

## Third Report on Aveline's Hole.

By J. A. DAVIES.

Work in the cave has continued steadily since the publication of the last report, and thirty-three tons of material have been removed to the outside of the cave for examination. The majority, 22 tons, came from the Old Spoil Heap, nine and a half tons from a trial trench thirty feet from the entrance, three-quarters of a ton from the Rodent Rift, and one ton from a stalagmite shelf. The work and the results obtained will be described under these headings.

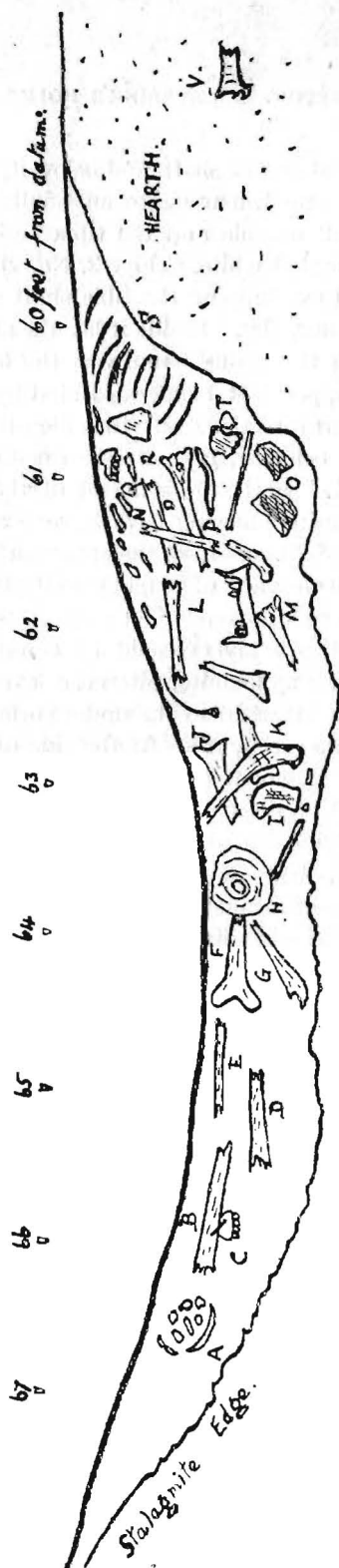
### OLD SPOIL HEAP.

Previous investigators of this cave such as Beard, Buckland and Williams excavated at the bottom of the slope of the outer chamber until a pit had been sunk to the depth of ten feet. Apparently they found the work of removal heavy, for the earth and stone was not taken from the cave but left in a heap four feet high alongside the pit, between 55 and 70 feet from the cave mouth. In the material removed from this heap last year numerous human bones, chiefly small or fragmentary, about thirty human teeth, twenty flint implements, and fragmentary remains of horse, pig, rhinoceros, reindeer, giant-deer, fox, brown-bear and pika were found, in fact a fauna similar to that from other parts of the cave, the exception being the mandible of an extinct vole which belongs to an earlier horizon than the Magdalenian, and has been found in the middle gravel terrace of the Thames, and in the Clevedon and Banwell Caves. There is no doubt in my mind that this jaw came from the bottom of the pit, earth from which makes up the bulk of the heap, and this discovery is a powerful argument against the haphazard sinking of shafts in the floors of caves. Though, of course, none were in their original position all the remains enumerated above were incrustated in stalagmite. The distance of the heap from the entrance has prevented extensive introduction of modern remains, and where these are found they are quite obvious. However, everything which has no stalagmite covering is rejected as of modern introduction, and thus all possible admixture is avoided. Unfortunately there has been a considerable slipping of the heap into the shaft, but this has been remedied by digging a burm.

