

ART. IV.—IS “PALÆOLITHIC MAN” A REALITY OF THE PAST, OR A MYTH OF THE PRESENT?

By N. WHITLEY, C.E.

Hon. Secretary of the Royal Institution of Cornwall.

No. 2.—THE BONE CAVES.

In a paper published in the first part of the present volume of this journal we examined the nature and cogency of the evidence which had been adduced in support of the high antiquity of man, derived from the beds of ancient Drift gravel, so widely spread like a mantle over the lands of the east of England and the west of continental Europe; and I endeavoured to show that from these beds, which had been so fully explored by excavations to obtain road and building materials, not a bone of man's frame, not a shred of his clothing, not a fragment of his pottery, or any other relic indicative of his presence had been found, except numerous supposed implements of stone, and these of a form unlike any genuine implements known to have been used by man. Thus the evidence in support of the former existence of palæolithic man rested on the simple and tangible inquiry;—were these so-called implements made by human hands?

But when we turn to consider the further evidence in support of the early advent of man derived from the cavern deposits, we pass at a bound from the region of conjecture, supported by authority, to a region of obvious fact, where the whole of the elements of the case are reversed, where the proof of the presence of man is multiform and decisive, and is certified by the discovery of his undoubted tools of stone, bone, and bronze, by his ornaments, his sculpture, and his bones; and thus archæological research confirms the records of history, that man in the past has made both natural and artificial caves his home as well as his tomb. The single issue here to be tried is, what is the age of these relics; do they belong to the pre-historic or to the neolithic age, or must we conclude from their evidence that man existed as a bestial savage full 200,000 years back in the past?

The evidence, however, mainly from the abundance or the facts, is of so complicated a nature, and is surrounded by such entanglements, that the most careful investigators have been led to very conflicting results.

Dr. Buckland, Professor of Geology at Oxford, who devoted much time and labour to the exploration of caverns both in England and in Germany, published in 1823 his famous work, "*Reliquiæ Diluvianæ*," in which he contended that the deposits in the caverns, and the diluvial gravel on the surface of the land, belonged to the same age—that of the Noachian deluge, but that the human bones are not of the same antiquity with those of the antediluvian animals that occur in the same beds with them. In like manner the exploration of the gravel beds of the Valley of the Somme led M. Boucher de Perthes to the conclusion that he had found the relics of the flood which destroyed the antediluvians.

Then came a period of doubt arising from the magnitude and extent of the beds of Drift, indicating long continued action; and lastly the discovery of a virgin cavern at Brixham, where flint implements were said to be found under a layer of stalagmite, mingled with the bones of the cave bear and the extinct rhinoceros—a discovery of which it is said that it revolutionised Europe on the question of man's antiquity; and this discovery is supposed to be confirmed by the cavern researches of M. Dupont, in Belgium, and by those of Messrs. Christy and Lartet in the south of France.

My contention is, that most of the so-called flint implements found in the bone caves are naturally-formed flakes; that the true implements obtained from the cavern beds, both of stone and bone, belong to the neolithic age; that in fact the larger number of these, and other relics of man found with them, are in use among savage tribes at the present day; and that the exhumed human bones from the caverns, instead of indicating any bodily or mental degradation when compared with existing races of men, rather testify to greater bodily powers, and to at least equal intellectual capacity.

In such an investigation it is not possible, nor indeed is it necessary, to examine all the evidence in detail which has been brought forward in support of the palæolithic hunters of the caves. I therefore purpose to limit this inquiry to two cases which have been most fully explored, the details of which are within our reach, and which have been affirmed and relied on by the highest archæological authorities.

First, the caverns, or rather the rock-shelters of the Dordogne, so fully examined by Messrs. Christy and Lartet, and the results published under the able supervision of Professor Rupert Jones, in "*Reliquiæ Aquitanicæ*"—a magnificent quarto volume of 300 pages of somewhat detached essays, and 200 additional pages descriptive of the tinted plates of the relics produced in the highest style of art.

Second, the "famous" cavern of Windmill Hill, Brixham, explored by a joint committee of the Royal and Geological Societies, and reported on in the *Philosophical Transactions* by Professor Prestwich.

If these two leading cases fail to support the reality of palæolithic man, then the minor and desultory explorations can count for but little in this contention.

The Dordogne Caves.—The natural formation of these cavernous recesses results from the geological structure of a large portion of the south of France. From Gourdon on the east, to Rochefort on the west, over a distance of 150 miles in length and about 40 miles in width, an area of 6,000 square miles, there is a well-developed mass of cretaceous rocks, from the lower greenstone upwards, which assume the form of a compact limestone, more or less arenaceous in its different subdivisions, but the different beds vary considerably in hardness. Through these rocks the rivers have cut gorges, rather than valleys, forming high cliffs and broken slopes on alternate sides of the winding of the streams.

