

I.

OBSERVATIONS ON THE PRE-NEOLITHIC INDUSTRIES OF SCOTLAND. BY THE ABBÉ H. BREUIL, D.L.C., PROFESSEUR À L'INSTITUT DE PALÉONTOLOGIE HUMAINE, PARIS.

I. THE PRE-NEOLITHIC FLINTS OF CAMPBELTOWN, ARGYLL.

Amongst the Scottish flints which I had the opportunity of examining during my visit to Edinburgh, where I had gone for the Munro Lectures which I had the honour to deliver at the University there in February 1921, those coming from the 25-30-foot raised beach at Campbeltown, Argyll, seemed to me particularly interesting. Thanks to the kindness of Mr Graham Callander, I had the opportunity of examining the important series preserved in the Scottish National Museum of Antiquities, and in the museum in the Art Galleries, Glasgow.

These collections reveal an industry quite different from that of the neolithic of the country and of the true Tardenoisian which is to be met with there, and of which Mr Ludovic M'L. Mann has collected specimens near Stranraer, Wigtownshire; they differ equally from the characteristic tools from the Oban caves and the other Azilian deposits of which we shall speak later. The appearance of the Campbeltown tools, taken as a whole, is that of a poor upper palæolithic series (figs. 1 and 2), chiefly consisting of flakes showing a Magdalenian aspect. These flakes were detached from nuclei, the angles of which are sometimes battered (fig. 1, No. 15); many show no re-working, but numerous notches resulting from use (fig. 1, Nos. 7, 8, 9, and 14); a small number are re-worked into end scrapers (fig. 1, No. 10 and fig. 2, No. 21); and one (fig. 1, No. 16) shows

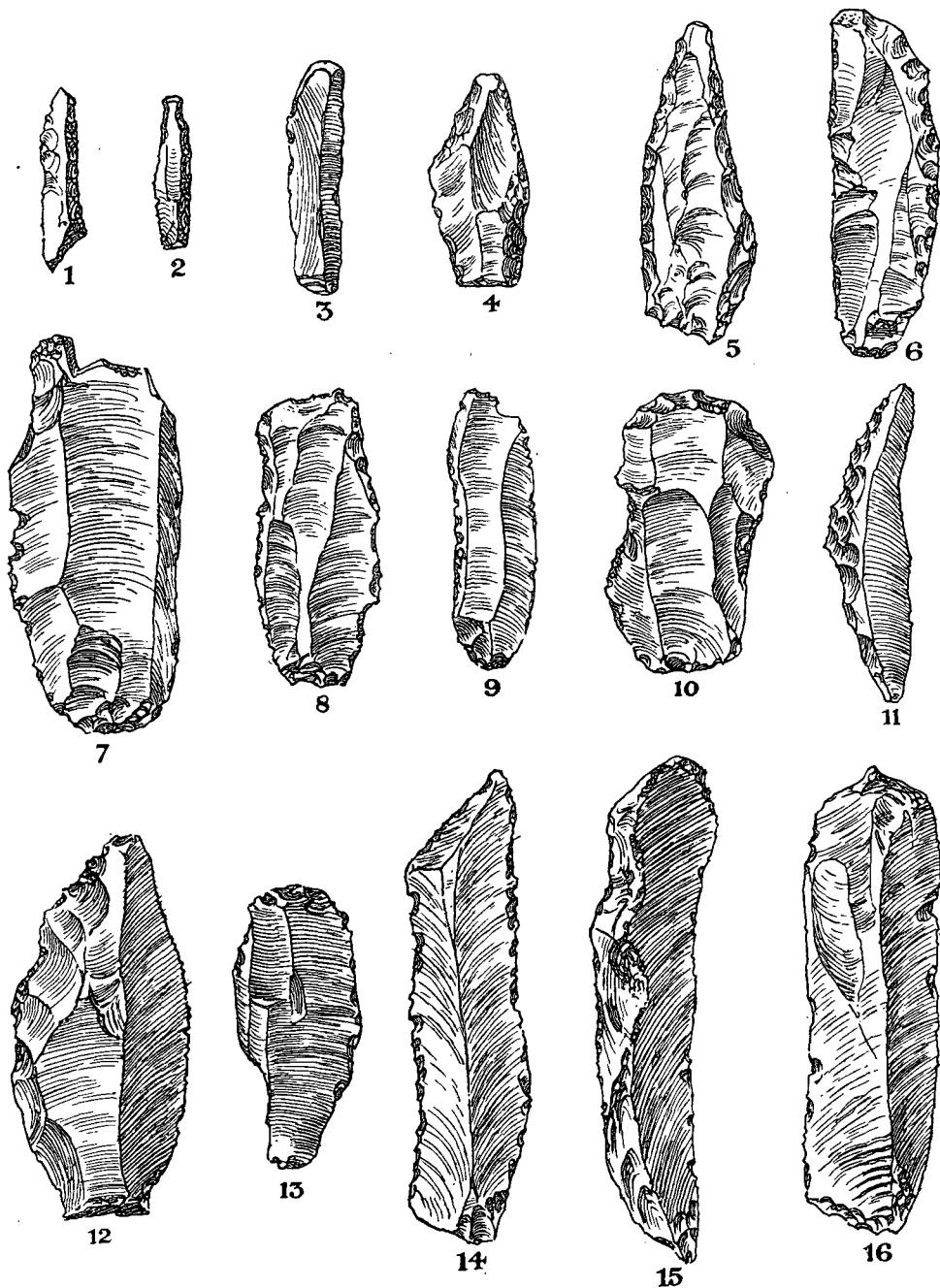


Fig. 1. Flints from the 25-30-foot raised beach at Campbeltown. (t.)

a small point in the centre of its semicircular end. Very rarely does the re-flaking extend to both sides, as in the small, thick, pointed tool (fig. 1, No. 5), or to a single edge with the other side remaining sharp, as in the rather thin flake (fig. 1, No. 6), and in the very thick one (fig. 1, No. 12). The re-working of the side seems to have been for the purpose of removing the edge and transforming it into the back; but the battered unilateral edges are better defined on some very small flakes like fig. 1, Nos. 1 and 2, whose appearance is quite Magdalenian, as are those without any re-chipping, like fig. 1, No. 3. Notice must be taken of the sub-triangular form of fig. 1, No. 1, especially as there is another small sub-triangular object (fig. 1, No. 4), rather thick but worked on both edges. I have not seen a single burin (graving tool), but they ought to be found, as the flake (fig. 1, No. 11) is typically a flake made during the fabrication of one of them.