## STALAGMITE SHELF.

When the spoil heap material was cleared from the right hand or south side of the cave 55 to 67 feet from datum spot a thin shelf of stalagmite, the horizontal continuation of the vertical flow down the wall of the cave, was discovered. The shelf was the remnant of a pavement which originally stretched for some little distance above the floor in this region, and had been broken by early investigators, who probably found it too thick to deal with near the wall. The stalagmite in the shelf varied from six to eighteen inches in thickness, and was actually a breccia consisting largely of sharply angular blocks of limestone which had obviously fallen from the roof after frosts, and which varied from a few ounces to above twenty pounds in weight. A very few small sub-angular blocks of old red sandstone were among the limestone. The whole was consolidated by a matrix of stalagmite which varied from very soft material, into which the finger-nail could easily be pressed, to hard calcite that could only be broken with a hammer and chisel. Much earth hardened by drip, and also at least two bands of red plastic clay were interposed, while below was a thicker band of partially consolidated loam, such as would be left by slowly moving water. The clay bands were found intermittently through the whole area, and were certainly washed down by the water drip in particularly rainy periods after the stalagmite had begun to form. The shelf was full of human bones, some of which had been broken off short by previous investigators when they removed the thinner parts of the pavement. This region is one of the wettest in the cave, and consequently the osseous remains were very soft so that they fractured readily when the shelf was struck with the pick several feet from them. Fortunately, when dry the bones hardened. It was found that when bones were embedded in a matrix of soft stalagmite a thin layer of hard crystalline material formed a jacket for them.

At 67 feet from datum the stalagmite, which was very hard, was broken, and at about four inches from the surface several pieces of human skull with a phalanx resting on them (Fig. I, A) appeared. Up to the present these have not been taken from the matrix, which contains charcoal, numerous impressions of insect wings, casts of the carapace of the common wood-louse, rodent remains, and bones of bats and birds, as well as snail shells including *Vitrea cellarina* and *Helicigona lapicida*. With one end practically touching the skull-fragments, and pointing towards the cave mouth, was a shattered shaft of an extremely platycnemic tibia (B) which literally fell to pieces on removal, but has since been reconstructed. The extremities



OLD SPOIL HEAP.

FIG. 1.

were missing. Half way along the shaft, and below it, lay two human maxillae with teeth (C), one belonging to an adult, the other to a child. Between the adult maxilla and the tibia and touching both lay a blade of flint, patinated white. (Fig. 2, No. 2). Towards the cave mouth with its end overlapping the tibia shaft was part of the shaft of a young left femur, (D). Beside it lay the shaft of a young humerus, (E). Touching the young femur was the lower half of an adult femur, (G), the upper half being separated by several inches, and pointing in a different direction. By the side of the femur fragment, and with one end below it, lay an almost complete ulna.

About two inches below the broken end of the femur, which was covered with stalagmite, showing it to have been broken for a considerable period, and six inches from the upper surface of the shelf, were found the remains of the vault of a child's skull, (H). This lacked all the facial bones, and was broken up, the pieces being placed one inside the other so that five layers could be counted. The mass was cemented together by stalagmite, alternate layers of bone and stalagmite being found. Attached to the under surface of the skull-fragments were a vertebra and a rib. At the side of the mass, and on the same level lay a fragment of pelvis, (I), and two small flint blades. Beside the wall of the cave lay two upper ends of young tibiae, (J). Above and lying across them was embedded the upper end of the adult femur, (K). Beyond the tibiae fragments was uncovered an almost complete human mandible with nine teeth in position. It lay with the ascending rami towards the wall of the cave, and the chin pointing upwards. Both condylar processes had been lost, otherwise it was in a perfect state of preservation, and like the rest of the bones in the shelf, unrolled. Below it was the distal half of a rather slender humerus, (M). Six inches of stalagmite were broken away before the chin of the mandible was exposed. Near the jaw were four fragments of the shafts of young long bones, (L), three being humeri and one the lower end of a tibia. The lower extremity of a femur, (T), with the patella cemented in articulation, and a fibula below it, were found close to two fragments of the skull of some very large animal. Alongside the fibula was a badly battered humerus, (P). An upper end of another humerus lay near the latter. A fragment of another adult maxilla with teeth, (Q), was found at this point as well as a clavicle, several ribs, (S), a piece of pelvis (young), a fragment of adult skull, (R), and several tarsal and carpal bones, (N). A few small nodules of red ochre were found among the bones, only two or three of which were partially coloured by it, and then apparently by accident.

