

III.

PRELIMINARY NOTE ON THE DISCOVERY OF A BONE CAVE AT THE ISLAND OF COLONSAY. BY SYMINGTON GRIEVE.

It is not intended in the present paper to do anything more than bring under the notice of the Fellows of the Society of Antiquaries of Scotland the discovery by Mr Daniel Fowler Howorth of Ashton-under-Lyne, and the writer, of a great bone cave in the island of Colonsay.

During a short stay there last summer, we heard of a cave that contained a well of icy cold water, and were also told that there were numerous other caves, so we arranged to visit them. Our excursion took place on the 14th of last July, and after much difficulty we found ourselves, with the aid of a guide, at the entrance of what we shall in future call the Crystal Spring Cavern.¹

To reach this point we had followed a rough path which led us through a cutting in a low bluff that stretched northwards, forming the west side of a small indentation of the sea. The path descended for a few feet, and we were near the mouth of what seemed at first an unimportant cave.

A look around showed that we were standing on an immense heap of debris which had at some period been part of the surrounding cliff, and which had probably formed the roof of a gigantic portico to the entrances of three caves; the centre one being either entirely destroyed by the fall, or possibly only its entrance filled up, while the other two were left with small openings, much of the debris having fallen into their outer chambers.

The most northerly of these caves is the Crystal Spring Cavern, and the mass of fallen rock at its mouth rises to a height of 40 feet above high-water mark.

The entrance, which is some yards below the level of the top of the fallen material, is situated in the face of a perpendicular cliff which rises above it 24 feet. It is about $19\frac{1}{2}$ feet broad, and faces the east-north-east, so to reach the level of the outer cave floor, which is about 20 feet

¹ It is known on the Island as the New Cave.

above sea-level at high water, we have to descend, for about 30 feet; over masses of fallen rock, which are partly covered with earth, which has probably been deposited by the feet of men and animals either going to or returning from the cave.

We go carefully down the declivity, and within the entrance we find the light begins to be obscure; we therefore light candles and proceed into the depths of the cavern in a west-south-west direction.

As our eyes gradually became accustomed to the darkness, the immensity of the cave loomed out around us, and we found ourselves in a chamber $95\frac{1}{2}$ feet in length, 51 feet in breadth at its broadest point, the heights of the roof ranging from 14 to $15\frac{1}{2}$ feet from the floor at the highest parts, while at other places projections of rock take place which give the roof and walls an irregular appearance.

Wandering about, we saw quantities of stalagmite, and looked carefully for stalactites, but found none worth having, and though we noticed bones lying here and there, we took no particular notice of them until we reached the south-south-west corner of the chamber, where we found the wonderful spring from which we have given the cave its name; and while examining the beautiful cistern of stalagmite in which its waters are contained, my friend Mr Howorth called to me to come and see some bones he had found among the earth and stones of the cave floor. On going to him I observed he had got several bones which certainly had a venerable appearance, so we determined to make further search, and I soon discovered quite a quantity imbedded in stalagmite, which made us feel sure we had come upon a find. As we had no implements except a geological hammer, we could only get a few of the loose bones from the surface, for to have attempted to get any of those from the stalagmite would have broken and perhaps made them useless for identification, so, fearing to destroy them for scientific purposes, we rather left them until we could return with proper tools and win them from the firm embrace of their crystalline matrix.

Proceeding to the inner portion of the north-west side of the chamber, we found the entrance to No. 2. It is about 9 feet in breadth and 7 feet

in height. Entering, we gradually descend in a direction nearly due north until we reach a level of 5 feet below the floor of No. 1. At a short distance further in from this point the cave walls curve towards the west, and the remainder of this apartment is north-north-west in its bearings. The whole of the measurements of the depth of No. 2 are taken from the datum line of No. 1 at its point nearest to the centre of the entrance to No. 2. This datum line is a line laid down through the whole length of No. 1 as near its centre as possible.

At a distance of 30 feet from this line we find the chamber widening; and at 60 feet it is nearly 29 feet broad, and 12 feet high, the extreme length being $87\frac{1}{2}$ feet.

For the last 23 feet of this distance the floor gradually rises until it reaches nearly the same level as that of the outer vault. The floor of the lower level of the second chamber is strewn with a large granulated sand, which seems to show it was covered with water until a comparatively recent period. But it is strange that at this point the largest mass of stalagmite yet found in the cave is met with. In appearance it is an undulated slab, varying in thickness from 3 to 18 inches, and is attached to the north wall of the cave, where, close to the rock, it has bones imbedded in its surface. Its crystals seem larger, and it is more transparent and beautiful than any of the other calcareous deposits, which look as if they had been formed amongst thin mud, probably caused by the treading over the wet floor of men and animals that frequented or inhabited the cave.

As bearing out the theory that water covered the floor of this part at some period during the formation of the stalagmite, it is interesting to note that its upper surface projects beyond the lower portion for some inches, and bears traces of having been formed above water during the time the part next the floor was immersed.

At the inner portion of this vault, which, as explained, is of a higher level, we again find deposits of bones and charcoal. We are now standing at the entrance to No. 3 chamber, which is a small opening situated on a level with the floor, 2 feet 1 inch in height, rather less in breadth, and was not supposed to lead any distance into the rock. Our guide explained

that no one has ever been into it and seemed rather astonished when he heard my intention to go. Lying down I examined the entrance, and observed that a few feet into the cavity the floor appeared to rise until it met the roof; but determined to explore the cave to its utmost limits, I pushed through the narrow opening and found myself entering what seemed a low tunnel. The floor was covered with stones rounded by the action of water, varying in size from an orange to a man's head; but further in, it was covered with portions of slate rock which had fallen from the roof by weathering, much of it being cemented to the floor by stalagmite. This rock is in a sloping vein, which at 15 feet from the entrance had been eroded to a breadth of 11 feet 3 inches, but the height was only 2 feet 10 inches. I crawled along the passage a distance of 36 feet, but then found further progress impossible, as the stalagmite had filled it up until it was less than a foot high. I passed my hand with the lighted candle into the aperture and peered into the gloom, trying to see the limit of the lead, but could not, so I crept back into the wider portion of the tunnel, where, getting out my magnesium, I fixed it in a holder for the purpose, and moved forward to the aperture once more, then lighting the wire held it at arm's length into the opening.