Scaled flakes, so abundant in Azilian deposits, are rare here; however, fig. 1, No. 13 is a well-defined example chipped at one end. Some rare tools of larger size have to be mentioned; several seem to be the result of transforming cores into tools; fig. 2, No. 17 appears as a nucleiform scraper more or less of pyramidal shape; fig. 2, No. 18 is also a core adapted, as is frequent in all palæolithic deposits, for use as a wedge or massive scraper.¹ Two other specimens (fig. 2, Nos. 19 and 20) roughly resemble carinated (keel-shaped) scrapers. Such is the kit of tools from the Campbeltown raised beach. Its upper palæolithic aspect is undeniable, and the thick patina of the flint does not belie this impression.

A comparison with the stock of tools from the English palæolithic caves is forced upon us. Indeed, I have noted, in the series of objects from the Creswell Crag cave, preserved in the museum at Manchester, and coming from the higher level, not only debris similar to the proto-Solutrean of Spy, Belgium, and of Paviland, South Wales (a fragment of the true laurel-leaf blade and numerous Solutrean prototypes with the re-chipping done on the plane of cleavage), but a small assemblage of different appearance, microliths in small flakes with battered backs, in semicircular knife-like flakes, in atypical *pointes à cran* (shouldered arrow-points), and triangular points almost Tardenoisian. It is all the more likely that this small selection is not of the same age as the proto-Solutrean groups of relics (very similar to that from Font-Robert (Corrèze) which crowns the Aurignacian) because it is found independently in other localities both in England and in Belgium.

¹ I think that these objects, veritable little hatchets, served during the reindeer period to cut deer-horn transversely; in reality, while the cutting up of a small stick was accomplished with the burin by longitudinal grooves, it was generally by the repeated blows of these large implements that they were cut across.

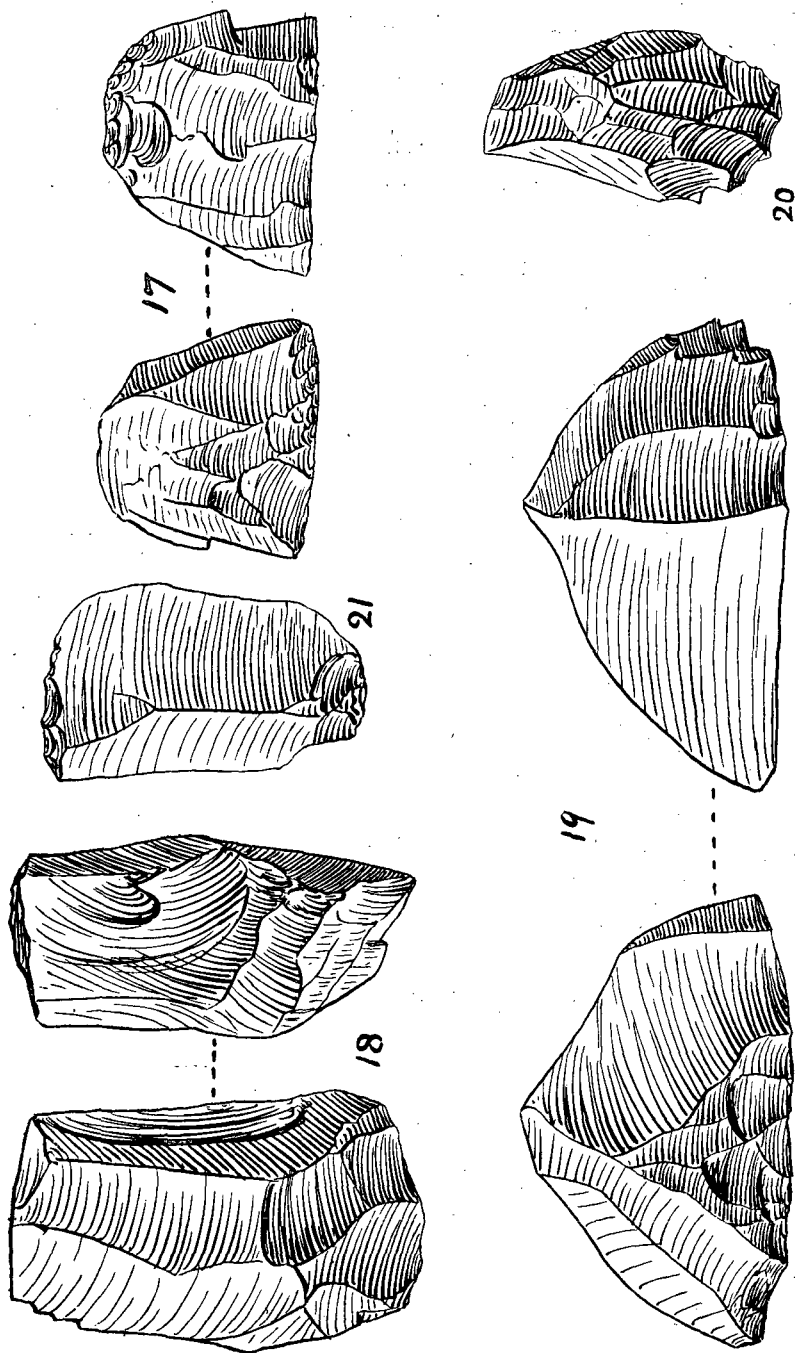


Fig. 2. Flints from the 25-30-foot raised beach at Campbelltown. (4.)

