On Rains Cave, Longcliffe, Derbyshire.

By John Ward.

ON that high ridge of ground in Derbyshire between Wirksworth and Matlock, above the village of Brassington, known as Longcliffe, a small bone cave has been recently discovered that is of great and varied interest, and promises to yield important contributions to our knowledge of the habits and nature of our cave-dwelling ancestors. The cave itself, though it is gained by a very small opening in the limestone blocks that crown the lofty ridge, has been known, it is said, for some time to a few of the dwellers in the neighbourhood, and may have been occasionally detected by a rambler in search of the picturesque; but it was not until March, 1888, that its varied deposit of bones was detected, and previous visits must have been very casual and few, for the undetected evidence of its use by both man and beast lay so near the surface, and, to some extent, altogether unconcealed.

To two of the sons of Mr. Rains, a yeoman of Brassington Moor, whose farm runs up close to the ridge, is to be assigned the credit of the discovery. Being young men of considerable intelligence, and already interested in kindred subjects, when their attention was attracted to some of the bones near the surface of the interior of the cave, they began, and by degrees carried out, an extensive exploration of its contents to some depth. The "finds" were gradually removed to Mr. Rains' out-buildings, where they attracted the attention of Lord Scarsdale, the owner of the farm. Lord Scarsdale, as a vice-president of the Derbyshire Archæological and Natural History Society, and taking an active interest in its proceedings, communicated the fact of this bone-find to Mr. Arthur Cox, the Hon. Secretary. Correspondence was entered into with the great bone-cave authority,

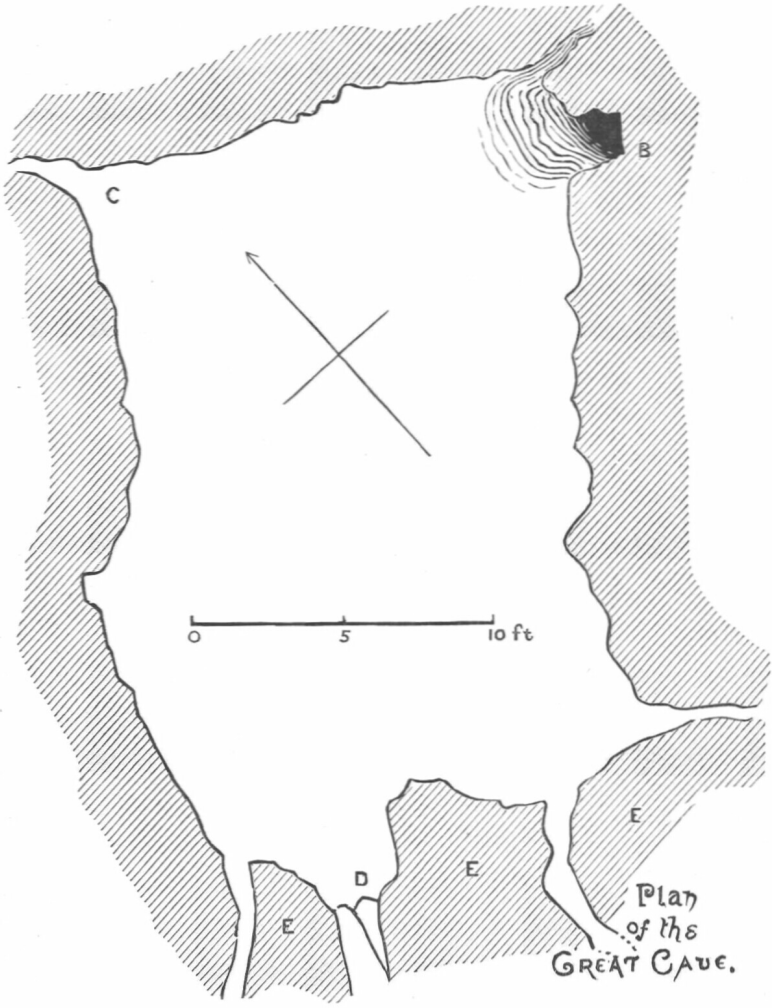
Professor Boyd Dawkins, with the result that, early in last August, Mr. Arthur Cox, Rev. Dr. Cox, and Mr. Albert Hartshorne met the Professor and made a preliminary investigation of the bone heap and cave.

