such as *Cyprina islandica*, *Astarte elliptica*, and *A. compressa*, *Fusus antiquus*, *Littorina littorea*, the common whelk or periwinkle, and the shelly base of a *Balanus*, adherent to a small stone; all these are marine shells, and are species at present inhabiting the neighbouring seas, telling us, apparently, of a time when this valley and the neighbouring Loch Lomond were still arms of the sea. These remains were not found in the till or boulder-clay, but in a bed of blue clay below it, between the boulder-clay and the underlying rock of the district. The bed of clay in which the remains were found was about seven feet in thickness; and above it was a bed of till or stiff boulder-clay about twelve feet thick, containing water-worn and angular

boulders, many of great size, over which was the subsoil and vegetable mould of the surface. The remains were found at a height of from 100 to 103 feet above the present level of the sea. They were presented by



Fig. 1.—Horn of a rein-deer found near Croftamie, Dumbartonshire.

Fig. 2.—Corresponding horns of a young and recent American rein-deer.

me to the Museum of Science and Art, and along with the horn, a perfect pair of horns of a young recent American rein-deer, corresponding exactly with it in character, which I was fortunate enough to get at the time. An account of the discovery, with the preceding woodcut, repre-

senting both these horns, was published in the "Proceedings of the Royal Physical Society," vol. i. pp. 163 and 247.

To test the correctness of the conclusion to which I had come, and set the matter completely at rest, I sent the horn for examination to Professor Richard Owen of London, who favoured me with the following reply:—"It gives me great pleasure to inform you that the portion of antler from the basin of the Endrick, which you sent for my inspection, is that of a young or female rein-deer, of the existing species, and if, as is most probable, a female, of the large variety called 'Carabou' by the Hudson's Bay trappers."

AYRSHIRE.—*Kilmaurs*.—The next instance of the discovery of the remains of the rein-deer was made some years ago in removing the alluvium over part of a quarry at Woodhill, near Kilmaurs, Ayrshire. Mr Archibald Geikie, in his valuable "Memoir on the Phenomena of the Glacial Drift of Scotland," published in the "Transactions of the Geological Society of Glasgow," vol. i., 1863, p. 71, states, that "Dr Scouler has recently examined some antlers, which, along with an elephant's tusk (*Elephas primigenius*), were placed by the late Dr Couper in the Hunterian Museum of Glasgow, the whole having been found in the till at the quarry near Kilmaurs. He informs me that they are unquestionably the horns of the rein-deer. It is singular that in this little Ayrshire valley, within the compass of a few yards, there should occur a greater number of mammalian remains than have been obtained from the drift of all the rest of Scotland; and that among these there should be well-preserved relics of the only two mammals (the mammoth and the rein-deer) which have yet been ascertained beyond a doubt to have inhabited Scotland during the drift period."

On a recent visit to Glasgow I had the pleasure of examining these remains, under the obliging guidance of Mr John Young, of the Hunterian Museum. They consist of a large tusk of the mammoth and the broken antlers of a large rein-deer, which were presented to the museum on the 4th December 1829 by John Fulton, Esq., Kilmarnock, and were found 36 feet below the surface at the Woodhill Quarry, on the farm of Greenhill, at that time the property of Mr Fulton. The antlers of the rein-deer appeared to me to be the remains of the horns of a single large and probably male rein-deer, the two corresponding frontal bones with a horn proceeding from each, and various longer and shorter portions of

the broken beams and antlers of the horns, measuring altogether between two and three feet in length; no very distinct palmated portions of the horns seemed to have been preserved, but the smooth and somewhat compressed appearance of the horns was very distinctive of the rein-deer.

Mr Young showed me a curious collection of upwards of 300 seeds of fresh water plants, which he had recently obtained by breaking up and washing a piece of sandy clay which had lain in the museum since 1829. It was adhering to the cavity of the tusk of the mammoth, and formed part of the earthy matrix, in which were imbedded the tusk and horns of the rein-deer found in the old Woodhill Quarry, Kilmaurs. These seeds have been defined as belonging to some five or six species, the more abundant being a species of *Potamogeton* and a *Ranunculus*. Mr Young had failed to discover any trace of marine organisms in this clay, and was therefore of opinion that it formed part of an old estuarine deposit, which had at one time partly filled up the Carmel Valley.