It is indeed this industry that the Belgians have discovered with the latest reindeer at Remouchamp and at Martinrive, which, because of its triangular microliths, they have first taken as Tardenoisian. But the typical Tardenoisian exists in Belgium with the same characteristics as in Algeria and all Western Europe. It is a question, then, of an older converging industry, and I would not be astonished if the idea expressed by Miles Burkitt (*Prehistory*, p. 59) were correct: Belgium and the British Isles are at the extremity of distribution of the Magdalenian, and it is admissible that in the peripheral regions other industries, derived from civilisations based on the upper Aurignacian and more or less influenced by the Solutrean, have been developed independently. This is what has occurred in the north of Africa, where the Capsian-Aurignacian passes gradually into typical Tardenoisian, but without Solutrean influence.

It is to be observed that the marine 25-30-foot terrace corresponds also to the Azilian caves at Oban. The difference in period between the Campbeltown flints and the latter cannot, then, be very considerable. It is to be regretted that osseous debris, faunal or industrial, was not met with, which would allow us to state precisely whether this set of implements is not really Azilian. The difference is, however, notable between the morphological types of the stone tools of the two groups, as we shall see; but this difference would be explained, perhaps, if it were established that Campbeltown is in proximity to natural deposits of flint and that the other localities are distant. It is for Scottish geologists to elucidate this point.¹

II. REMARKS ON THE IMPLEMENTS FROM SOME OF THE AZILIAN DEPOSITS OF SCOTLAND.

What characterises nearly all the flints gathered from the Azilian kitchen-middens and contemporary littoral caves of Scotland is that we are not faced with a normal outfit of tools (fig. 3), but with the residue of tools used to such a degree that they were no longer capable of further service. Flint being scarce, the smallest fragments had been used until they were almost completely destroyed. Thus the debris recovered rarely preserves the form of a recognisable implement. Among those from Oronsay, Argyll, that I have selected as representative of these objects, one may remark in a small flake a micro-burin (fig. 3, No. 1), comparable with those of the Tardenoisian, with a small notched

¹ I have been informed by Mr Callander that Campbeltown lies much nearer a supply of flint than either Oban or Oronsay, and that the colour of the Campbeltown flints seemed to indicate that they came from the adjacent parts of Ireland. The Mull of Kintyre near Campbeltown is only fifteen miles from the Irish coast, while Oronsay is about forty-five miles distant, and Oban eighty-five.

beak, and the oblique facet of a burin on the other side. Fig. 3, No. 6, shows a re-worked edge, which may lead to the supposition that the piece when complete may have been a short scraper, either round or ovoid and pretty thick, like so many in the Azilio-Tardenoisian of France. As for fig. 3, No. 5, it appears as a short and thick hollow scraper flanked by two stout burins at the angles. All the other flints, almost without exception, are tools scaled or rather splintered by violent use, which has reduced them in every sense almost out of recognition. With the exception of the scraper (fig. 3, No. 6), which has its greater part and one of its sides destroyed by the splintering of the plane of cleavage during use, the others (fig. 3, Nos. 2, 3, 4, and 7) are so badly damaged

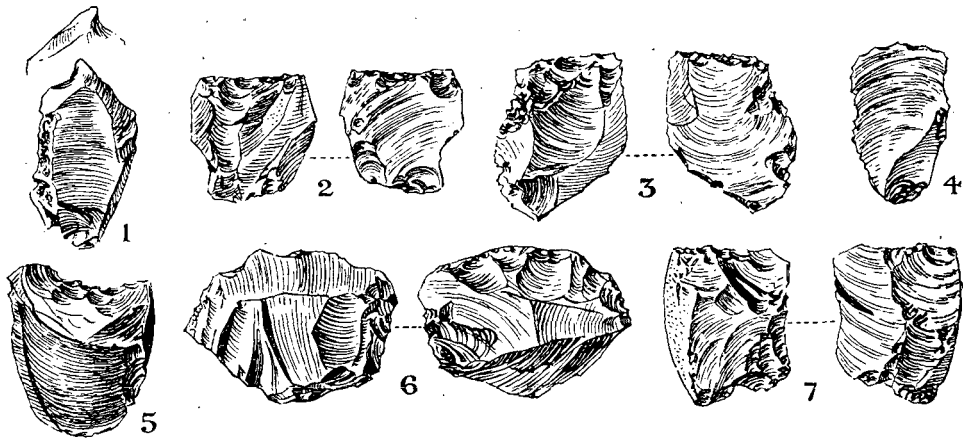


Fig. 3. Flints from the shell mound, Caisteal nan Gilleann, Oronsay, Argyll. (1.)

by the same process that their original shape is not discernible. Fig. 3, Nos. 2 and 7, are the most complete types of their kind: the rectangular flake, almost square, having undergone such strong mechanical action, either percussion or pressure in the plane of the object, that on the two opposite sides and on the two faces thin shivers have flaked off in the plane of cleavage, well marked by distinct undulations. The illustrations (fig. 3, Nos. 3 and 4) represent splinters flaked off in this way by the use of such tools; the first has lost the whole of its face, while the second is a simple flake.

Such splintered tools occur in all the deposits of the upper palæolithic in France, Spain, and Northern Africa, chiefly in stations situated far from important natural deposits of flint. By themselves they do not characterise any horizon.