In the secondary Valley of the Vézère (which joins that of the Dordogne, about 10 miles below Les Eyzies) these cliffs are in places from 200 to 300 feet in height, and at various elevations above the river the caverns are situated. Owing to the different degrees of hardness of the various limestone beds, the weathering of the face of the river bluffs has been very unequal, the softer beds perish much faster than the harder beds above and below them, and thus grooves are formed along the face of the cliffs often from 20 to 30 feet deep, and in some places continuous for hundreds of yards. These natural recesses have been made use of by the inhabitants of the country in pre-historic times, and at the present day numbers of cottages along the sides of the valley consist merely of front and side walls, the native rock serving for floor, back and roof. "The whole valley teems with the remains of these rock habitations."*

The relics found in the caverns are:—

1. *Flint Implements.*—These, whether describable as arrow-heads, lance-heads, knives, or scrapers, are mainly simple flakes, some so very minute as to be useless for any practical purpose; others, from six to eight inches long, so thin and curved that it is difficult to suggest to what use they could have been applied. In the caverns the flakes are found by thousands. There is a piece of the stalagmitic floor in the British Museum from the cave at Les Eyzies, about two feet square and eight inches deep, in which I estimated that there were at

* *Reliquæ Aquitanicæ*, p. 164.

least 400 flint flakes. At Le Moustier the flakes and calcareous breccia fill the cavern almost to the roof. The surface of the ground on the outside of the cave of Badegoule is literally strewn with flakes, and in the bed of the Valley of the Vézère they are imbedded at depths of from four to five feet in the alluvium. In short, flakes, with other shattered flints, are abundantly found on the surface of the land throughout the departments of the Dordogne and Upper and Lower Charente. Again, further north, where the chalk formation is largely developed in the provinces of Poitou and Touraine, these shattered flints are found thickly scattered over the surface of the soil, so as in many places to impede the cultivation of the land. Near Le Grand Pressigny I gathered in a short time more of such "implements" than I could take away, and of flakes, cores, and scrapers, I might in a few hours have collected a cartload.

These shattered flints are found on the surface of the Great Sahara, the Lybian Desert, the Desert of the Tyh, and on that "great and terrible" desert between Syria and the Euphrates. The Egyptian archæologists are almost unanimous in pronouncing them to have been formed by natural causes; and Mr. J. Milne, F.G.S., who had examined the flints *in situ* on the Desert of the Tyh, concludes that the flakes there are "broken by expansion and contraction occasioned by the great variations in temperature."* It is also now well known that flints crushed by machinery for road metalling will yield, among the fragments, perfectly formed flakes and scrapers.

The natural formation of simple flint-flakes, which are so abundantly found in all bone caves, has been clearly shown by some of our best geologists to be the result of the natural fracture of the flint nodule. Thus Professor McKenny Hughes, F.R.S., says, in a paper on true and false flint implements, communicated to the Society of Antiquaries: "That as nature produces many forms exactly similar to some of those which, from other evidence, we know were fashioned by man, man probably used the natural forms first, and even then the more highly-finished instruments which, from the evidence of design which they exhibit, we now without hesitation refer to human agency, might have been suggested by simpler forms to be referred to fortuitous fracture."† Thus also the greatest cavern explorer of the present time, Mr. Pengelly, F.R.S., says: "It seems in the highest degree probable that men were first led to employ flint tools by observing that natural flakes were capable of being

* *Journal of Geological Society*, Vol. xxxi. p. 26.

† *Proceedings of Society of Antiquaries*. Second Series, Vol. iv. p. 96.

utilised; that, in fact, the first flint implements were *selected*, not *made*, and that even after the art of fashioning more useful forms had been acquired, natural flakes continued to be occasionally used in comparatively humble work."*

But even if some of the flakes found in the caverns of the Vézère were made by human hands—and this is very probable—they would afford no proof of the former existence of palæolithic man, but would rather indicate a neolithic origin. One witness will suffice to settle this point. Lyell says of the very imperfect flakes of Brixham cavern: "Such knives, considered apart from the associated mammalia, afford in themselves no safe criterion of antiquity, as they might belong to any part of the age of stone, similar tools being sometimes met with in tumuli posterior in date to the era of the introduction of bronze."†

Further, in Plates A 4 and A 6, in "*Reliquiæ Aquitanicæ*," perfect representations of carefully chipped flint arrow and lance heads of the "leaf-shaped" and barbed types extracted from these caverns are given, and these are similar in every respect to others of undoubted neolithic age found in the grave-mounds of England.

Plate A 33 also shows fragments of crescent-shaped knives, counterparts of which may be seen in the British Museum, obtained, with other beautifully chipped neolithic implements, from Denmark. A few polished celts of the neolithic age have also been found in similar caverns in the south of France.

Thus the whole bearing of the flint evidence from these caverns points to the neolithic, and not to the palæolithic stone age.

2. *The Bone Implements.*—These consist of fishing harpoons, most cleverly and artistically cut, of sewing needles most delicately formed, of *bâtons de commandement*, symbols of authority or of social position, and of holed ornaments of animal teeth and shells. The whole of these undoubtedly belong to a class of relics used in neolithic and even in very modern times. Similar *harpoons* have been found in the peat bogs of Scandinavia, and they have been generally used by the Esquimaux in historic times, and by the Fuegians at the present day. *Bone Needles.*—Eyed needles of bone have been discovered in several of the ancient lacustrine habitations in Switzerland, and have been found in considerable numbers at the Gaulish stations of Alise, Corent, and Gergovia in Auvergne, and are even now in use among northern savage tribes. A bone needle was found in a *tumulus* at Porth Dafarch, near Holyhead, and presented to the Archæological Institute by the

* *Transactions of the Devon Association*, Vol. vi. p. 848.

† *Antiquity of Man*. First edition, p. 100.

