is still to be learnt; and the subject we have now appended to our more legitimate remarks is by no means so irrelevant as at first sight it might seem. It is a common thing to find the roots of ventriculites covered over with a nodule of flint, in which holes are seen, through which the finer ends only of the separate rootlets have protruded. If these flints were originally sponges, first growing round the stems and roots of young ventriculites, then their very peculiar character is at once explained. But it is not by any means easy to imagine how a gelatinous mass of silex could consolidate under roots which in that case must have been *imbedded* in the chalk mud before any segregation of silicious matter took place *beneath* them. Moreover, such sponge growth will explain the plugs of flint which fill the central cavities of ventriculites, and the annular disks and rings which sometimes form bands round their conical exteriors; and we cannot but think some facts are from these sources to be elicited which shall have a practical bearing on the habits and living nature of the ventriculites.

FURTHER DISCOVERIES IN HEATHERY BURN CAVE.

By JOHN ELLIOTT, Esq.

Since the publication of my paper "On the Discovery of Human and Animal Bones in Heathery Burn Cave, near Stanhope," in the 'Geologist' for January last, there have been further very important discoveries made in that cave.

In carrying on the quarrying operations from the point where they were suspended (see F*—fig. 1) when the first discovered relics were sent to London† the workmen found numerous fragments of bones, also bone pins and knives, fragments of very rude pottery, portion of an armlet, boar-tusks, bronze spear-head, pins, celts, and armlet, two coins, some marine shells, cockle, limpet, and mussels, and large quantities of charcoal, etc., all deposited under an incrustation of stalagmite, varying from 2 to 4, or at some places to 8 inches in thickness, with the exception of one or two manufactured articles, which were found in the sand not covered by stalagmite. The whole of the cave-deposits, with this trifling exception, were covered by a thick sheet of stalagmite, varying from a very dense, compact structure, to a highly crystalline, or to a more or less porous substance: some portions easily fractured by the stroke of a hammer, others yielding only to most energetic blows.

The bronze armlet and the two coins were found in sand uncovered

† Received by the Editor on the 14th of April.

by stalagmite, but as they were deposited in what had, not long ago, been the watercourse, the stalagmite had either been denuded, or had been prevented from forming, at that particular place, by the action of the stream; the *coins were under very little cover*, and might have been imbedded very recently.

The stream of water through the cave has evidently changed its course many times since the cave was excavated to its present size, as we find accumulations of sand and gravel (at F* and G, in ground-plan, fig. 1), about three feet above the present water-level, and about two feet above the ancient watercourse (M, N).

At *a a*, fig. 2, there was a hillock of angular blocks, etc. covered by stalagmite, and upon this stalagmitic hillock were deposited bones,

Fig. 2.—LONGITUDINAL SECTION AT F. (See Ground-Plan.)

tusks, bone knives and pins, large and small snail-shells, fragments of pottery, piece of an armlet, a cockle-shell, and large quantities of charcoal, cemented together by calcareous matter. No sand or gravel was observed amongst them; there being considerable interstices in some parts of the bed, plainly showing they had not been drifted there by water, but pointing to the conclusion that they had been *purposely* placed there by the animals or men that inhabited the cave. Part of these bones, etc., formed the subject of my former paper above alluded to, but no *manufactured* bones, etc., had been found when it was written.

At *e*, fig. 1, the bones, bone pins, tusks, pottery, and charcoal were found in coarse sand and smooth pebbles, and might have been drifted while *in* the cave, but it is not at all probable that they were drifted *into* it, for every appearance connected with the deposits, such

as the large quantities of charcoal found, and the numerous burnt stones, etc., lead to the belief that the cave had been inhabited for a considerable length of time; and that fires had been burned at different places the thick deposits of charcoal testify.

The bronze implements found at H and J in fig. 1, were associated with a few bones, a limpet-shell, some mussel-shells, and a large quantity of charcoal, and were deposited in sand and gravel.