Mr. Boyd Dawkins at once pronounced the remains to be of the Prehistoric age. He soon identified the bones of a considerable variety of mammalia. The principal ones were as follows:—the great urus; the small Celtic short-horned ox (*Bos longifrons*); the horse; the horned sheep; the goat; the long-legged sheep, now only found in the Hebrides; the red deer; the roe deer; the hog; the dog; and the rabbit. The skulls of a badger and of a wild cat were also identified, and probably pertained to animals that had found admission to the cave long after man had ceased to inhabit it. A variety of human bones and other proofs of the occupation of man, such as charcoal, broken pottery, a spindle whorl, gnawed bones, etc., were at the same time cursorily investigated.*

The cave, that is, so far as it has been penetrated, is small and irregular, consisting of two chambers which may be conveniently called the Great and the Little caves. The former is an irregular oblong, 16 ft. by 23 ft. in plan, at its present floor level. The roof is so low that there are but few places where a person can stand upright. The floor is cumbered with large blocks of stone, some of which have fallen from the roof, others rolled in through the entrance. Between these blocks is a red marly soil, having all the characteristics of the usual cave-earths of limestone caves. It is impossible to say exactly how deep this accumulation is, but probably it exceeds five feet. The entrance, which is at the south-west end, is as wide and apparently as deep as the chamber itself; but the actual portal (marked D on the accompanying sketch-plan) is very small—only sufficiently large, in fact, to admit one person at a time, and even then with some difficulty. This contraction is due to the presence of several large pieces of rock (E, E, E), which have been placed where they are by art, or have fallen from the rocks above. At the north corner is a narrow outlet (C), which may be the result of a slip; after several feet it becomes too narrow to be followed up. At the opposite

* The Editor is responsible for the article thus far; the remainder is the result of Mr. Ward's subsequent and painstaking investigations.

corner is an irregular descending passage, water-worn like the Great cave, leading to the Little cave, the steep slope to which is shown at B. This cave is almost choked with *debris*, which, to some extent,



is cemented into a solid mass or breccia by stalagmite, and all further progress is barred on this account.

The antiquity of the cave must be immense. As many readers of this article will not be familiar with geology, a brief digression into the formation of the caves of limestone districts is pardonable. Limestone caves are wholly, at first, and in a great measure in their later career as *living* caves, due to chemical action. Rain water, in its passage through the atmosphere, absorbs carbonic acid gas, and still more so in sinking through the decomposing vegetable matters of the upper soil. Water charged with this gas has the power of dissolving carbonate of lime of which limestone rocks are mainly built up. That this *does* take place is forcibly proved by the encrustations of petrifying wells, the banks of tufa and the stalagmites of limestone districts—all of which are due to the precipitation of dissolved rock in the water. The "fur" of kettles is another example. But such charged water cannot dissolve an unlimited quantity of rock—the work done in this line depending upon its richness in the gas. Hence the cracks and joints of the rock out of which the future cave is to develop, must have their sides eaten away by moving water; else, if the water ate and was satisfied, no more rock would be eaten. But water, like human beings, will not choose a devious and difficult way (as these underground crevices) in preference to an easy one (as by brook or river), unless there is something to be gained. The only reason water can have in choosing a difficult underground course is to reach a lower level by a "short cut." But once grant this; if the supply be plentiful, the cracks will in due time become caves and the trickle a torrent.

There is an excellent example to the point near Castleton. Westward of the Winyates is a trough-like valley, about three miles long, by the side of which is the Chapel-en-le-Frith road. This valley is entirely drained by "water-swallows"—natural drains along the bottom, through which the surface-rills sink out of sight. Underground these waters collect, and at length emerge at a much lower level as the Russet Spring near Peak Cavern, and then become the sparkling brook which runs through Castleton. The ancient surface outlet of this valley, by which its waters were originally turned into the Wye (instead of the Noe as at present), is still visible, although high and dry, leading towards Peak Forest.

A "living cave"—that is, a cave which is still a watercourse—must, under ordinary conditions, lie low in a valley, so as to either intercept all the water or catch some of it in times of flood. But Rains Cave is near the top of a hill; and all the drainage of the neighbouring valleys can find surface outlets at levels a hundred feet and more below it. It is now as "dead" as a cave can be. But under these circumstances, how could it ever have been a "living" cave? The answer is simple; the cave has not changed; the contour and level of the land-surface of the district has. Although the land is eaten away below the surface, it is to a far greater extent worn away at the surface. Frost and vegetation break up the rock; rills, brooks, and freshets float it away as mud, and roll it away as sand and gravel, to say nothing of what is dissolved. Give these processes time, and they will lower the land to the level of the sea. Rains Cave was once at or near the bottom of a valley, and the amount of rock that has been removed between that bottom and the present one, somewhat represents the lapse of time since this cave was "living" and growing. What this lapse of time may be, the reader must guess; the 2,000 years which have elapsed since the earlier barrows of the Peak were built, have made no appreciable change in the land contour.