Hon. W. O. Stanley.* *Batons of authority* are at present in use among American Indians and other savages. *Perforated shells and teeth*, as ornaments, have been used in all ages and places; they are found with neolithic relics in Denmark, in the lake habitations of Switzerland, and are still in use among existing tribes who remain in a low state of civilisation. In New Guinea "necklaces are generally made of small shells strung together. They are worn alike by men and women. A necklace much worn by young women is made of pigs' or dogs' teeth strung together."† Thus all these bone implements undoubtedly belong to a modern epoch, and do not indicate, but testify against a palæolithic age for the cave dwellers of the Dordogne.

3. *Human Bones*.—In the cave of Cro-Magnon was found the skull of an old man on a level with the surface, and other human bones referable to four other skeletons were found near it. Amidst the human remains lay a number (about 300) of marine shells, each pierced with a hole, and some perforated teeth. Professor Dawkins considers it to be a case of cave-burial, so common in the neolithic age; and this appears to be indicated by the perforated shells, which probably formed a necklace, for a similar ornament was found in a burial urn in a tumulus in Ireland, and is figured in the catalogue of the antiquities of the Museum of the Royal Irish Academy, p. 183. Of the bones we have a description given by M. Paul Broca. In an address delivered before the French Association for the Advancement of Science, he says: "The troglodytes of Cro-Magnon were savages, but savages of intelligence, and capable of improvement. We find among them certain signs of a powerful cerebral organisation. The skulls are large in diameter, curve, and capacity, and surpass the mean of those of existing races. They are very elongated in form, such as are called dolichocéphales (long-headed), but this shape of the head is not due, as with the Australian negroes, to the narrowness of the skull; on the contrary, the transversal dimensions are well developed. . . . The forehead is wide, not receding, and describes a beautiful curve. The amplitude of the frontal compartment denotes a great development of the anterior cerebral lobes, which are the seat of the most noble faculties of the mind."‡

Again, Virchow says: "The old troglodytes, pile-villagers, and bog people prove to be quite a respectable society. They have heads so large that many a living person would be only

* *Athenæum*, December 11, 1875.

† *Journal of the Anthropological Institute*, May 1878.

‡ *Smithsonian Report*, 1872, p. 340.

too happy to possess such." "Nay, if we gather together the whole sum of the fossil men hitherto known, and put them parallel with those of the present time, we can decidedly pronounce that there are among living men a much greater number of individuals who show a relatively inferior type than there are among the fossils known up to this time. Whether it is just the highest geniuses of the quaternary period that have had the good luck to be preserved to us, I will not venture to surmise!"*

4. In *the art of drawing*, says M. Paul Broca, "the inhabitants of Perigord had reached a state of civilisation and of artistic development altogether surprising. It is hard to conceive how men destitute of the use of metals were able to fabricate of bone, ivory, and the antlers of the reindeer an infinite variety of very delicate utensils; to carve, I had almost said to chisel, elegant forms, and to represent by designs engraved in line on the handles of their instruments the figures of different animals. These figures are distinguished by an exactness and artistic skill truly remarkable, and to find in an equal degree the sentiment of art it would be necessary to revert through many centuries to the better times of Greece." This description of palæolithic art is certainly somewhat overdrawn, and it represents a strong contrast to that of Lyell, who, from the rough chippings of the Somme tools, both of the "higher" and "low level" gravels, "separated by a vast distance of time," came to the conclusion "that the state of the arts in those early times remained stationary for almost indefinite periods."†

We have, however, in the implements brought home by the Arctic explorers samples of Esquimaux carvings and drawings but little inferior to those from the Dordogne. Such are the harpoons in the British Museum, which are almost identical in shape and design with those from the caves of Aquitaine and Kent's Hole, and the drawings of the reindeer, and hunting scenes on bone indicate similar attempts to depict the pursuits of savage life, and on a similar material.

The engraved figure of an elephant from the rock-shelter of La Madelaine is, however, very roughly drawn: it may, of course, have been sketched from life on the spot, or it may have been brought from a distance. I have by me a far better representation of an elephant engraved on the tooth of a walrus obtained from one of the crew of a whaler by a gentleman who presented it to me. If it should happen to be found in a kitchen heap

* *The Freedom of Science in the Modern State*, pp. 60-1.

† *Smithsonian Report*, 1868, pp. 388-9.

‡ *Antiquity of Man*. First edition, p. 376.

some few hundred years hence it would be considered very unsound logic to infer from the discovery that the walrus formerly frequented the coast of Cornwall, and that the elephant at the same period browsed on its granite hills.

In the adjoining department of Charente there are similar caverns to those of the Dordogne. They have been carefully examined by M. de Rochebrune, a member of the Geological Society of France, and he published his discoveries in a well illustrated volume in 1866. In those caverns the leaf-shaped arrow and spear heads are by far more abundant and more perfectly formed than in those of the Vézère, and are fully equal in form and chipping to beautifully chipped and finished leaf arrow heads of Denmark belonging to the neolithic age, and figured by Nilsson. From these caves also fragments of pottery and polished stone implements have been exhumed. He concludes: "Lastly, the polished objects are found in the same stratum (not remixed) as the remains of the bear and reindeer, and they *are contemporaneous with these animals.*"*

From the whole of the facts which we have now so fully reviewed, we may venture to infer that the former existence of "palæolithic man" is not proved by the human relics found in the Vézère caverns, but, on the contrary, that they testify to an occupation of the country by a pre-historic or a neolithic race of men.