The deposits throughout the cave are nearly on the same relative level, with the exception of the hillock already mentioned; and while the greatest part of them have only one stalagmitic covering, the hillock and a few feet towards *g*, in fig. 1, had a sheet under the "bone-bed," extending over *b b*, fig. 2, where it vanished, and its place was occupied by sand and pebbles, as we see in the transverse section (fig. 3).

The "Communion Table," as it was called by the visitors to the cave, was a large pillar of the rock, around which the water had washed until it had undermined the base, when the pillar fell down, leaving a considerable space between its top and the roof of the cave, which had afterwards been partially refilled by pendulous stalactites from the roof, forming a junction with the stalagmitic bosses on the "table" (as shown at fig. 4); and on the top of the "table" there was found a tusk, some bones, some large snail-shells, and pieces of charcoal, under an incrustation of stalagmite. One of the workmen wondering what thickness the incrustation had attained on the "table," struck his hack into it, and exhumed the above-mentioned relics to his no small astonishment. Perhaps this is the first time that such a discovery has been made "on removing the cover."

The appearances of the deposit at F, fig. 1, and the great thickness of the stalagmite—in places 6 and even 8 inches thick—shows that portion must have taken a greater length of time to form than the rest, which was only 2 to 4 inches, while from the absence of any bronze implements, I am led to consider it of more ancient date; the probability also is, that bone implements would cease to be used when metal ones were introduced.

The general appearance, on entering the cave before it was demolished, was very interesting and grand. The fine pendent stalac-

Fig. 3.—Transverse Section at G.

c, open cave, 7 feet; *b*, stalagmite, 4 inches; *a*, sand and gravel, bones, etc., 15 inches.

Fig. 4.—Transverse Section at H, showing "Communion Table." *c*, "Communion Table"; *d*, open cave, 4 feet 6 inches; *c*, stalagmite, 2 or 3 inches; *b*, sand, etc., 12 inches; *a*, rock.

tites from the roof; the various round bosses of stalagmite undulating over the floor; the gurgling of the cave-stream; and the momentary droppings of water from the crevices and joints of the rock, gave the place a very solemn and enchanting aspect. What changes in the manners and customs of the human race have taken place since the date of the cave-men! Were we to take a poetical or an imaginative view of the case, and picture to ourselves a few naked or half-naked human beings in the gloomy cavern, standing or sitting round a fire made of wood, and enveloped in its stinking smoke, with perhaps an animal's skin flung round their bodies and secured by one of these very bone-pins we have found; making their rude repast of a boar which they had hunted down in the surrounding forest, and the flesh of which they may have boiled in one of their coarse earthen pots, of which we have found such numerous fragments,—flayed too, probably, with those bone-knives which have thus strangely come down to us; poor creatures, who lived and died so long ago, that no Hume has chronicled the career of their race, and who probably had perished ere Cæsar came to conquer: picture their condition of want, privation, and hardships, as compared with the plenty, the luxurious mode of living, and the high state of civilization which *we* now enjoy. What a contrast there is! But science does not sanction the play of the imagination, which is ever an unsafe guide. Well-ascertained facts and reliable observations are the data on which science rears the structures on which she plants her standards. But one can scarce refrain from speculation on a theme like this.

In conclusion, I beg to tender my warmest thanks to W. H. Ware, Esq., Ashes House, near Stanhope, who kindly permitted me to have the use of the relics until their history was made out, as far as can be done; and also to thank Mr. Richard Cordner, Crawley House, near Stanhope, for the interest he took in the matter, in generously sending men to carry on the explorations.*

West Croft, Stanhope, March 29th, 1862.

GEOLOGY OF THE ISLE OF MAN.

BY THOMAS GRINDLEY, Esq., OF GLOSSOP.

While almost every week increases our knowledge of the geology of distant parts of the earth, there is one small island in the British seas, famed for its picturesque beauty, and peculiarly interesting on account of its historical associations, of the geological features of which very little is known, and even that little scarcely ever referred to in geological treatises. This may have arisen mainly from the

* These further most interesting discoveries were kindly forwarded to me by Mr. Elliott with this letter, accompanied by plans.—ED. GEOL.