The ancient water-swallow of Windy Knoll at the Castleton end of the above-mentioned trough-like valley, and from which the late Mr. Rooke Pennington, LL.B., obtained an immense number of bison, reindeer, bear, and other bones, has many parallels with our cave. It is high above the neighbouring valleys, although as a "swallow" it must have once been situated low or at the very bottom of a valley. The great point of difference between the two is that the animal remains of the latter belong to the time when it was "a going concern," the animals being swamped in the mud and water around the swallow, and washed down it in time of heavy rains; in the former the remains belong to the present "dead" era of the cave's history.

"Dead" caves may be regarded as museums. No plough ever turns up their floors, and frequently thick seams of stalagmite—the re-deposited lime of the drip from the roof, having some analogy to the "fur" of a kettle—effectually seal up the contents of the looser

cave-earths, and guard them against the intrusions of burrowing animals. Hence, and especially where seams of stalagmite are present, the order of the deposits represents their sequence in time, the lower being the older. But the thickness of stalagmite must be most cautiously accepted as a measure of time, for the rates of its growth vary very much. In Kent's Cavern, Torquay, it has taken 250 years to form $\frac{1}{20}$ inch of stalagmite; while in a cave at Castleton the writer has proved that its growth there exceeded $\frac{1}{3}$ inch per century. So far, the accumulation which forms the floor of the Great Cave has no signs of stalagmite; it is a chaotic mass of stone and red earth. But, of course, it is impossible to say what lies lower down. The floor of the Little Cave remains practically untouched. The young Messrs. Rains have merely turned over the surface earth between the large blocks of stone of the former, and considering the large quantity of bones they have found there can be little doubt that there is still a large "find" to be found.

It is now time to describe the "finds." Professor Boyd Dawkins, during the limited time at his disposal, picked from the bone heap in Mr. Rains' barn, with astonishing rapidity, bones belonging to man, the urus, Keltic short-horned ox (which still survives in some of the Welsh and Scotch breeds), sheep, goat, horse, red deer, roe deer, dog, badger, wild cat, and rabbit. Since then the writer has detected the fox and hedgehog in addition to the above. This assemblage of animals is characteristic of the Recent period of geology. Many of the leg bones have been split to extract the marrow, and occasionally have jags and cuts as from a knife; some few bones are charred. Clearly these are the relics of human food.

The writer subsequently took in hand the fragments of human skulls, but owing to the numerous missing pieces, they still remain, with one exception (Skull C), little more than heaps of broken bone. Hence, cranial measurements and indices are, at present, out of the question. Yet, despite their condition, some ideas can be formed of their original owners. Of Skull A there are the frontal, and much of the side and rear parts, besides a fragment of the lower jaw. All these are thick, heavy, and pot-like—due, perhaps, to the action of the limy drip, for upon the frontal was a film of stalagmite. The

peculiarity of this frontal are the confluent and massive supraciliary ridges, and the ill-filled and retreating forehead, so noticeable that several inexperienced friends mistook it for part of a gorilla's skull. Yet there are no grounds for regarding it as of the "extremely low type" of some of the newspaper notices. It is the skull of a very old person, presumably man; this is indicated in many ways, notably by the obliterated sutures and the condition of the lower jaw, the walls of the alveoli being in some cases absorbed, and the cavities filled up with new bone. In such a case, those parts of the frontal which lie immediately upon the brain will have followed the old-age retreat of the latter, and hence leave the ridges of the lower forehead in greater relief than would obtain in earlier life. Apart from this, it is difficult to say what is the true tilt of the forehead when the rear parts of the skull are not *in situ*. Still, it must be allowed that the aspect of the forehead is by no means prepossessing.

Skull B of which there is a large part of the frontal, evidently belonged to a youngish individual, and has a remarkable likeness to the previous frontal, so much so as to suggest that the owners belonged to the same family. There are two complete parietals, but it is doubtful whether they belonged to this frontal: probably they belong to a fragment of another the writer has marked E, of apparently similar type. A lower jaw of a youth, devoid of wisdom teeth, seems to belong to this Skull E, which has all the marks of having belonged to an individual of the same period of life.