To a great extent this is admitted by those who have most fully examined the evidence. Thus, Professor Rupert Jones, who inspected these caves with Sir John Lubbock and Dr. Evans, under the guidance of Mr. Christy, says of the cave-period: "The task of indicating their antiquity falls mainly on the palæontologist, and the fauna is his only certain guide; the more so as some of the types of the implements found on the same spot take a wide range, from those until lately supposed peculiar to the Drift, down to those hitherto assigned to the earlier part of the Surface-period."†

On this point also Sir John Lubbock adds: "So far as the positive zoological evidence is concerned, the antiquity of the human remains found in these grottoes rests mainly on the presence of the reindeer, as regards which the evidence is conclusive."‡

But not only is the evidence of the presence of the reindeer, from its numerous bones in the caverns, conclusive as to its contemporaneous existence with man in ancient Aquitaine,

* *Mémoires sur les restes d'industrie appartenant aux temps primordiaux de la race humaine, recueillis dans le département de la Charente*, p. 51.

† *Reliquiæ Aquitanicæ*, p. 13.

‡ *Prehistoric Times*, p. 247.

but we have historical evidence of the time when its range extended probably as far south as the Pyrenees. Cæsar mentions the reindeer as inhabiting the great Hercynian forest, supposed to be situated in central and southern Germany; yet some of the earlier authors place it near the Pyrenees. And we know, from the description given by Virgil, that the winter climate in Western Europe, in the same latitude as that of the Vézère, was in his days very severe:

With axes first they cleave the wine; and thence
By weight the solid portions they dispense.
From locks uncomb'd, and from the frozen beard,
Long icicles depend, and crackling sounds are heard.
Meantime perpetual sleet and driving snow
Obscure the skies and hang on herds below.
The starving cattle perish in the stalls;
Huge oxen stand inclosed in wintry walls
Of snow congeal'd; whole herds are buried there
Of mighty stags, and scarce their horns appear.

"The recent discoveries (says Mr. Anderson) not only corroborate the fact that the reindeer (or reno) existed in localities where they are now extinct, but prove that they at one time existed in a region far to the south of the locality where Cæsar describes them as existing in his time—in the interior of Gaul namely, and up to the slopes of the Pyrenees."*

Again, Dr. John Evans, after an examination on the spot, sums up the palæontological evidence as, "though apparently fixing a limit in one direction, as tending to show the deposits to be more recent than the Post-Pleocene period, does not afford us any very precise indications in the other, though suggestive of what, *historically regarded*, must be considered a very high antiquity." And he adds that the archæological objects of human workmanship "might well be relics of a tribe subsisting by the chase, who, if not themselves acquainted with metal, *may* have lived at a period when in some not very distant but more favoured part of France the use of metal was already known."†

Thus the present zoological and archæological evidence of the caverns of the Vézère blend with the historical records of the past, and the whole leads to the conclusion that these caverns were used by a race of men living mainly by hunting and fishing, and at a period somewhat anterior to the conquest of Gaul by the Romans.

It may, however, be said that though in the caverns of the Vézère, the remains of the extinct animals are fragmentary,

* *Reliquiæ Aquitanicæ*, p. 45.

† *Ibid.*, pp. 176-77.

and even their presence with the Cave-men, doubtful, yet in other caverns, notably in those of Brixham and Kent's Hole, the remains of the mammoth, the Tichorine rhinoceros, and the cave-bear have been found in direct association with the works of man, and therefore stamp an antiquity on the cavern implements which in themselves they do not possess. Now, assuming that all which has been said on this point can be absolutely confirmed, the facts cut both ways, and rather tend to bring the mammoth (for instance) down to a modern period, than to take man with neolithic implements back to a palæolithic age. But as this mixture of relics is found only in cavern deposits, there is absolute proof that such beds, after being coated with a thick crust of stalagmite, have been broken up, probably by violent floods, and redeposited with more modern materials; and cavern deposits have in all ages been disturbed by burials, and by the burrowing of animals; and thus we often find in caverns relics of a modern age under those which are considered to be more ancient. For instance, in Kent's Hole, a well-made bone pin, similar to those of the neolithic, or even Roman age, "was met with in the fourth-foot level below the stalagmite—the greatest depth to which the excavation had been carried—and in immediate contact with the crown of a molar of *Rhinoceros tichorhinus*." The reporter adds: "Though the Committee abstain from drawing any inferences from the fact, since it applies to a limited number of objects only, it may be worthy of remark that the most highly-finished implements, whether of flint or of bone, are those which have been found at the lowest levels."* Further, on this vital point of the mixture of relics, we have the weighty opinion of Dr. John Evans, who says: "For it must never be forgotten that the occupation of caves by man is not confined to any definite period, and that even in the case of the discovery of objects of human workmanship in direct association with the remains of the pleistocene extinct mammals, their contemporaneity cannot be proved without careful observation of the circumstances under which they occur, even if then."†

Brixham Cavern.—Turning now to the consideration of the bone-caves of Britain, there are special considerations why that of Windmill Hill, Brixham, should be selected as a representative case. It is a recently discovered virgin cavern, in which the beds were undisturbed by former diggings; it has been thoroughly explored by a joint committee of the Royal and Geological Societies; the relics exhumed are now deposited

* *Third Report on Kent's Cavern*, p. 8.

† *Ancient Stone Implements*, p. 440.

in the Christy Museum, London, and an exhaustive report, by Professor Prestwich, has been published in the *Transactions of the Royal Society*.