The first of these objects to have been properly described and figured

are Aurignacian, the Abbé Bardon and the Abbé Bouyssonie having admirably described specimens from the station of the Coumbo-del-Boutou (Corrèze) in their article, "Outils écaillés par percussion," in the *Revue de l'École d'Anthropologie de Paris*, 1906, p. 170; they illustrate about thirty, and their analysis deals with seven hundred and ninety-one specimens. A considerable number of them have been scrapers broken by usage. It is not, however, very easy to explain to what violent usage these objects were submitted; but what strikes one is that these relics, so abundant in the region of Brive, which is poor in flint, are less numerous in the contemporary deposits of the flint regions of Périgord and Poitou. Again, they are found in superabundance in all the Pyrenean and Cantabrian regions, which are poor in flint, in all the Aurignacian, Solutrean, Magdalenian, and Azilian deposits (Tarté, Gargas, Mas d'Azil, Castillo, Hornos de la Peña). This industrial aspect answers, then, to a utilisation of material, pushed to its utmost limit, by people having little flint at their disposal.

III. FLAKERS OF STONE, BONE, AND DEER-HORN FROM THE AZILIAN DEPOSITS OF SCOTLAND.

Alongside the chipped flints the equipment of tools of stone from the Azilian deposits of Scotland includes another series of objects, much more abundant, which have been recognised by the discoverers as tools and regarded by one writer who has described the relics from an Ornsay site as implements intended for detaching the edible part of limpets from their shells. I have had the opportunity of handling the extensive series at Edinburgh and at Glasgow. This scrutiny compels me absolutely to reject the proposed interpretation. These objects are indiscriminately made of schistose stone and of bone (figs. 4 and 5), and much less frequently of deer-horn: the schistose stones are utilised under the form of naturally elongated pebbles; the bones are struck off from splinters of the long bones of mammals (chiefly horses and *bovidæ*, judging by the thickness of the fragments).

All show traces of having been used for two kinds of work. In one, and that the less violent, use has been made of one or other of the extremities of the object, and sometimes of both, for hard and repeated rubbing: it is not a tear-and-wear comparable to polishing, which would produce a bevelled edge like that of a chisel or a polisher; the objects rather resemble burnishers, but never polished axes or chisels, as might sometimes have been believed by looking at the illustrations. Wear of somewhat similar nature, but showing in a different way, that is to say, sideways on one of the two edges of an oval flattened pebble, is found on French palæolithic pebbles, which, provisionally, I consider to

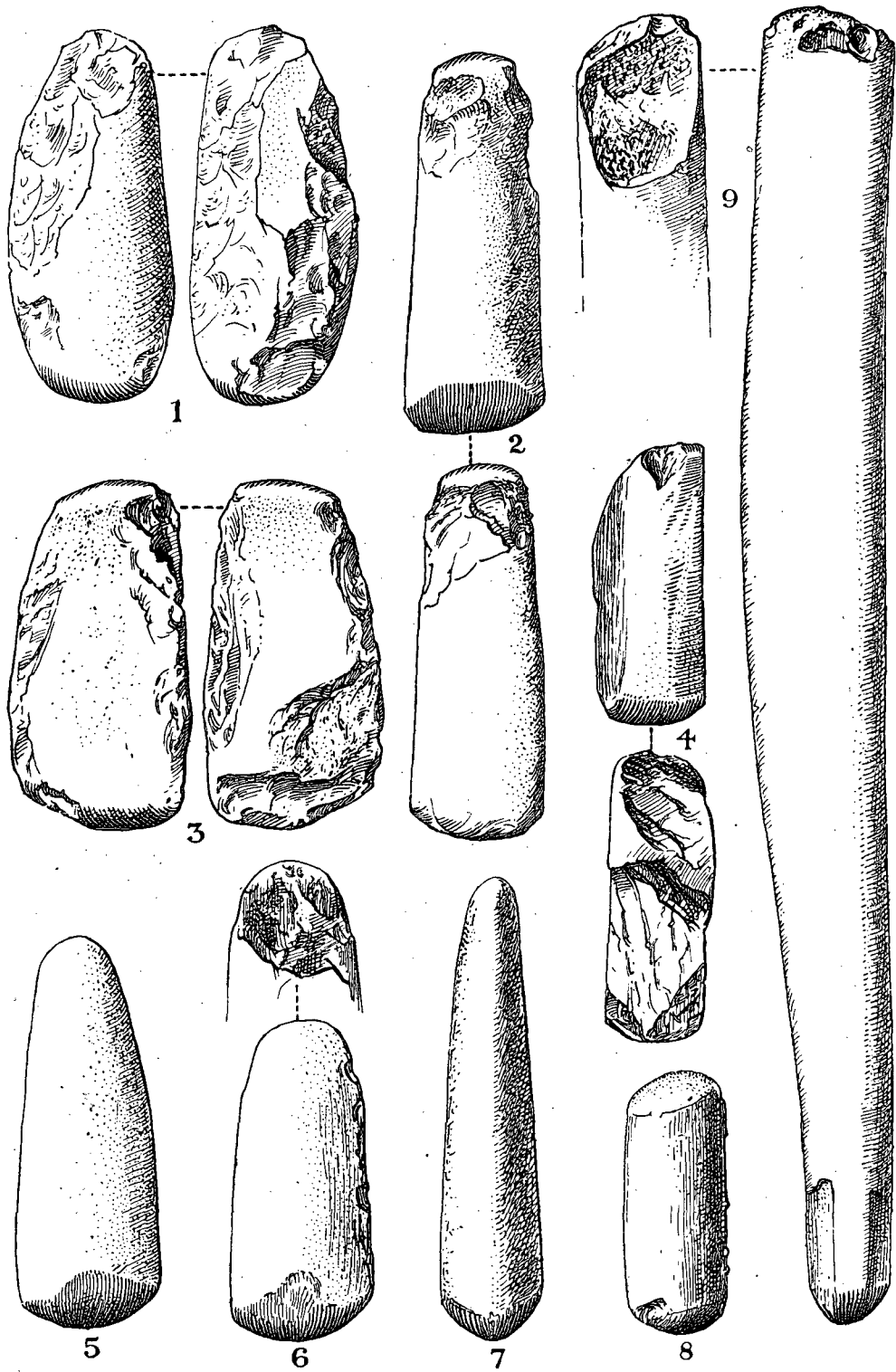


Fig. 4. Stone flaking tools from the shell mound, Caisteal nan Gillean, Oronsay, Argyll. (†.)

have been intended for flaking implements of flint by moderate pressure. The rasping on the sharp edge, which had re-chipped it, would quite well have produced such wear.