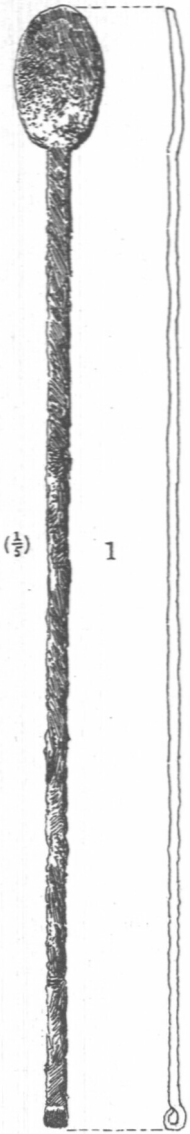
Skull C: This the writer has been able to rebuild to a great extent. The face and anterior parts are almost complete, and of the rear and lower sides there are many fragments, but which cannot be put into place on account of missing intervening portions. This skull has many points of difference from those above; it is of lighter build; the forehead is broader; the supraciliary are separated, and although sharply defined are not massive; and generally it has an intelligent and more cultured appearance. Although it is impossible to ascertain the cephalic index, there is no doubt of its being a typical long or dolichocephalic skull: when viewed laterally the contour is decidedly that of such a skull. Noticeable features are the shallowness of the calvarial arch, and its longitudinal carination, and the flatness of the temporal

regions. The result is that while the forehead is broad it is somewhat low. When viewed from above, the broad forehead tends to give an oblong character to the skull, rather than the egg-shape of the Haddon Fields long skull described in the last volume of the Journal. The sutures are quite open on the outer table, and partially so on the inner; this, together with a certain glossiness of the bone, and the moderate wear of the teeth, points to its owner as of early middle life. The jaw, if the fragment alluded to does belong to this skull, is massive and decidedly masculine; other details point to the latter conclusion. The nasals have a remarkable forward spring—indicating a pronounced "Roman" nose. So far as the writer can recollect, this skull is similar to one from Longlow, in the Bateman collection at Sheffield. It has been suggested that a plate of this skull should be introduced, but when this cave is properly excavated, the missing fragments of this and the other skulls may be found, hence it is better to defer the illustrations. Several measurements are here given—

Greatest width	...	...	...	5·5	in.
Minimum frontal width	...	...	...	3·76	in.
Maximum „ „	...	...	...	5	in.
Frontal arch	...	...	...	5·75	in.
Height of orbit	...	...	...	1·31	in.
Height of face (nasal suture to alveolar margin)			...	2·75	in.

All the above, together with other fragments, are ancient; the organic matter has disappeared, and only the mineral constituents of the bone are left. But it is otherwise with several fragments of another skull, evidently that of a powerful youngish man. These fragments are so new-looking that it is difficult to think that more than a century can have passed since they were clothed with flesh and endued with life. How came they in the cave? Do they explain some mysterious disappearance that was once "all the talk" of the district? Are they the silent witnesses of some terrible tragedy?

Unfortunately the positions and circumstances of these remains were not noted, hence many valuable inferences are lost. It is evident from the number of missing parts, that much of the skeletons still remain in the cave. Fragments of at least six have been found in the bone-heap—there being jaws, whole or in part, for that number



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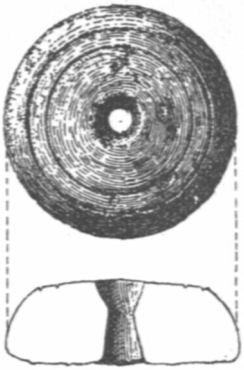

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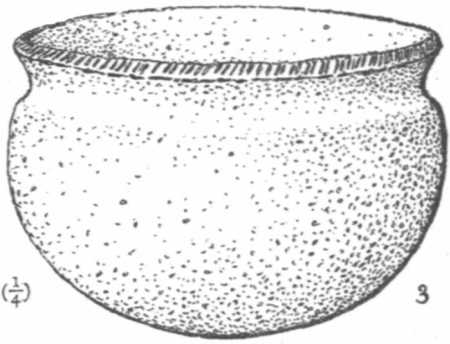

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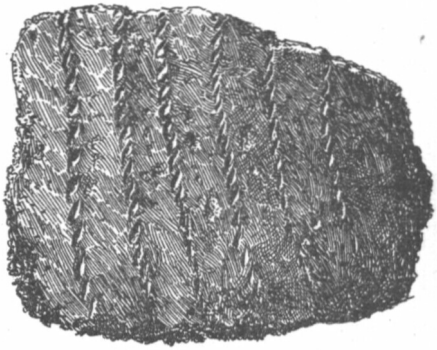

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Objects from Rains' Cave, Longcliffe. J.W.