The work of exploration was commenced in July 1858, and proceeded with such celerity that it was completed within twelve months; and Mr. Pengelly, who had superintended the excavation, then "forwarded to the Geological Society of London all the flint implements and the remains of animals which had been found, together with a considerable number of the typical specimens of the stalagmite, as well as samples of the beds of mechanical origin, and a register briefly descriptive of the whole."* It was not, however, until May 16, 1872, that the report of the Committee was presented to the Royal Society; nor until the latter part of 1874 that the exhumed flints were deposited for public inspection in the Christy Museum, in accordance with the stipulation on which £200 of the Royal donation was given by the Society towards the expense of the exploration.

Thus for fifteen years the relics from the cavern were not accessible to outsiders, and during that long period these rubble pieces of shattered flint were persistently described as flint knives, relics of man, and manufactured tools. Thus, "a sudden change of opinion" (says Sir Charles Lyell) "was brought about in England respecting the probable coexistence, at a former period, of man and many extinct mammalia, in consequence of the results obtained from a careful exploration of a cave at Brixham, near Torquay, in Devonshire. . . . The new views very generally adopted by the English geologists had no small influence on the subsequent progress of opinion in France.†

So much stress has been laid on the evidence derived from this cavern—such strong statements were early put forward of the human manufacture of the exhumed flints, that I resolved to make a careful survey of the cavern and of its surroundings, and to test the bearing of the evidence on the antiquity of man. On the 2nd of October 1874 I first visited the cavern, and found a glass case within the entrance, in which some relics from the cave were placed, and shown to visitors by the proprietor. Among other things were some plaster casts of a very perfect flint-flake $3\frac{3}{4}$ inches long and well adapted to be used as a knife. I was told by the proprietor that these casts were models of one of the flint knives found in the cavern and deposited with the Geological Society of London. The case also contained the cast of a chipped stone axe of neolithic form. I purchased

* *Transactions of the Devon Association*, Vol. vi. p. 776.

† *Antiquity of Man*. First edition, p. 96.

three of the casts of the knife and one of the axe, and suspecting that they were spurious, I forwarded one of each to the secretaries of the Royal Society, and ventured, in a letter, to entreat the Council to put an end to this deception of the public by depositing the real flints in the British Museum, as stipulated by the engagement entered into so far back as 1858. The false casts were laid before the Council and the genuine flints deposited for inspection in the Christy Museum at the end of 1874. The subject was brought before the British Association for the Advancement of Science at the Bristol meeting in 1875, and the history of these spurious casts made known, when it was acknowledged that the cast of the flake-knife was not taken from any flint found in the cave, but from a neolithic flake-knife found in a barrow in the north of Ireland.

Thus for probably fifteen years these casts of neolithic implements were exhibited and sold to visitors in the cavern as evidence of the former existence of palæolithic man.

An inspection of the flints from this cavern in the museum will show that fully one-half of them are undefinable pieces of broken flint no larger than the top of a man's finger; they are neither flakes, nor cores, nor scrapers; they are without any regularity of form, exhibit no evidence of design, and are unlike any implements known to have been used by man. To call these bits of rubble flint implements, undistinguishable as they are from the gravel which we tread on on a footpath, seems to be an abandonment of common sense, and without any confirmatory evidence to rely on, the judgment revolts from the inference that they are manufactured tools. Again, some four or five of the other flints are simple pebbles or water-worn pieces of broken flint, such as might be picked up from a beach or from the newly spread metalling of a road; and most men of intelligence who (to use the words of Dr. Carpenter) "have that trained and organised common sense which we call scientific method," would reject the conclusion that they are human implements. The remainder of these cavern flints are flakes and splinters of flint; the flakes are few, fragmentary, and most imperfect in size and form, and as "knives" far inferior to some of the subsoil flakes, the natural origin of which is now generally admitted. To persist in calling these pieces of fractured flint "thirty-six rude flint implements of indisputable human workmanship,"* not only without evidence, but against evidence, is a delusion, a deception, and a snare.

The "*round-pointed lanceolate implement*" (so called by Dr. Evans) found in this cavern has a curious history. It is

* *Cave Hunting*, p. 320.

formed of two pieces of flint discovered some distance apart, and fitting so completely together as to show that they are parts of the same stone; it is, however, as yet incomplete as an implement, and the part required to perfect the form is assumed to be lost. The butt end appears to have been, in the first place, described by Sir C. Lyell as a "core, from which flint-flakes had been struck off on every side," leading to the inference that the flake knives had been made in the cavern. But this flint does not appear in the report as a rejected core, but as the most important part of a lance head. The metamorphosis being in this manner completed, it is now said to "resemble one type of the pointed instruments from the valley gravels."* The claim of such rough flints to be implements I have examined in the former paper.

The "remarkably symmetrical Scraper."—This flint, figured by Dr. Evans, said to have been found in the cavern, and described as having been "dexterously trimmed into a horse-shoe form, and well adapted to have been held in the hand,"† has one blot on its evidence as a witness in this case—it *was not found in the cavern*, but in the soil of Windmill Hill, and about forty-four feet above the cavern level,‡ and it thus tends to confirm the opinion which I had formed from finding many pieces of shattered flint in the soil of the high ground of Windmill Hill, that the flints in the cavern had not been carried there by man, but had been washed into the cave with the loam and gravel in which they were embedded.

The evidence of work and use on the Cavern Flints.—Mr. Prestwich, in the report to the Royal Society,§ expresses his opinion that fifteen of the flints show unmistakable evidence of having been artificially worked, that on nine others the workmanship is very rude or doubtful, while there are seven which he thinks show no trace of having been worked at all. Dr. Evans, however, is of opinion that the whole of the flints discovered present these signs of human workmanship or use upon them.