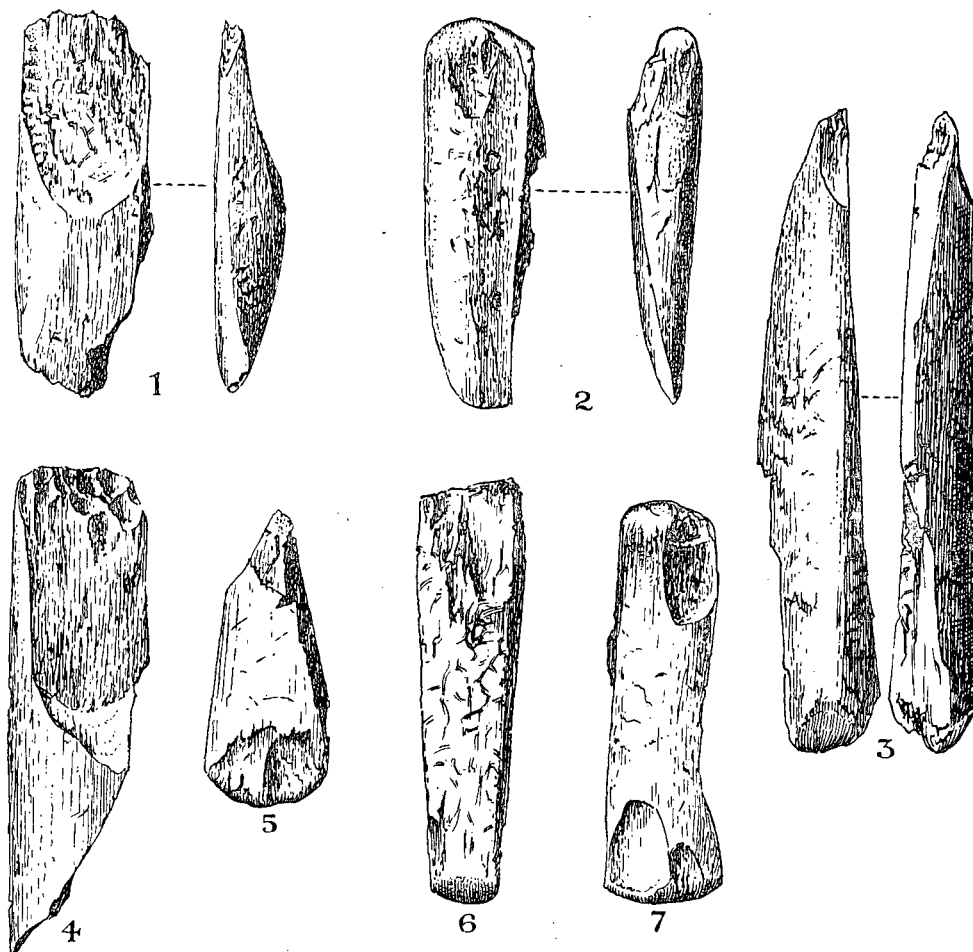


Fig. 5. Bone flaking tools from the shell mound, Caisteal nan Gilleann, Oronsay, Argyll. (†.)

The other kind of work indicated by the Scottish objects, in stone, bone, and deer-horn, was assuredly much more violent, and frequently led to the breaking of the object by splintering in a longitudinal direction. The examination of the relics allows me to assert that the objects were utilised for striking a hard body with one of the ends, and transmitting to this body the blow given on the other end by another hard striking mass. It looks as if the tools had been held in the left hand

like a chisel, and struck by a hammer in the right hand. Against what was it applied and for what purpose? It is not so easy to determine. I have thought of a tool for detaching shells adhering to rocks; but the blow seems to have been given with greater violence than was necessary for this result. I think rather that these objects have been used as intermediary striking tools for splitting up in small flakes blocks of flint of restricted size, which might have been solidly fixed in a kind of vice. This hypothesis accounts perfectly for all the fractures made in the course of use that can be ascertained.

Several of these objects, after breaking by longitudinal splintering during rough work, have been applied anew to a more gentle use, which blunted the ends by wear; such is the case in the tool of stone (fig. 4, No. 9), and that of bone (fig. 5, No. 7).

Very rarely the sides of these stone tools have undergone other work by the process of removing contiguous scales analogous to re-chipping. In such cases, was this for the purpose of reducing the width of the stone, as it seems in fig. 4, Nos. 1 and 3, where these scalings are bilateral and reproduced on both faces? Or is a question of bruising due to percussion applied laterally? I incline more to the latter interpretation when I examine marks similar, but more localised and less accentuated, on pebbles, fig. 4, Nos. 2 and 6. I will be asked how it happens, if I consider that these tools were for re-working flint, that these flakers are abundant and flints scarce. The reply is that the flints having been utilised to the possible maximum by repeated re-flaking and re-chipping, and little by little destroyed in driblets by tear-and-wear and repeated hewing, one can quite understand the relative scarcity of the material and the abundance of the implements destined to make the flints again fit for service.