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of individuals. All these jaws, so far as can be seen, are, with the exception of one, of very square build when viewed laterally, the ascending rami being short and broad, the above exception being an ancient jaw with a long slender ascending ramus and the angle obtuse.

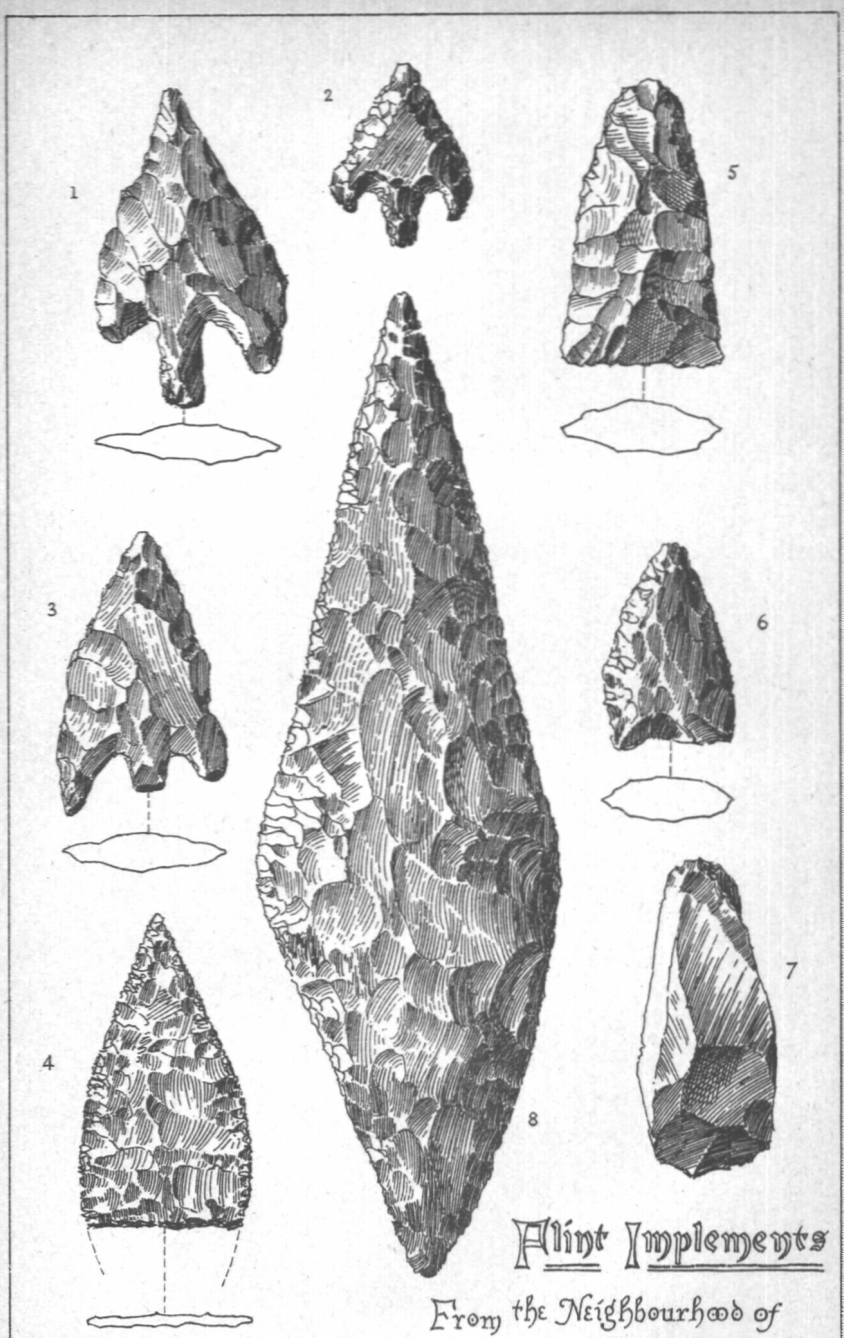
The pottery must next claim our attention. Fragments of four vessels were found. Of these, a few fragments belonged to a thick, blackish, and hand-made vessel of unknown shape, and ornamented with parallel impressions of a twisted rush or thong. (Plate II., Fig. 4.) The paste is coarse and friable, and has all the characteristics of the hand-made, imperfectly-fired sepulchral pottery of the pre-Saxon barrows, of which there is so magnificent an array in the Bateman collection at Sheffield. There were also two small fragments of another blackish vessel, of fine paste and smaller size. It seems to have had a contracted neck, and the swell of the body had several slight projections. Neck plain; but the body had a lattice-work of burnished lines, recalling the ornamentation of some of the Roman black ware; but, unlike the latter, the fragments have all the friability of the so-called Keltic ware. The largest number of fragments belonged to a vessel which the writer has been able to restore to a sufficient extent to make the shape, size, and use fairly evident. A sketch of it (Plate II., Fig. 3) as restored will give a good idea of its shape. Diameter about $8\frac{1}{2}$ inches; paste, coarse, and reddish; hand-made; variable in thickness, but generally thicker at the bottom than elsewhere. From the obvious discolouration of the lower parts externally and traces of smoke, little room is left for doubt that it was used as a stew-pot. The shape is admirably adapted for this purpose. When placed in the embers of a fire, its rounded shape would prevent fracture, and in this respect it is an anticipation of the flasks and dishes of the chemists. The paste of these hand-made vessels was mixed with crushed calc-spar, from which, being so common in the district, and scarce elsewhere, we may infer that they were made in the locality. Two fragments of a rough wheel-made small vessel were also found, and contrasted much with the above in the smoothness and hardness of its red paste.