As the burning metal shed forth its brilliant rays it was seen clearly the obstruction was only a few feet in thickness, and that a chamber was beyond. Where the cave may end can only be found out after much toil, but one thing is certain, that if it formed a place of safety and refuge for the cave dwellers, as there is reason to believe, we have ready for exploration one of the most remarkable cave dwellings known in Scotland.

The total length of the chambers and passage as yet explored is 219 feet, and if you add 10 or 12 feet as the distance seen further by the aid of the magnesium, you have a total of about 230 feet.

The latter part of this exploration was carried out last month, when I returned alone to the island provided with proper implements, but to make this note more connected it is written as if the examination had all been at one time.

During my second visit several other caves were explored, one of them

as extensive as that now described; but as they did not contain bones in any quantity they are not likely to prove at present so interesting.

The deposits of stalagmite in the Crystal Spring Caverns seem somewhat local, and confined to the surface, while the under strata is mostly composed, so far as examined, of bones and charcoal, with large round water-worn stones, which appear to have been cracked by heat; but between the layers there are seams of what we believe to be decomposed rock, now in the form of clay, which has been baked, the result of fires being lighted on it when it formed the floor.

The deepest cutting yet made was near the entrance of No. 1 chamber, and reached a depth of 2 feet 10 inches, revealing the strata to be as follows:—

The first 4 inches from the surface, cave earth, rounded stones, charcoal, and bones mixed. Then a layer of burnt clay 4 inches, below which was a succession of thin layers of charcoal, bones, earth and stones mixed, divided by thin seams of clay for 4 inches, followed again by a deposit of bones, earth, stone, and charcoal for a foot, when another layer of clay about an inch thick is met with, succeeded by 8 inches of earth, bones, and charcoal, beneath which was 1 inch of clay and then rock. The rock which was struck was probably a boulder which had fallen into the cave when the roof of the outer portico fell. But further into the chamber beyond the point where the debris from the outside at present lies, deeper deposits are likely to be found, and the further down they are dug into may prove the richer in antiquarian value.

All cuttings yet made have been carefully noted and the results kept separate, so that if the work of exploration is taken up by some society desiring to shed light on the story of ancient Scotland, the work done may not be lost, but rather will aid them in forming preliminary conclusions, and obtaining truer inferences during future investigations.

The result of search in the cave has been the recovery of a large number of bones, only part of which have as yet been examined, but for what has been done I have to acknowledge my indebtedness to Dr R. H. Traquair, who has most kindly worked at the identification. I would also acknow-

ledge my obligations to Mr Galletley and Mr Gibson of the Museum of Science and Art, who, along with Mr Anderson of your Museum, and Mr Benjamin Peach of the Geological Survey, have aided me much with valuable information.

The animals as yet represented are—

1. The Ox, 34 bones.
2. The Horse, 10 bones.
3. The Sheep (a curious small variety), 6 bones.
4. Fragments of bones of Mammalia not identified, 42.
5. Birds, 3 bones, probably representing three varieties, uncertain.
6. Fish, 5 bones, probably representing three varieties, uncertain.
7. Shellfish—Periwinkle and Limpet Shells, very plentiful.

It is curious to find that most of the ox, horse, and sheep bones belong to young animals, which possibly indicates that the men of these bygone ages were sufficient epicures to know the difference between tough and tender meat. Numerous bones show the marks of human instruments, either in cuts, saw-marks, or indentations, and others from their calcined appearance have evidently been exposed to fire. One striking feature is the fragmentary state in which all marrow bones have been found, giving evidence that the cave dwellers knew the form in which they would give the greatest product when boiled.

The clean appearance of the cuts leads one to conclude they have been done with metal, and though we have not as yet been so fortunate as to get any implements, still we probably have evidence of one, in the large piece of oxidised iron imbedded in the mass of breccia on the table.

The presence of charcoal leads to the inference that wood grew on the island in early times, and in confirmation of this we discovered on the shores of Loch Fada the stumps of large trees *in situ*, evidently the remains of an ancient forest. This is somewhat remarkable, as all the natural wood of Colonsay at present is of dwarf growth, and principally composed of birch, hazel, and oak. The only timber of even moderate size is in the plantations near Kiloran House, and these have been planted in recent times.

From the nature of the rock (talc schist) in which this cave is formed, and the general surroundings, we infer the stalagmite would be of very slow accumulation, but it is desirable that no definite conclusions should be arrived at until there is an opportunity to investigate further.

This paper being merely introductory, it will be necessary to leave till some future time the consideration of

1. The formation of the cave ;
2. Its uses ;
3. Its inhabitants ;

and to illustrate some of these subjects diagrams will be required.

The proprietor of the island has been communicated with, and requested to protect the cave as well as the other antiquarian and ecclesiastical remains on Colonsay and Oronsay, as with increased facilities for reaching the islands they may soon have plenty of visitors, when it is discovered that they have nearly all the interesting features of Staffa and Iona combined,—and in some respects present even greater attractions.