Besides, comparative ethnography comes to our assistance. My ideas about these Scottish objects had already been formed when I received the memoir of Ernest A. Hooton and Charles C. Willoughby entitled "Indian Village Site and Cemetery near Madisonville (Ohio)."¹ These authors illustrate and describe there (pl. vi. pp. 49 and 50) "arrow-makers' tools," "flint-working punches of antler," which were short, "antler tools for pressure flaking," which were longer, and, finally, "arrow-makers' stones," which are closely related to those we are discussing. The American authors say: "These were undoubtedly used with a hammer of stone or hard wood, in flaking suitable pieces of flint from large masses, and for the roughing-out of blades and projectile points. In a number of specimens one end is battered or split

¹ *Papers of the Peabody Museum of American Archaeology and Ethnology*, Harvard University (Cambridge, Mass., U.S.A.), vol. viii. No. 1 (1920).

from the repeated blows of the hammer. Unlike the ordinary antler flakers used in finishing blades by pressure, the ends of these punches are nearly always symmetrically rounded." These are references to descriptions by Catlin, who has seen flint worked in this manner among the Apaches. As one can see, the description of the American objects can be applied exactly to those of the Azilian deposits of Scotland,

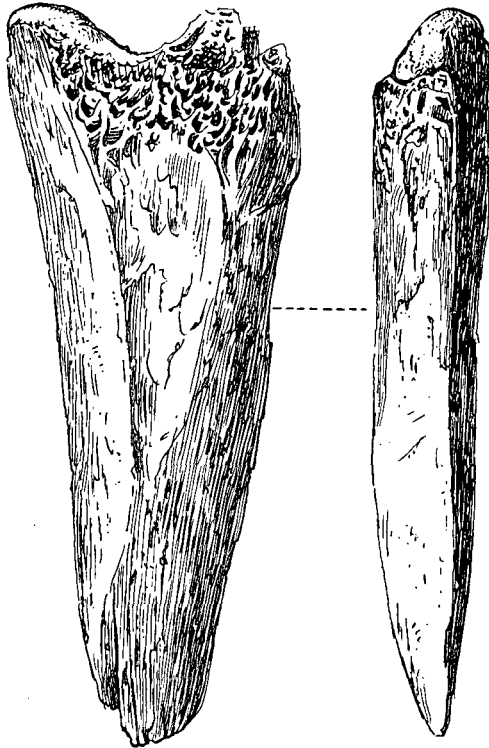


Fig. 6. Polisher of bone from Caisteal nan Gillean, Oronsay, Argyll. (†.)

and the two parallel series demand the same technical explanation of their use.

In fig. 6 is illustrated a polisher of bone from Caisteal nan Gillean. This object with its spongy base and sharpened bevelling could not have served as a flaker like the other bone tools explained as such.

IV. THE PAINTED PEBBLES OF THE BROCHS.

In proceeding to Edinburgh I had a very strong desire to be able personally to examine the painted pebbles described in 1901 by Dr Joseph

Anderson,¹ five from Keiss Broch having been figured by him. They had already been mentioned by their discoverer, Sir Francis Tress Barry, in 1898, in the *Proceedings of the Society of Antiquaries of London*, 1898, p. 191, and they were further discussed in *Man*, 1904, No. 22, p. 38.

All these pebbles are of quartz except one, which is of flint. The paintings are of a blackish-brown colour with a bituminous appearance, quite different from the ochreous colours of Mas d'Azil and other French, Swiss, Bavarian, and Spanish localities.

Actually they number eleven specimens. Two show only a coloured peripheral zone, the details on the faces being obliterated; three are dotted on both faces with numerous small round spots; both faces on two of them have been illustrated by Anderson. A sixth, also figured by him, shows one face covered with numerous spots, and on the other (fig. 7, No. 1) are a chevron and other less distinct details encircled with dots similar to those on the other side. The seventh and eighth (fig. 7, Nos. 4 and 5), reproduced also by the same author, are of circular form: on one face is a cruciform figure, complete on the one pebble and imperfect on the other, surrounded with a marginal circle, which is reduced to a semicircle on the second example; on the opposite faces are seen one or two simple alphabetiform signs and several minute dots. A ninth pebble has on one face a cross encircled with four spots and flanked with the arc of a circle (fig. 7, No. 3). It seems that these last designs were not obtained by the application of a coloured pigment, but by rubbing on the quartz an object of iron, traces of which have subsequently oxidised. The last two pebbles are unpublished, so far as I am aware, and I have reproduced a sketch of them showing the designs on the sides flattened out. The largest (fig. 7, No. 6), of oval shape, shows on one face a figure in the form of D, with a large internal dot tangential to the bar. On the other side are sundry figures: a kind of P upside down, with a short stem, an oval with two small dots resembling the eyes of a face, and a sort of large A with a scalloped bar, a central spot, and several superfluous dashes. The smallest (fig. 7, No. 2), of flint, nearly spherical in shape and only of the size of a marble, is entirely covered with little figures: on one side are two circles dotted and conjoined, with an arch with expanding base on the right, and a round spot with void centre on the left; round all are a circular spot, another in the form of a very thick comma, and a third of oval form with a small conjoined chevron; on the other side are seen two kidney-shaped spots with a kind of C and a small dot between them.

The motifs on these two small pebbles are very different from those

¹ "Notices of Nine Brochs along the Caithness Coast from Keiss Bay to Skirza Head, excavated by Sir Francis Tress Barry," *Proc. Soc. Ant. Scot.*, vol. xxxv. p. 147, fig. 22.