The condition in which the human bones were found, and especially that of the child's skull, may warrant the conclusion that they were ceremonially buried after maceration. The only bones in articulation were the femur and patella, with the possible addition of the fibula, if the lower limbs had been flexed back after the manner of the male skeleton at Grimaldi, in the palæolithic skeleton at Laugerie Haute, and in many Bronze Age burials. The majority of the bones and fragments were mixed up without order, though most lay with their long axes parallel to the cave wall. None of the bones had been abraded by the action of water, none are gnawed or split for marrow, and when broken the fracture is always transverse as would be caused by the blocks of limestone, amongst which they were found, falling on them from the roof. In the stalagmite, mingled with the bones, and more especially below them, was found a large quantity of charcoal, which may be the remains of the black mould of Rutter.<sup>1</sup> This can be traced from 42 to 67 feet from datum, and for at least two feet from the South wall outwards. For the last ten feet the charcoal is in the argillaceous cave-earth below the stalagmite. The presence of charcoal stalagmited along with human bones is no new discovery in the cave, but the extension of the hearth in a narrow comparatively low cave such as Aveline's Hole to a point nearly 70 feet from the mouth is remarkable. In the hearth were found the ulna, (V), tibia and astragalus of the Red Deer. The two long bones had not been split longitudinally in the usual manner, nor had a humerus of the same animal which was found two feet above the tibia.

#### TRIAL TRENCH.

In the last report the hope was expressed that deeper excavation would yield results. A trial trench was dug 30 to 35 feet from datum until what was apparently rock bottom was reached at seven feet from the original surface. The material excavated consisted of limestone blocks in a matrix of light brown loam, only slightly plastic, and probably introduced by slowly moving water. This loam was remarkable for its high content of disintegrating calcite crystals, stained yellow by oxide of iron. It was singularly barren; only a few bird bones and some rodent jaws of the same species already found in the cave, and including pika were discovered in it. The loam contained no rounded pebbles, and all the limestone blocks removed were sharply angular, and far too large to be moved by the most powerful torrent. They have palpably fallen from the roof during frost. The deposit from above had an exceedingly plastic

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<sup>1</sup> Rutter, *Delineations of N.W. Somerset*, 1829, p. 117.

argillaceous matrix containing a few small sandstone pebbles, and much limestone which was rarely water-worn. It is probable that the stream which in Pleistocene times ran down the Combe, overflowed into the cave during very wet periods, and introduced the sandstone from the conglomerate bank opposite, or even from the Devonian area, half a mile up the anticline of the Mendips.

#### THIRD FOOT.

Before the trial trench was dug a portion of the third foot layer which covered its site was removed. This contained a few small bones, some unimportant flint flakes, and the cast of a fossil shell, which is foreign to the district, incrustated in stalagmite, (Plate I, No. 2). On the advice of Professor Reynolds this was submitted to Mr. J. W. Tutchter of this society who prepared the following report upon it:—

“*Pseudomelania Heddingtonsensis*, Sow. ; Corallian, Dorset ?

This fossil is widely distributed in the Upper Corallian rocks. The nearest place to Burrington from which it could be obtained is near Trowbridge, Wilts. It is common in Dorset, *e.g.*, Weymouth, Sturminster, etc., and in Oxfordshire at Heddington. The matrix rather suggests one of the Dorset localities, but this is not an infallible test in this case.”

It is interesting to note that Trowbridge is also the place at which the nearest natural flint to Burrington is found. The significance of the find will be discussed below.

#### RODENT RIFT.

Owing to the quarrying away of the large limestone block behind which the remains were hidden, this area is now no longer a rift. Discoveries of microtine remains in it have been numerous, and are reported upon by Mr. Hinton. One of the most prominent features of the rift is the extreme commonness of molluscan remains in it. These, together with a few found in other parts of the cave, form the subject of a report by Mr. A. S. Kennard. Two flints similar to specimens from other parts of the cave were found here.

#### HUMAN REMAINS.

The discovery in the stalagmite shelf of the most important of these has already been described. A few teeth, fragments of long bones, and bones of the hand and foot have also been found, chiefly in stalagmite adhering to the walls of the cave.

Mention must be made of the work of Mr. Herbert Taylor who is reconstructing skulls from the numerous fragments found in the

area 65 to 85 feet from datum, and excavated before and immediately after the War. His work, which needs infinite patience and considerable anatomical skill, has yielded important results, and before long the measurements of five or six crania will be available.

#### ANIMAL REMAINS.

The number of species now identified has been increased to 116. The increase is due in a great measure to the work of Messrs. Kennard and Woodward, who readily examined the molluscan material from the Rodent Rift. We have not yet received the report on the microtine fauna from Mr. Hinton, but apparently few new species of any importance have been found in the Rift, though vole jaws of mid-Pleistocene period have been found on the spoil heap inside the cave. The only new species of large animals found in the cave is *Rhinoceros tichorhinus*, the woolly rhinoceros. This animal, which is found throughout the middle and upper Pleistocene of England, and formed the subject of engravings and paintings by the Magdalenian artists of France, is represented by a fragment of cheek tooth from the old spoil heap. The locality is most unfortunate since we do not know whether it belonged to an older horizon than that of the flints and human remains.