Figure No. 410 in "Ancient Stone Implements" || has these marks of use the most pronounced. By the aid of a lens it will be seen that a succession of regular and minute scallops, with sharp points at their junctions, are shown on both sides of the engraving of this flint; and they are more distinctly exhibited on the side view of the same. They are throughout similar in size and form, and are so regular that they look like the links

* *Ancient Stone Implements*, p. 469.

† *Ibid.*, p. 470.

‡ *Transactions of the Devon Association*, Vol. vi. p. 835.

§ *Report*, pp. 561-2.

|| *Ancient Stone Implements*, p. 471.

of a delicate chain traced along the edge of the flint; and most persons, from this pictorial representation, would be inclined to accept the statement that this flint at least had been trimmed by secondary chipping on its edges. On examining a full-size photograph of the same flint in a strong light and in the same manner, we are surprised to find that no such minute trimming or secondary chipping as that shown by the engraving can be found on the edges of this flint. The rough fractures on the surface run boldly out to the edges, the minute chipping shown on the edges of the flint in the drawing wholly disappear, the sharp angular points of the scallops cannot be found, and we must come to the conclusion that while the drawing in general outline and artistic merit is admirably done, yet in the vital point of secondary chipping, indicative of workmanship, it is wholly and entirely untrue. It is said that a true portrait is best defined as a shadow of a shade; the soul of the man should be seen in his face. And it may be that in this case the artist, in a somewhat indiscreet endeavour to carry out the principles of high art, has made the dumb to speak and bestowed an intelligent soul on a senseless piece of silex.

Mistaken identity.—One of the so-called thirty-six implements—No. 3 in Table IV. of the Report—has since been found to be “merely a fragment of slate, nearly covered on one side with stalagmite.”* But this slight mistake of a piece of slate for a flint implement is happily balanced by an opposite error, by which a piece of flint has been mistaken for a bone, and described as “a fine small tibia.”† The care with which this examination has been made is indicated by the difficulty in determining the animal to which it belonged, a note of interrogation being put to show that there was doubt on that point.

The Ivory Rod.—We are informed by Dr. Evans, “that a portion of a cylindrical pin or rod of ivory was found in the cave, being the only object wrought from an animal substance.”‡ An ivory rod was found with the “red lady” in Paviland Cave, by Dr. Buckland; and “a cylindrical piece of ivory, about three-eighths of an inch in diameter, in a cavern in the south of France, and is now in the Christy Collection.”§ In former days a rod was an emblem of authority; therefore we are led to infer, without much effort of the imagination, that the ivory rod of Brixham might have been the sceptre of a palæolithic prince, or the baton of command of an ancient chieftain; and as no doubt can be cast on the human origin of such a relic, it must,

* *Report*, p. 562. Footnote.

† *Ibid.*, p. 506. No. cxvi. in Table.

‡ *Ancient Stone Implements*, p. 471.

§ *Ibid.*, p. 471.

if verified, be the most important piece of evidence obtained from the cavern. We are, however, left in complete ignorance of all the vital points of the case; we are not told by whom it was found, or when, or where. Mr. Prestwich mentions it in the report to the Royal Society, and dismisses it with one sentence: "The position of this is not certain."* Mr. Pengelly says: "I have no recollection of this specimen. . . . I am inclined to suspect that it does not belong to the cavern series of specimens. It may, I believe, be safely stated that every object forwarded to the Committee was numbered by myself, and that its position was duly recorded in the register."† It is not placed amongst the relics in the Christy Museum, and Mr. Philp, the proprietor of the cavern, writes to me: "As to the ivory rod you asked me about, I am sure I never saw it, nor do I know anything about it." In this matter Mr. Evans has probably been imposed on, but he should either confirm or withdraw this mythic wand.

A Cut Bone.—We are informed, in the Report to the Royal Society, that "Dr. Falconer alludes to part of a reindeer's horn which has an apparently artificial incision," but we are told in a footnote "that Mr. Busk sees reason to question this conclusion." On referring to that part of the Report prepared by Mr. Busk, we find that this scratch was not on the horn of a reindeer, but on the rib of a bear, and is thus described: "On one of the ribs is a small notch which, Dr. Falconer observes, might have been made by means of a flint or stone implement. Of course this may be so; but upon close inspection I am inclined to think that it is not an incision or scratch at all, but a mere indentation by some blunt edge which has simply depressed the soft texture of the bone without breaking the surface. The bottom and sides therefore of this very trifling mark appear rounded, smooth, and under a magnifying glass exactly like the surrounding surface; but the appearance of antiquity which would thence attach to the indentation, were it really an incision, may, as it seems to me, be readily explained on the presumption of its being merely an accidental impression."‡ Thus the artificial incision on the horn of a reindeer turns out to be an accidental impression on the rib of a bear.

"The Charcoal Bed."—Mr. Bristow, in his notes on the survey of the cavern, tells us that for some distance from the entrance (33 to 34 feet) a dark-coloured deposit rests upon the bed just noticed (the cave-earth); it is composed of small angular fragments of limestone, with a white powder embedded

* *Transactions of the Royal Society*, Vol. clxiii. p. 564.

† *Transactions of the Devon Association*, Vol. vi. p. 636.