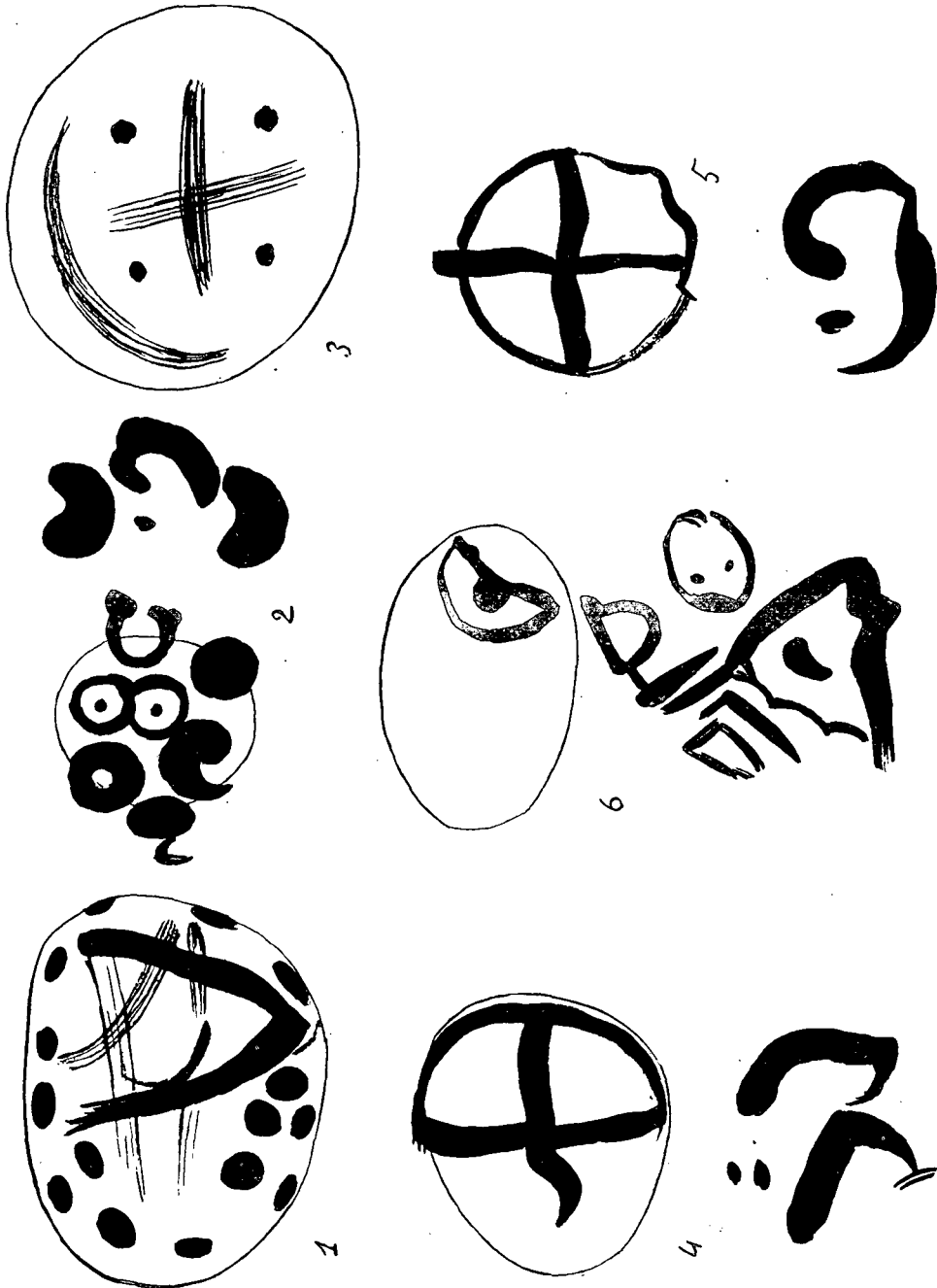


Fig. 7. Scottish painted pebbles other than those only bearing spots (slightly enlarged).

of Mas d'Azil. The similarity between the two series is quite superficial: the pigment is different; the parallel strokes and the large spots, so abundant at Mas d'Azil, are missing here.

It has been difficult for me to decide, as I should have liked, the period to which it is proper to attribute these painted pebbles. The discoverer is dead, and it is difficult to learn which of the other objects of the collection were found associated with them. The note of 1898 to the Society of Antiquaries of London, given by Sir Francis Tress Barry, describes the discovery in these terms, which I abridge a little: "These stones were found in the underground habitations surrounding four of the brochs. . . . The habitations are supposed to be secondary constructions, made principally from the partial ruins of the brochs. They are in almost every instance below the present level of the ground, invisible. . . . They are entirely filled with debris, earth, stones, ashes, animal bones split for the marrow, limpet shells, and rude unpolished stone implements, without any trace of metallic tools. There are numerous pieces of stags' antlers showing cuts, but these may have been done with pieces of split quartz stones, as many of them are found with them. In one place were discovered pieces of reindeer horn; in another, part of the antler of an elk (*Alces machlis*); and in a third, the canine tooth of a bear. The painted pebbles were found amongst the debris above mentioned. . . ."

In *Man*, 1904, No. 22, p. 38, there is no mention of pottery, objects of polished stone, or domestic animals.

But in the memoir by Dr Anderson, where the excavations of the brochs are described in detail, it is seen that the constructions adjoining the brochs are considered as contemporary or later, that the excavations have yielded pottery or instruments of metal of late Celtic or Roman date, as well as a large number of vessels, mortars, and querns of the same period, and of bones of the ox, sheep, pig, great auk and other birds, deer of large size, and rare fragments of reindeer horn, elk, and bear cited from Sir Francis Tress Barry.

The only reindeer horn coming from the brochs which I had the opportunity of examining was pierced through by an iron nail, and was evidently rolled by the sea. No other bone of this animal having been met with, I am inclined to think that these antlers of reindeer are not of local origin, but may have been brought by travellers from Scandinavian countries. I have not seen any reindeer bones in any of the refuse from the Azilian kitchen-middens of Scotland, and still less from those of the Roman stations. No convincing osteological proof is forthcoming up till now, to my knowledge, that this animal has lived and been hunted in the British Isles after the old Azilian of the Victoria Cave.

It is strange to see the extreme difference of appreciation which separates the short note of Sir Francis Tress Barry from the much longer account of Dr Anderson—the latter does not say a word about the worked quartz mentioned by the former. From the conversations, and the examination of the objects, to which I devoted myself in Edinburgh, it follows that there can be no doubt about the relatively very recent date of the brochs and of the adjoining structures, but one cannot exclude the hypothesis that these monuments may have perhaps occupied the sites of more ancient coastal stations. Further research would be necessary to prove this supposition, but, pending this, there seems little probability that any chronological connection whatever can be affirmed between the painted pebbles of the Pyrenees and those of Scotland.