Domestic vessels of the same age and character as the hand-made

sepulchral pottery are scarce—so scarce, that the late Mr. Llewellyn Jewitt stated that we were entirely indebted to the barrows for examples. In this, however, he was mistaken. A vessel remarkably like the one sketched was found some years ago in a cave in county Durham, and associated with articles of a domestic nature; it is figured in Greenwell's "Barrows," p. 107. Professor Boyd Dawkins, in his *Early Man in Britain*, p. 275, states in reference to the Neolithic inhabitants of this land, that "their vessels are coarsely made by hand and very generally composed of clay, in which small pieces of stone, or fragments of shell, have been worked. They are brown or black in colour, and very generally have had *rounded bottoms*, from which it may be inferred that they were not intended to stand on tables, but were placed in hollows on the ground or floor. Sometimes they are ornamented with patterns in right lines or in dots." Elsewhere in the same work (page 267), in making mention of the hut circles of Fisherton, near Salisbury, he states that "fragments of pottery, not turned in the lathe, plain, or ornamented with incised curves, right lines, or lines of dots," were found associated with spindle-whorls, bone weaving-combs, bone needles, stone grain-rubbers, flint implements, and remains of dog, goat, short-horn, horse, pig, &c. Fragments of hand-made pottery have frequently been found similarly associated in other caves.

A spindle-whorl (Pl. II., Fig. 2) of hard black shale was found on the north side of the cave. It is about 1½ inches in diameter, and bears lathe marks on one side, the other being rough. There is figured in Evans' *Stone Implements*, p. 392, a whorl found in Yorkshire which agrees with this in every detail. These whorls were used to maintain the rotary motion of the spindle in the act of spinning with the distaff and spindle, a mode which was displaced by the spinning-wheel, so often seen in our museums.

An iron spade-like instrument (Pl. II., Fig. 1), about 2 feet long, was picked up from between some stones. It differs from a spade in having its broadened end oval and only about 2 inches across. It has been suggested that it is an old plough-spade for scraping off the clay from the share. Although considerably rusted, its condition



Flint Implements

From the Neighbourhood of Longcliffe. – J.W.

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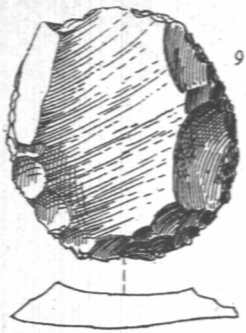
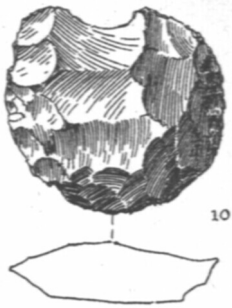
by no means implies a great age; and in this respect it contrasts with two iron objects, rings or buckles, which are now reduced to a mere ochreous mass.

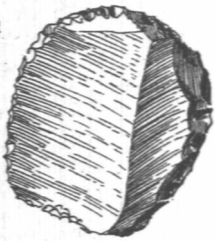
Last to be noticed are a few flint chippings, of very nondescript shapes, which were noticed in turning over the soil. It is well to mention here some beautiful flint implements found in a field in the vicinity by Mr. Broadhead, a farmer close by, and a few by Mr. Rains upon his land, a typical assortment of which are figured on Plates III. and IV. all full size. Some of the arrow heads are really beautiful objects, especially a delicately chipped leaf-shaped one. There are also a spear head, a considerable number of horse-shoe-shaped and other scrapers, two broken celts, and many flakes. Most of these were turned up at different times in ploughing. Whether the locality is unusually rich in these implements, or these gentlemen are more intelligent and watchful than their neighbours generally, it is difficult to say. It should be stated that none of these are palæolithic; in the Midlands and North, implements of that period are found only in caves.