Bones of the stag were found in the second foot in the hearth, associated with human bones. This confirms previous discoveries. It is interesting that remains of a red deer of normal size should be found in the same level as those of giant-deer. The latter has been regarded by some authorities as the immediate ancestor of the modern stag, the theory being that selection by hunters who always killed the largest deer has in the course of time reduced the race to its present size.

More remains of giant-deer have been discovered in all parts of the cave with the exception of the trial-trench, and the same applies to reindeer, which is still represented solely by fragments of shed antler.

A tarsal bone of a young horse was found in the third foot layer, and a stalagmite-coated incisor was found on the old spoil heap along with part of the mandible and a tooth of pig in the same condition. A lower canine of lynx was found above the trench in the third foot, and may have belonged to the same individual that has already furnished remains.

Teeth of badger, fox, stoat and weasel came from the spoil heap and rift.

Some bones of pig, ox, and sheep were found while moving the old spoil heap. These were of entirely different appearance from bones of such animals as giant deer and reindeer. Furthermore these animals were represented by whole skeletons comparatively undamaged and untouched by stalagmite, which is never the case with the Pleistocene remains. It is therefore certain that these animals have been buried since the discovery and opening of the cave in 1797.

### ARTIFACTS.

#### ANTLER.

The sole 'find' of worked antler came from the third foot above the trial trench. It is a point fashioned from the antler of a giant red deer, (Plate 1, No. 1). It is 15.8 cms. long, and its greatest width one centimetre from the butt, is 3.5 cms. The implement, which was broken, is covered by a very thin film of earthy stalagmite which is difficult to remove without damaging the specimen. The upper convex surface and the edges are polished; but the lower concave surface is occupied by cancellous tissue which has been pared or rubbed away near the point. The shoulder on one side which is shown in the plate cannot be connected with hafting, since the neck is towards the point. The butt is roughly outlined by a number of pits which may be connected with the operation of removing the fragment from the beam of the antler.

#### STONE.

The specimen of *Pseudomelania* described above cannot have been introduced into the cave by any other than human agency. The stalagmite on the fossil and its position in the undisturbed third foot along with flint implements and extinct animals postulates some antiquity for it. Fossils which have been utilised to form part of the necklaces of palæolithic man have already been found at la Madeleine and Laugerie Basse, but this specimen is very large for that purpose, and shows no signs of drilling.

The flints found number about 40, most coming from the old spoil heap, or that part of the third foot layer recently excavated. Most of them are merely flakes or fragments of unretouched knives. Fig. 2, (1) is a stout knife similar to specimens from Cheddar, and has a light grey patina. Both the edges are extensively chipped by use. (2) is an exceedingly thin unretouched blade with a white patina found between the tibia and maxilla in the stalagmite shelf. (3) is a small knife with a retouched back, 3.8 by 1.2 cms., patinated white. (4) is a thin blade, delicately chipped in one corner, patinated