At a meeting of the Geological Society of Glasgow, on the 1st April 1869, specimens of marine shells were exhibited by Mr Robert Craig, Langside, Beith, which had been recently discovered on sinking a pit at Woodhill, near Kilmaurs, by Mr Yates, jun., coalmaster, Kilmarnock. The shells were found in a thin bed of sand, 1 foot 3 inches in thickness, which here underlies 50 feet of boulder-clay and upper drift, and overlies the bed in which the remains of the mammoth and rein-deer were formerly found. Of the shells the following species were observed: *Leda oblonga*, *Tellina calcarea*, *Pecten islandicus*, *Cyprina islandica*, *Astarte sulcata*, *A. compressa*, *Natica grœnlandica*, and fragments of a large species of *Natica*, *Littorina*, and a *Balanus*. At the same meeting Mr John Young read a paper "On the Succession of the Post-tertiary Beds beneath the Boulder-clay at Kilmaurs," and gave a detailed account of the whole order of these beds. Mr Young showed that since 1816, when the remains of the mammoth, *Elephas primigenius*, were first discovered at the Woodhill Quarry, some nine or ten tusks, and a portion of a molar tooth had been found, also some horns of the rein-deer. These remains were at first referred to the boulder-clay. In a communication to the Royal Physical Society of Edinburgh, in 1856, on the discovery of a rein-deer's horn in Dumbartonshire, already referred to at length in this paper, it was stated that

the rein-deer's horn there was found in a bed of blue clay lying *below* the boulder-clay of the Endrick Valley; and in this instance Dr Bryce of Glasgow showed a few years ago that these elephant and rein-deer remains were also really found in beds underlying the boulder-clay.<sup>1</sup> Several marine shells had been found, it was supposed, along with the tusks, but their species had not been described, and their exact locality and relation to these beds and to the tusks had not been clearly determined. Dr Bryce, from his own examination of the locality, and the testimony of competent observers in the neighbourhood, considered these beds at Kilmaurs to be marine deposits, belonging to the glacial series, and the true relation of them to be as follows, beginning from below :—

1. Carboniferous sandstone.
2. Hard gravel, 2 feet in thickness.
3. Dark blue clay (in which the mammoth remains were found, and between these, and partly in the clay, the horn of a rein-deer), 9 inches.
4. Sand (in which the shells were found), 6–18 inches.
5. Boulder-clay, 16 feet.
6. Upper drifts, 20 feet.
7. Subsoil and surface soil.

From the recent discoveries of Mr Craig, Mr Young was now able to give the following as the correct series, from above downwards :—

1. The natural surface and vegetable mould.
2. Various upper sands and gravels.
3. The boulder-clay or till.
4. Thin bed of marine sand with arctic shells.
5. Lacustrine bed with insects and seeds of fresh-water plants. *In this bed the remains of the mammoth and the rein-deer were found.*
6. Below this, again, there was a gravel bed.
7. And lastly, the Carboniferous strata.

Mr Craig found instances, he believed, of denudation in some places, where the upper sands, gravels, and boulder-clay rested directly on the Carboniferous strata. Mr Young could not, as yet, give a decided opinion as to the exact age of the mammoth bed at Kilmaurs, but he considered

<sup>1</sup> “On the Occurrence of Beds in the West of Scotland beneath the Boulder-clay,” by James Bryce, M.A., LL.D.—*Quarterly Journal of the Geological Society of London*, vol. xxi. 1865.

that the evidence seemed to point it out as a pre-glacial remnant of the oldest post-tertiary strata yet discovered in the west of Scotland.

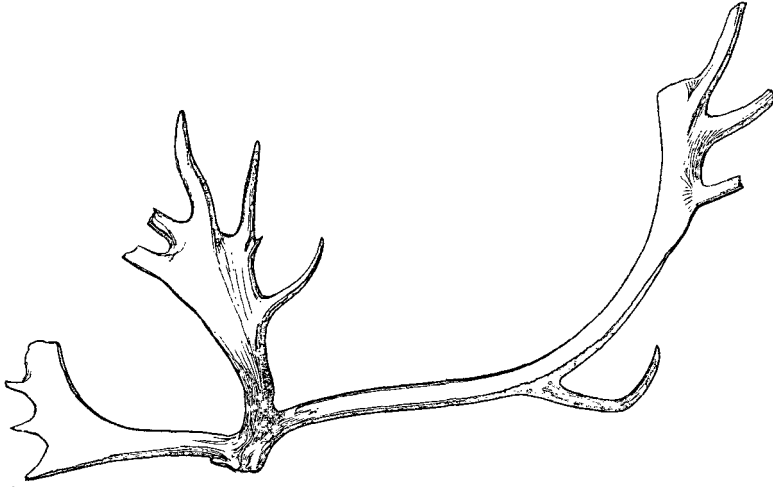
DUMFRIESSHIRE.—*Shaw*.—To the kindness of our distinguished naturalist, Sir William Jardine, Bart. of Applegarth, I am indebted for the following notice of the discovery of the horn of a rein-deer in this county.