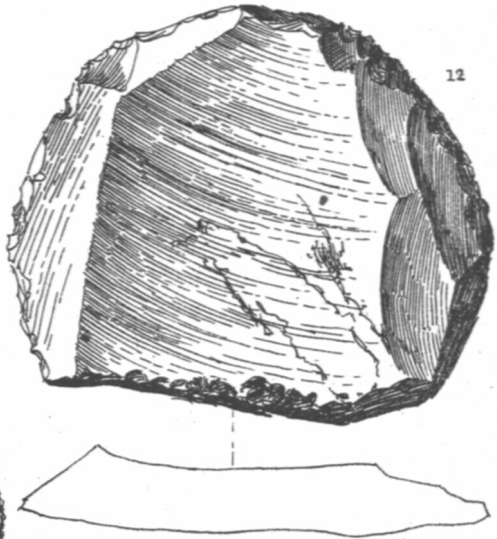
The antiquity of the "finds," the uses to which the cave has been put, and the possibilities of the projected exploration must now be considered. As already stated, the fauna are of the Recent period of geology, a period the commencement of which, geologically speaking, is but as yesterday, and yet which stretches back in all probability millenniums before human history, and laughs to scorn the boasted antiquity of Egypt and Assyria. The fauna, then, give a wide range of time for our "finds"—they may be 500 or 5,000 years old! The wild cat, the red deer, and the short-horn indicate no very recent date. The pottery is more decisive. There is a consensus of opinion, it is difficult to say exactly upon what grounds, that wheel-made pottery was unknown in this country before the Roman occupation. Again, the pre-Saxon or "Keltic" round barrows, the hand-made pottery of which, as just observed, has many parallels to that of our cave, do not precede that occupation by any great lapse of time, and certainly some of them were contemporary with it. The hand-made pottery, it may be observed, is quite unlike that of the Saxons. The spindle-whorl has also something to say. Although the

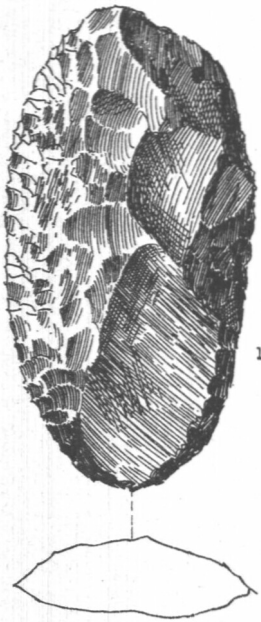
distaff and spindle lingered in some parts of Scotland and Ireland until the last century, they have so long gone out of use in England that these whorls, which are frequently picked up, are popularly invested with a certain amount of magic, and known as "Pixy's Wheels," their original use having long been forgotten. But the fact that this whorl was turned in a lathe implies a considerable civilization such as obtained in Britain under the Romans, when we do, as a fact, first meet with turned objects. These, when taken together, point to the cave being used for some purpose at a time not far removed from the period of the Roman occupation: and this is strikingly borne out by the results of exploration of many of our English caves. These all give the same testimony; in the upper parts of their floors, or even upon the surface itself, have been found Romano-British objects, as fibulæ, brooches, and pins of bronze, silver, and gold, Roman coins and British imitations of them, Samian and other Roman pottery, hand-made pottery, implements of iron and bronze, &c. Notable examples of such caves are those of Settle, Buxton (Poole's Hole), Kirkhead, Cresswell, and Ilam, in Staffordshire. It has been suggested that such caves were used as places of retreat by the Romano-British during the Saxon invasion. It should also be remembered, as the recent excavations of General Pitt Rivers at Cranborne Chase and places in Wiltshire so forcibly prove, that while the Keltic Britons were copying the civilization and manners of their Roman masters, the ruder aboriginal "long-heads" were still living in much their old style upon the hills and moors. And while the former were priding themselves on their Samian ware, the latter were content with their rude, half-fired, hand-made pottery, with such cheap and coarse wheel-made ware as they could afford to buy. A similar state of things obtains at the present day wherever a higher civilization comes into contact with a lower one; and most conducive to it were the social and political conditions of Western Europe at the dawn of history. While in civilization at large there has been a constant forward march in culture, yet its rate has not been uniform throughout; and at every stage there has been a falling out of ranks to remain stationary or even to begin a retrograde movement. The time was when metal was unknown, then came in bronze, then came iron. But











Flint Implements

From the Neighbourhood of Longcliffe. – F.W.