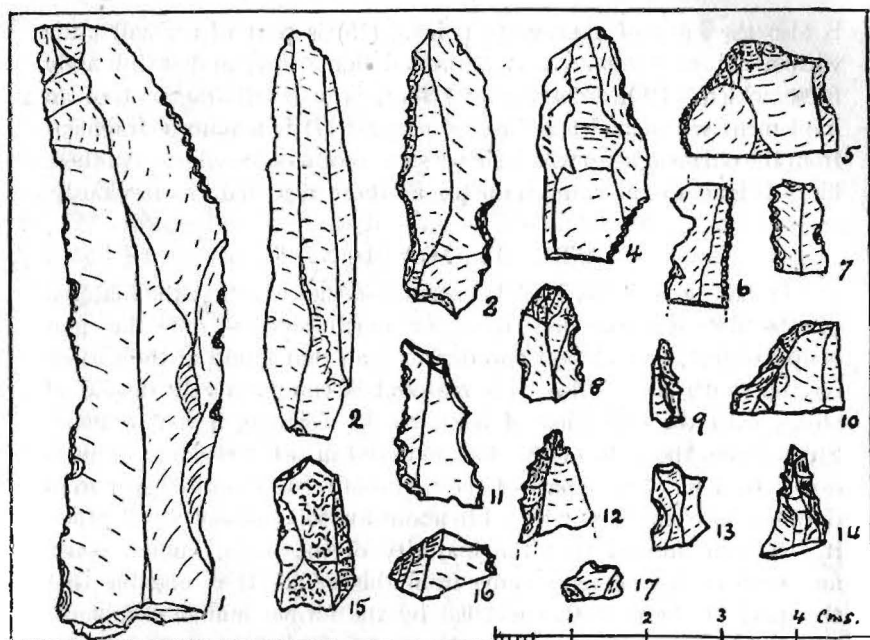


FIG. 2.

white and fire-crackled on the lower face. It came from the first foot. (5) is a fragment of a broad flat blade chipped on three sides by pressure. The fourth side is patinated a lustrous white like the surfaces, showing that the implement has been broken for a considerable period. It was found in the third foot above the trial trench. (6) is part of a small knife with chipped back from the second foot. (7) is similar, but from the rodent rift. (8) is a fragment of a narrow minute knife; the bulb at the end has been reduced by careful chipping. The implement is patinated white, and came from the old spoil heap. (9) is a grey wedge-shaped pygmy tool, chipped on one edge, from the rodent rift. (10), which is white, and from the second foot, is probably the apex of a small chatelperron point, and is chipped round the curved edge. Like the other fragments it was broken at a remote date. (11), which is one of the few flints from the cave that is totally unpatinated, came from the first foot, and is chipped on one edge. (12) has a blue patina, and is fire-crackled. It came from the first foot, and is probably the apex of a gravette point. (13) is a fragment of a small chipped knife found with the human remains in the stalagmite shelf. (14), from the first foot, is the second flint found in the cave which has both edges intentionally chipped. It is patinated white, and probably

is also the apex of a gravette point. (15) is part of a small knife with a chipped back. It is patinated light grey, and is intensely fire-crackled. (16), from the first foot, is a small fragment of an implement which had a retouched edge. (17) is a minute fragment from the old spoil heap which shows signs of use on its edge. All these flints belong to the same industry as those reported on previously.

#### STRATIFICATION.

It has been noticed while excavating the cave that the material of the floor on the left hand or north side is, for the first couple of feet, much looser and darker than that found at the surface on the south side. Also, this material is comparatively devoid of stone, with the exception of large blocks weighing a ton or more. Stone forms the bulk of the floor material in other regions. This is especially true of that part of the cave between 18 and 60 feet from datum, and from the north wall to about five feet outwards. Further, it has been noticed that the majority of the flints, human teeth, and split bone fragments came from this area. It is possible that this part of the cave was levelled by the former human occupants, who brought earth from outside the cave to fill in the spaces between the large limestone blocks which must have made the cave a most uncomfortable dwelling place. Calculating from the record of material removed from the floor since I have had charge of the cave, the amount of earth required would not have been very considerable. Usually a layer of loose and rather dark red earth, about a foot thick, rested on a layer of small stones with a maximum depth of two feet. At the most, fifteen tons of material would have sufficed to level the floor, and taking into account the number of inhabitants indicated by the human remains found in the cave, this weight would not mean an excessive amount of labour for a primitive people.

The north is much the drier side of the cave; also, it is the only part of the interior into which direct sunlight penetrates, even at midsummer when the illumination is at a maximum.

#### SUMMARY.

The Society is deeply indebted to Sir Arthur Keith for his description of the three most perfect human crania found in the cave. His report, which is given below, will greatly enhance the scientific value of all the material obtained. There is one small point on which I differ from his conclusions. It concerns the period of the industrial finds. In his report the period is given as Azilian. The form of the harpoon, which is precisely similar to those found in the

typical Magdalenian stations of southern France, seems to negative this. The fact that the associated flint industry is not exactly the same as the Magdalenian of France may be explained by assuming that Britain was relatively uninfluenced by the Magdalenian culture, as was the case in the Riveria and southern Spain. The Azilian and Tardenoisian cultures which followed the Magdalenian were not derived from the latter, but from the Aurignacian which preceded it. The Aveline's flint implements appear to indicate a survival of late Aurignacian methods and forms persisting in a remote district until the very end of the Magdalenian period. In some such areas of Aurignacian survival the Tardenoisian and Azilian industries may have been evolved, to spread later over Western Europe. However, the flints found in this cave are Palæolithic, and not Transitional. The interval between the end of the Magdalenian period and the full development of the Azilian in southern France must have been small, and was probably not more than a few hundred years, but there is such a great difference between the Magdalenian and Azilian forms of harpoons that the specimens from this cave, and with it the associated flint implements, human and animal remains can unhesitatingly be assigned to the earlier phase.