“It was found (Sir William writes me from Jardine Hall, Dumfriesshire) with the remains of other animals, in digging marl from what is now a moss, about four miles distant from this on the property of George Graham, Esq. of Shaw. It had formerly been a small lake, but being drained, had become a morass, and grew the moss on the top, in some places of considerable depth, and was long in use for casting peats for firing. The animal remains were generally found at the bottom of the moss, lying on the marl, or nearly so. They consist of red deer (abundant), roebuck, *Bos primigenius* (rare), and one very perfect skull of a black bear (*Ursus arctos*), with a rib of the same animal. This was sent to me to tell what it was, and was the first intimation I had of any remains being found. I immediately went to the spot, and found all that I mention; and on examining a great many horns that had been collected near the house, found that which I consider to be part of that of a rein-deer.”

The horn is in the possession of Sir William, and measures about 12 inches long by about  $4\frac{1}{2}$  inches in greatest breadth. It is flattened in character, smooth on its surface, and wavy in its outline, from the projection of one lateral and two terminal tines, or branches. It appears to be either the terminal portion of the beam of the horn, or of a large brow antler, showing three digitations of different length.

ORKNEY.—*Rousay*.—The next instance was communicated to me by Dr Arthur Mitchell, F.S.A. Scot., who informed me, that in travelling three or four years ago through the mainland of Orkney, he saw a large horn of a rein-deer hanging nailed up above the door of a house, and was told that it was found in the adjoining island of Rousay when casting peats, and deep down below the surface. The doctor brought away the horn as a prize; but after a time, a rumour reached him that the former proprietor of Rousay had imported two or three rein-deer, and he felt this caused a doubt as to the true history of the horn, and accordingly had said nothing about it. He, however, mentioned the circumstance to me, and, at my request, sent the large and handsome horn for the inspec-

tion of the Society, and as a donation to the Museum. (See the annexed figure.) It is the horn of the left side, and measures about 3 feet 1 inch in length. There is a single, large, and palmated brow antler, 1 foot long, which terminates in four points; the next antler is also broad and palmated, and displays five or six points; on the back part of the beam



Rein-deer horn, found in a bog in the island of Rousay, Orkney.

there is the small tine projecting backwards, and the upper part of the horn expands into a palm, and terminates in four or more points.

Dr William Traill, a Corresponding Member of the Society, now resident at St Andrews, has kindly furnished me with notes of three rein-deer, a male and two females, which were brought from Archangel to Orkney by his relative, Mr Robert Traill, in 1816; but they soon after died, about the end of the winter, from want, it was believed, of their proper food, in addition to the supposed unsuitability of the climate.

Robert Baikie of Tankerness, Esq., M.D., also a Fellow of this Society, and one who is very learned in all Orkney matters, kindly informed me,



that he never heard of any rein-deer being brought to Rousay; and the only instance of them being brought alive to Orkney that he ever heard of, was the one referred to by Dr Traill. He saw these rein-deer at the time, and remembers that their horns were very small indeed, having only a single prong or so, and quite different from the large, well-developed horn now exhibited, that was found in the peat at Rousay. He believed the rumour referred to by Dr Mitchell must have been this instance of Mr Traill's bringing over the living rein-deer.

It is not easy to understand how the horns of any of these, or other domesticated rein-deer, which were most likely to be prized and preserved by their owners, could get buried in the peat-bogs of the islands; and I would rather be inclined to believe that this one found at Rousay, was really an early inhabitant of these islands, as we know it roamed over Scotland, and was also found in Iceland. We know also that great numbers of deer horns have been found with the early remains of man in Orkney; and we desiderate a careful examination of them, in case that other horns of the rein-deer may have been overlooked.

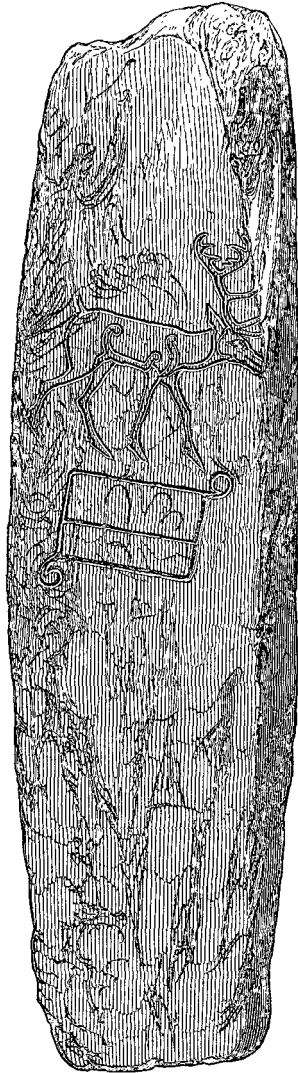
The instances now detailed include all the examples I have been able to gather of remains of the rein-deer being found in Scotland; and it is probable, when more attention is directed to the numerous remains of deer found in different parts of the country, that the number of discoveries of its occurrence will be greatly increased.