‡ *Report*, p. 537.

in a brown loamy base. From the circumstance of its being darkly stained with carbonaceous matter (apparently) the name of "charcoal bed" has been conferred upon it; its thickness is very variable. Dr. Percy, however, who saw it *in situ*, says "that it did not contain anything entitling it to this appellation."*

It is well known that buried wood becomes carbonised by age. Bog-oak and the timber of submarine forests are converted into ebony, and even the stray pieces of wood cast up by the tide have the outward appearance of charcoal; a few rootlets of the common fern washed into a cavern to an incautious observer would be reported as charcoal. On this point greater caution should be exercised and less weight attached to the reported presence of bits of charcoal in cavern deposits.

I have now noticed all "the slight indications of man's presence" mentioned in the Report, in addition to the so-called flint implements, and there are none of them which can be relied on as witnesses to give any support to the evidence of the flints; these stand alone, and in the expressive language of the reporter, "are without any corroborative adjuncts."†

As to the evidence of human manufacture which flint knives should present, Sir Charles Lyell quotes Mr. Evans, who says that there is a uniformity of shape, a correctness of line, and a sharpness about the cutting edges and points which cannot be due to anything but design."‡ We desire no better rule than this by which to test the claim of these Brixham flints to be knives or implements. It is now obvious, from an inspection of flints, that they present no such uniformity of shape, no such correctness of outline or sharpness about the cutting edges and points as would, in accordance with this test, justify the inference that they are manufactured tools or "knives."

The association of the Bones of the Extinct Mammalia with the Works of Man.—This vital point, which is the substance of the whole contention, the issue of the whole debate, is thus stated by Sir Charles Lyell: "The anteriority of those (the knives) at Brixham to the extinct animals is demonstrated not only by the occurrence at one point in overlying stalagmite of the bone of a cave-bear, but also by the discovery at the same level in the bone-earth, and in close proximity to a very perfect flint tool, of the entire left hind leg of a cave-bear Every bone was in its natural place, the femur, tibia, fibula, ankle bone, or astragalus, all in juxta-position. Even the patella, or detached bone of the knee-pan, was searched for, and not in vain. . . . If they were not all of contemporary date it is clear from

* *Report*, p. 496.

† *Ibid.*, p. 565.

‡ *Antiquity of Man*. First edition, p. 117.

this case, and from the humerus of the *Ursus spelæus* (cave-bear) before cited, as found in a floor of stalagmite, that the bear lived after the flint tools were manufactured, or, in other words, that man in this district preceded the cave-bear.* The whole of this statement is now found to be loaded with erroneous and mistaken facts. Thus the bone described as the fibula proves to be the radius, and that said to be the patella is in reality the detached end of the radius; the "flint tool" was not in close proximity to the bear's leg, but twelve feet from it; the "tool" was not at the same level in the bone-earth as the leg, but fifteen inches above it, and the leg of the extinct cave-bear, the most famous specimen of the cavern, we are now told by Mr. Pengelly, is probably that of *Ursus arctos*, the common brown bear which lived in England in post-Roman times, and still inhabits Central Europe.†

Considering the large number of errors which thus cluster around this once important specimen, it is not surprising to find that in the fourth edition of the "Antiquity of Man" the whole of the evidence founded on it, and indeed on the very presence of the cave-bear, is wholly omitted, the antler of the reindeer found on the surface of the stalagmite taking the vacant place; and the result of the exploration of this "famous cavern," which Mr. Pengelly more than once has told us "revolutionised the scientific world on the question of human antiquity,"‡ has been toned down by Sir Charles Lyell to the more moderate conclusion that man in Devon preceded the reindeer.§

But, further, I have shown that the whole of the evidence adduced in support of the presence of man completely breaks down under a searching examination, and that this cavern affords no proof of the reality of palæolithic man, no chronological scale by which to estimate the date of his early appearance.

But in order that I may not shirk the very gist of this inquiry, let it be admitted that a considerable portion of untested cavern evidence goes to show that the works, if not the very bones of man, are found in complete association with the remains of the mammoth, Tichorine rhinoceros, cave-bear, and the reindeer. What, then, is the strictly logical inference to be drawn from such a mixture of relics? That man lived in the palæolithic age with the extinct mammals, says the

* *Antiquity of Man*. First edition, pp. 100-1.

† *Transactions of the Devon Association*, Vol. vi. p. 826.

‡ *Ibid.*, Vol. iv. p. 73. *Journal of London Institution*, January 1873, p. 5.

§ *Antiquity of Man*. Fourth edition, p. 102.

anthropological archaeologist. Nay, it is equally logical to say that these now extinct animals lived down to the neolithic age with semi-civilised man, and the evidence of the facts, as at present known, tends strongly to sustain this aspect of the case rather than the former.

Let the facts speak.

M. Regnole explored some seventy caverns in the mountains of Northern Italy. In the Grotta all' Onda, at the foot of Mount Matanna, he found instruments in bone, barbed arrow-heads of stone, polished stone implements, two axes—one of diorite, and one of jade—a polisher of serpentine, and bones and teeth of the cave-bear, bearing traces of human work, and unworked bones of the cave-bear belonging to at least four individuals. The other animal remains were stag, hare, wild boar, badger, ox, sheep or goat, &c.