The conclusion by Mr. Kennard that the molluscan fauna of the cave seems to indicate a climate rather damper than at present is substantiated by the condition of the floor in which the shells were found. Much of the floor material has obviously been swept in by a stream, while below is a layer which indicates a period of gentler water action, and most likely a rather drier climate in the district. This layer of silt extends to the rock floor of the cave at thirty feet from datum. At seventy feet from datum the rock is covered by a much thicker deposit which appears to contain remains of the mid-Pleistocene period. The presence of *Rhinoceros* shows that that animal persisted in England to the very end of Pleistocene times,

It is hoped to complete during the present year the removal of the spoil heap, and the rest of the deposit of Magdalenian age left in the cave so that the investigation of the older layer at the bottom of the entrance slope may be proceeded with next year.

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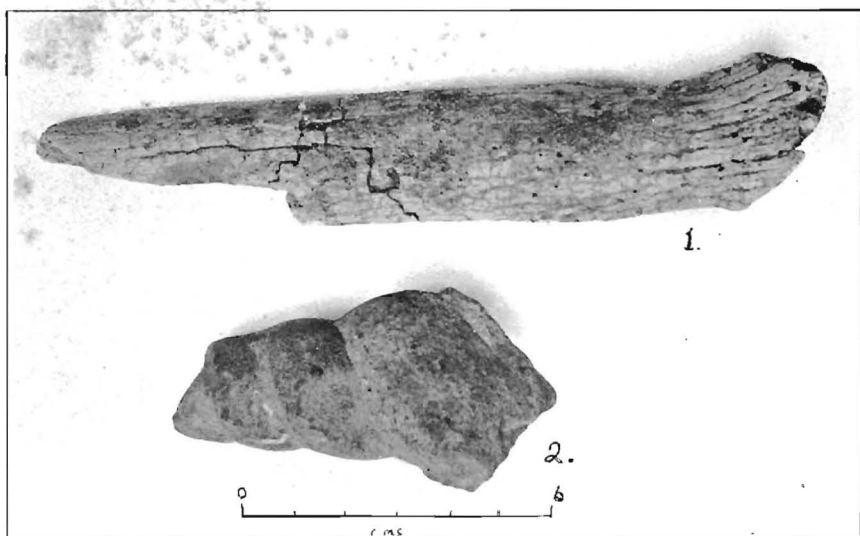


PLATE I.

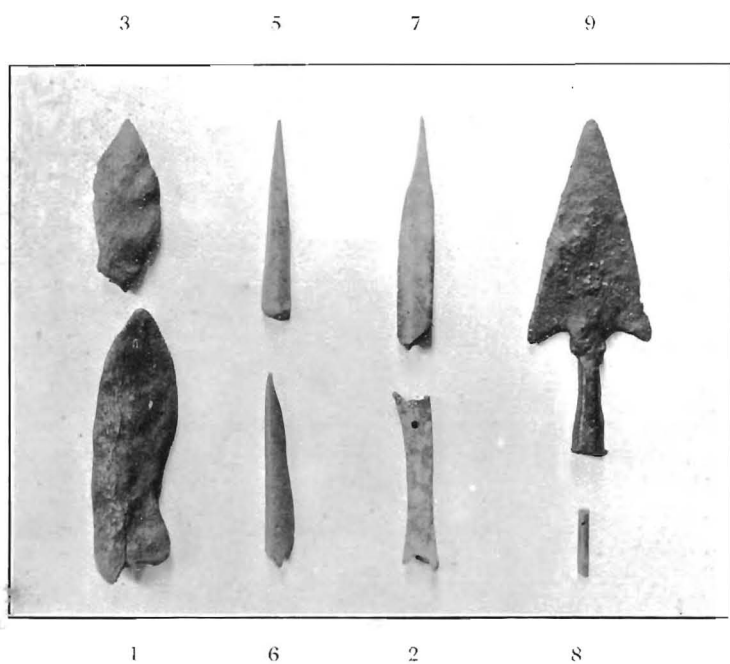


PLATE II.