On referring to a very interesting and exhaustive communication by W. Boyd Dawkins, M.A., &c., "On the former Range of the Reindeer in Europe," published in the "Popular Science Review" for January 1868, to which my attention has been called since these notes were collected, I find he refers to an additional instance of the occurrence of the rein-deer of which I was not previously aware; it, however, corresponds very closely with the one I have described, found in the same county of Ross. He says, "In 1865 Sir Philip Egerton met with a small fragment of antler in the peat-bogs of Ross-shire, which beyond all doubt belonged to this animal." I am glad also to find that Mr Dawkins brings the statements of Dr Hibbert's paper fully into notice, and agrees with him in the probable correctness of the account that rein-deer were hunted in Caithness in the twelfth century. Professor Brandt, of St Petersburg, he says, is also of the same opinion.

Mr Dawkins, however, rather curiously translates *capree* as goats, and thus makes Torfæus state that the animals hunted by the Orkney Jarls were goats and rein-deer, instead of roe deer and rein-deer.

Mr Dawkins refers to the fact of the rein-deer being mentioned along with the red deer, and says, "At the present day they occupy different zoological provinces, so that the fact of their association in Caithness would show that in the twelfth century the red deer had already appropriated the pastures of the rein-deer, which could not retreat farther north on account of the sea. Hence the association of these animals in the same area proves that the latter was verging towards extinction."

We have on the "Sculptured Stones of Scotland" representations of various animals, which deserve more attention, perhaps, than naturalists have as yet given to them; and on some of them we have hunting scenes, and representations of deer. There is one of this class of stones now preserved in our Museum, to which I may just allude. The stone, a block of fine grained compact grey quartzose sandstone, measures about 3 feet 8 inches in length, by 10 or 11 inches across the sculptured face, and about 8 or 9 inches in thickness; it was acci-



Sculptured Stone found near Grantown, Inverness-shire.

dentally discovered in trenching a knoll called *cnoc-an-jhravich*, the hill of heather or heathery knowe, near Grantown, on the Spey, Inverness-shire. There is cut on it a very spirited representation of a deer, which, if not simply an exaggerated representation of a red deer; from its general appearance and pose, and the wide-spreading and branching character of the upper part of its antlers, bears at least somewhat of a resemblance to that of the rein-deer. Unfortunately the stone appears to have been chipped in front of the lower antlers. Each horn separates above into two principal branches or divisions, and from each of these branches various tines rise up—an arrangement which is well marked in many adult specimens of the rein-deer. It is curious to notice that immediately under the deer, and indeed the only other sculpture on the stone, there is a representation of a square-shaped frame-work, ornamented with curled-up or skate-like extremities at its opposite corners. Now, if we could suppose it possible that rein-deer broken in for harness had formerly existed in this country, then it seems to me not to require a very great stretch of the imagination, associated as this appears to be so closely with the deer, to fancy that we may possibly have here a representation of the rein-deer and its accompanying sledge! The other markings on the stone are mere scratches, and appear to have been caused by the teeth of harrows or other agricultural implements passing over it when it lay under-ground. (The sculptured stone is well shown in the preceding careful sketch and engraving by our clever townsman, Mr John Adam.)

The rein-deer now inhabits only the extreme northern parts of both hemispheres, though it is stated still to extend southwards, in certain localities, as far as the 50th degree of north latitude; and I learn from Dr A. Günther's invaluable "Record," that a society has commenced a very promising attempt at introducing the rein-deer in the Upper Engadin, Switzerland.<sup>1</sup>

I shall not enter here into the details of the discovery of the remains of the rein-deer in the south of Europe, and especially in the caves of Dordogne in France, all of which are fully described in the beautiful and important "Reliquiæ Aquitanicæ" of MM. Lartet and Christy; these authors tell us that in the drift (or valley gravels) the rein-deer occurs but

<sup>1</sup> "The Record of Zoological Literature," p. 37. Edited by Albert C. L. G. Gunther, M.D., &c., vol. iv. London, 1867.