The Grotto of the Goths, in the mountain called Colle Maggiore, yielded arrow-heads of stone, pottery, charcoal, and bones of the *cave-bear*, with implements of the neolithic age. In the caverns of Velo, in the province of Verona, there was found a complete skull of the cave-bear, and among the numerous bones belonging to the same animal, he (M. Regnole) dug up a very fine (polished) axe of porphyry and another of serpentine. In the caverns of Byčiskála and of Shap, in Moravia, Dr. Wankel has discovered a great number of polished stone hatchets, worked bones, and pottery, in the same beds with the bones of the cave-bear and cave-lion. The bones of the *reindeer* were found with bronze objects, and bones of the ox, stag, and wild boar, in the Valley of Tardoir, France. They were found again with the bronze spear-heads, arrow-heads, knives, &c. in the shell marl of Walthamstow marshes, with the bones of man, wolf, fox, beaver, and wild deer. In one of the cranoges of Ireland, in Lough Crea, the head of the *great Irish elk* was dug up from a depth of thirteen feet, with the bones of the ox, sheep, goat, wolf; with these animal remains were found iron implements, a crozier of brass, a battle-axe, a cast for a coin, bone and stone implements, &c. Two perfect heads of the *mammoth* were found at Holyhead, in a bed of peat which passed under the sea, and is exposed at low water. The Rev. D. Fisher found the remains of a mammoth in a bog near Colchester. Mr. G. S. Poole says that the remains of the mammoth and the *Tichorine rhinoceros* were found in the turbaries of Somersetshire, above the bones of man and pieces of pottery.*

On the other hand, not a single genuine bone of man has been found in ancient gravel beds of the drift period.

* Extracted from *The Epoch of the Mammoth*, by James C. Southall, A.M., LL.D.

Thus the balance of the geological evidence is greatly in favour of bringing the extinct mammalia forward on the course of time to an approximately known epoch, rather than that of taking man backward to an unknown and unmeasurable distance from the present. There is, however, a more probable solution of the difficulties which cluster around this portion of the case. The quaternary beds of surface drift gravel contain pebbles derived from rocks ranging from the primary to the tertiary formations, with fossils of the oolite and chalk, shells of existing species, and bones of the extinct animals, all mingled together in the greatest confusion. And as much of the materials swept into caverns are derived from the denudation of these surface beds, we should of necessity find there the same mixture of relics. This in fact we do find: in cavern deposits the remains of the extinct and recent animals are mingled together in the same confused manner, and comparatively modern bones are mixed with others presenting all the characters of the most remote antiquity. Further, the caves of Brixham and Kent's Hole appear to have been at first nearly filled with diluvial gravel, then coated with a layer of stalagmite from two to twelve feet thick, and the whole afterwards broken up by a violent land-flood, mixing large blocks of stalagmite with the cave-earth, and sweeping much of the materials out of the caverns. "This filling up, re-excavating, and re-filling" (says Mr. Dawkins) "are phenomena which considerably complicate the problems offered, not merely by Brixham Cave, but also by those of Kent's Hole."*

Again, at the termination of the glacial age, and through much of the succeeding pluvial period, animal life must have been comparatively scanty, but with the gradual return of a higher temperature, and the formation of alluvial soil, the beasts of the field would multiply and greatly abound, of which we might expect to find indications in the accumulative abundance of their remains in more modern cavern deposits; and this in fact we also do find.

In the lower gravel beds of the caverns there are comparatively few animal bones. The bottom gravel bed at Brixham was probed in places to the depth of twenty feet, and found to be barren of fossils.† In the overlying cave-earth 1,537 bones were found, and of these more than one-half lay on its surface.‡

During this period of excessive rainfall, extraordinary land-floods would sweep the drift beds from the hill side, re-excavate

* *Cave Hunting*, pp. 323-4.

† *Antiquity of Man*. First edition, p. 99. Seven bones, however, are said to have been found.

‡ *Report*, p. 493.

the drift-filled valleys, and mingling the animal remains of the past with the recent bones, sweep them both together into the clefts of the rock and into caverns.

Conclusions.—1. That the reality of the palæolithic man of the past, as deduced from the evidence of the surface-drift gravel, rests solely on the genuineness of the assumed flint implements, for not a single authentic relic of man has been found to corroborate the opinion that they are implements. I have shown that these flints have a geological and not an archæological origin. That there is a gradation in the form and fracture of the “implements” from the most perfect into that of the angular drift gravel in which they are found, and that not a single specimen has been produced showing the same conclusive marks of use as are found on the true neolithic axes.

2. That “the palæolithic hunters of the Dordogne” (so described by Mr. Dawkins*) are proved by the evidence of the cavern relics to have been a tribe inhabiting the valleys of the South of France in the neolithic age, and that the human bones and skulls indicate a race of men having a large bodily frame and great intellectual capacity.

3. That the evidence of palæolithic man, derived from “the famous cavern of Brixham,” melts away piece by piece under the ordeal of a searching investigation, that it is not a demonstration of the existence of a savage of the past, but a delusion of the present, and that the apparition of this palæolithic “virgin” fades from our view like that of the maid of Corinth from Alp the renegade :

“Hath she sunk in the earth, or melted in air?
He saw not—he knew not; but nothing is there.”

4. That even assuming that true implements, and even the bones of man (for this is probable) are, or will be, found in direct and complete association with the remains of the extinct animals, it would rather tend to bring the animals forward in time than to take man back; and further, considering the origin of the relics, and the mode of their deposition, such a case, even if confirmed, affords no proof whatever of the contemporaneous existence of man and the extinct mammalia.

* *Cave Hunting*, p. 256.