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metal has not even yet displaced everywhere the use of stone for implements. It is this overlap of ages (Neolithic, Bronze, Iron), if *ages* they can be called—rather *stages* of culture—which makes the presence and absence of these materials no safe guide as to order in time.

It must not be overlooked that we have no proof of the contemporaneity of the two kinds of pottery in this cave. The hand-made may be centuries older than the wheel-made. The large hand-made bowl, at least, was found broken very near the surface, apparently where it was placed, and whether it had been there 1,300 or 2,000 years, it shows how little changed and disturbed has been the cave during this long period. It could well occur then that objects of pre-Roman, Roman, and even Mediæval date might lie commingled in the loose upper soil of a cave floor.

The age of the older human bones still remains untouched. The great majority of British and Continental caves hitherto explored have been at one time or other burial places; and the modes of burial were similar to those of the barrows, that is, the skeletons, when not disturbed, have usually been found in a sitting or contracted attitude. In fact, the chambered (and perhaps oldest) barrows may be regarded as artificial caves. The half-exposed chambers, constructed of massive slabs of limestone, of Minninglow, not far from Rains Cave, instantly suggest this idea. To judge from the celebrated cave of Aurignac, in France, and that of Perthi-chwareu, Pembroke, both of which seem to have remained undisturbed up to the time of their modern discovery, burial caves had their entrances blocked up with large stones, and thus those at the mouth of Rains Cave may be explained. If the parallels between caves as a burying place and the chambered barrows be accepted as proofs of their contemporaneity, then we must, indeed, give a greater antiquity to these human remains of Rains Cave than the period of the Roman occupation.

This cave has also been used as a dwelling-place; the condition of many of the animal bones already alluded to, the fragments of charcoal, and the domestic pottery, all tend to prove this. One can scarcely think that so low, wretched, and damp a place was ever

used as a *permanent* residence, more probable is it, that it was again and again temporarily occupied by passing hunters, fugitives, and wanderers of all sorts, both before and after it was used for sepulchral purposes.

It will be seen from what has been said above, that so far the "finds" of Rains Cave carry us back to the time when history loses itself in the mist of fable, and to the dense gloom of pre-historic time beyond, when geology and archæology become our only guides. But farther back, how far we cannot say, is that as yet but dimly descried condition of things, known geologically as the Pleistocene period. This period was a cycle of mighty confluent glaciers which swept over all north-western Europe, rounding its hills, deepening its valleys, and grinding out rock basins, with warm intervals, in the sub-tropical portions of which the hippopotamus and rhinoceros wallowed in the marshy valleys, and elephants (of both living and extinct species) roamed amid forest glade and jungle, while cave-lions and hyænas devoured their prey in the dark recesses of the caves. But in the more temperate conditions which immediately preceded and succeeded these warmer times, these were replaced with vast herds of bison and urus, migrating annually, north and south, across an unbroken alternation of hill and dale, forest and prairie, now represented by Spain, France, and England; and the cave-lion and hyæna gave place to the cave-bear. But as the northern glaciers approached, these in their turn were replaced by the unwieldy mammoth and woolly rhinoceros, the musk sheep, arctic fox, reindeer, and glutton. It was some time during this period, whether before or during these warm intervals of the epoch of glaciation it is difficult to say, that Palœolithic man found his way into the west. The peculiar flint and bone implements, and the rough but boldly scratched drawings of the animals (now extinct) that he hunted, and occasionally the bones of his own body, with those of the heterogeneous crowd of animals above-mentioned, in many a cave and many a river gravel, are the almost sole mementos to us of the world in which he lived and moved.

A bone cave, now that its hieroglyphics are interpreted, is to the archæologist what an ancient record or inscription is to the historian

—a key to unlock the past. And the past it unlocks is mysterious and marvellous. Small wonder, then, that the discovery of a bone cave should be hailed with delight by those who know the value of such caves. So far, Rains Cave has shown no traces of the Pleistocene period, but this is not strange, seeing that its upper soil only has been turned over. When it comes to be properly excavated there is little doubt that it will contribute its quota towards the history of that far-back past.