sparingly; the mammoth, rhinoceros, horse, and ox are the predominant animals. In the Dordogne caves the rein-deer predominates, associated largely with the horse and aurochs; and exceptionally with some remains of the mammoth, hyena, &c.; but all traces of such domesticated animals as the sheep, the goat, and the dog are wanting. In the kitchen-middens of Denmark they state there are no rein-deer remains; but the fauna includes the dog, indicating the presence of domestic animals; and the same may be said of the Swiss lacustrine dwellings. (I have already quoted another authority, to show that the remains of rein-deer are found in Denmark, associated with flint arrow heads, stone hatchets, and other relics of man.) The rein-deer is not found in French turbaries, and in none of the cromlechs or sepulchres, say the authors of the "*Reliquiæ Aquitanicæ*," is there a trace of the rein-deer; the remains of the fauna in them being more recent than either the kitchen-middens or the most ancient of the lake dwellings. The man of the rein-deer period in France knew nothing of the use of the metals, and although a proficient in chipped axes, had apparently no ground or polished ones; and there is no trace of his having been able to spin or make pottery.

Mr Dawkins, in his memoir, informs us that "the rein-deer makes its first appearance in Western Europe in caverns and river gravels and sand of post-glacial age." He details numerous examples of its occurrence in various caverns in England and Wales, and in several post-glacial river deposits in different parts of England. In these instances its remains are associated with those of a variety of other animals; such as the hippopotamus, the two species of rhinoceros, the mammoth, the red deer, the roe, the Irish elk, and the urus; the cave lion, cave bear, and the grizzly bear, the leopard, the otter, the wild boar, the wolf, and also with the remains of man.

In the later or pre-historic epoch, Mr Dawkins says, "While our estuaries were being silted up, and the alluvia at the mouths of our rivers were encroaching on the domain of the sea, and our peat-bogs were being formed," the red deer began to increase, and the rein-deer became gradually extinct; only four instances of the occurrence of the rein-deer in these subturbary deposits and peat-bogs have been recorded in England.

In Scotland, from the details I have now given, and as might have been expected from its more northerly position, the remains of the rein-

deer found, seem to show a very prolonged existence of the animal. From the remote pre-glacial time, with its fresh-water plants and insects; or the glacial times of the drift, when great geological changes took place, and the animal was associated, as we have seen, at Kilmaurs, in Ayrshire, with the ancient woolly elephant. Down apparently to a much later period, to the comparatively recent formations of our marl-beds and peat-bogs, as in Dumfriesshire, where it occurs along with the urus, the bear, the red, and the roe deer. The clays and sands of our river banks, as on the Clyde, in company with the urus of Cæsar, the great ancient ox (the *Bos primigenius*); specimens of which, in our Museum, were found in a marl bed near Selkirk, along with numbers of the bronze celts of our early inhabitants.<sup>1</sup> By our sea-shores, as on the sandy downs at Tain, associated with the domestic animals, the dog and the small ox, the *Bos longifrons*, so often found with the relics of the Roman occupation. With the red deer, oxen, pigs, goats, and dogs of the kitchen middens, of the men who built those numerous and extensive brochs or stone towers, whose massy ruins still remain in many parts of our country. (I do not at present refer to the supposed great antiquity of these brochs, as it appears to me we have as yet but slender data to guide us in our estimate; meanwhile I am not inclined to place them at so very remote an era as some antiquaries seem inclined to do.) And lastly, we have the chase of the rein-deer celebrated in the saga, bringing the period of its existence in Scotland down even to the twelfth century; at which time another northern inhabitant of both hemispheres, the beaver<sup>2</sup> (*Castor fiber*), is known to have been still living in Scotland.

<sup>1</sup> "Notes on the Crania of the Urus, *Bos primigenius*, in the Museum of the Society of Antiquaries of Scotland."—*Proc. Roy. Phys. Soc. Edin.*, vol. ii. p. 3, 1858-59.

<sup>2</sup> Mem. Wern. Nat. Hist. Soc., vol. iii. 1821, "On the Beavers found in Perthshire and Berwickshire," by Pat. Neill, Esq.; and *Edin. New Phil. Journ.* 1858, new series, vol. vii., "On the Prior Existence of the *Castor fiber* in Scotland," &c., by Charles Wilson, M.D.

*Note.*—It has been already stated that the rein-deer were extirpated from Iceland in the twelfth century. In 1773 they were again introduced, Sir G. Mackenzie tells us; and later travellers, as Lord Dufferin in 1856, and Wm. S. Baring-Gould in 1863, inform us that they are still to be found in the island. For information on "The Geographical Distribution of Animals," see the important work of Mr Andrew Murray. 4to. London, 1866.