V. A FEW REMARKS ON THE AZILIAN HARPOONS OF SCOTLAND AND THOSE OF ENGLAND.

The celebrated and partly fossilised harpoon of reindeer horn from the Victoria Cave, near Settle (fig. 8, No. 1), comes from a cave the contents of which, Mr Miles Burkitt and I are convinced, have undergone regrettable disturbance by the operations of animals and of man during Celtic times. The bead of bone found a short distance from the harpoon, and not fossilised, shows undoubted traces of sawing done with a metal tool. Conversely there are, without any indication of the level from which they came, two highly fossilised long cylindrical assegais of reindeer horn of quite Magdalenian appearance (fig. 9, Nos. 1 and 2), and a considerable number of pebbles of divers use, sometimes stained with colour (fig. 10), recalling palæolithic and Azilian objects. Unfortunately, no indication of the level of the pebbles has been recorded; by their labels they certainly come from the higher beds, designated neolithic by their explorers;¹ but in the collections from the Victoria Cave there is not a single neolithic object—neither a fragment of pottery, nor an axe, nor a typical flint of this period. The explorers have taken for neolithic the worked pebbles from the bed underlying that of Romano-British times. These pebbles exactly resemble those from the Azilian beds of Mas d'Azil (Ariège), tolerably those of the Scottish Azilian, and differ completely from those of the Iron Age from the Scottish brochs. I have made sketches of nine of them, viz.:—(1) A hammer-stone, with small hollows formed by bruising on the two flat faces, having served to grind down black and red colouring matter (ochre) (fig. 10, No. 8); and there is a second—this type is spread over all the palæolithic and Azilian deposits

¹ Third Report of the Victoria Cave Exploration Committee (1875), from the *Report of the British Association for the Advancement of Science*, p. 173.

of Europe. (2) A plaque of sandstone, with the plane faces worn slightly concave and obliquely striated like the Magdalenian colour grind-stones

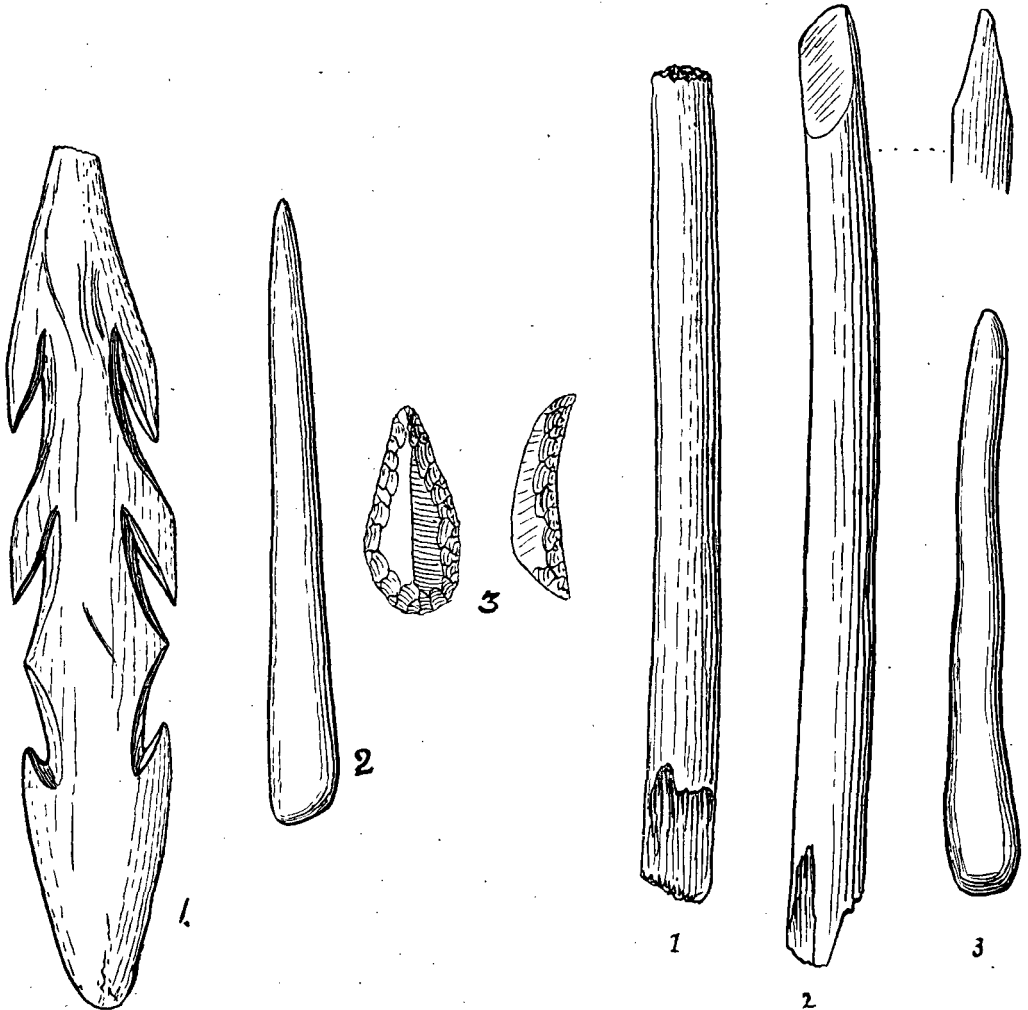


Fig. 8. (1) Azilian harpoon of reindeer horn; (2) Bone borer, probably Azilian (?); (3) Flint implement, perhaps contemporary, from the Victoria Cave (slightly reduced).

Fig. 9. (1) and (2) Cylindrical rods of reindeer horn, with strong lustre and patina, completely fossilised; (3) Bone borer in similar condition, probably Magdalenian, from the Victoria Cave. (?).

and the paint palettes of more recent periods; these striations appear to be due to the working up of ochre powder with a greasy material (fig. 10, No. 6). (3) An analogous fragment, without striations, having

the faces flattened and stained with two bands of ochre parallel to the sides (fig. 10, No. 5). (4) A fragment of an elongated pebble of sandstone,

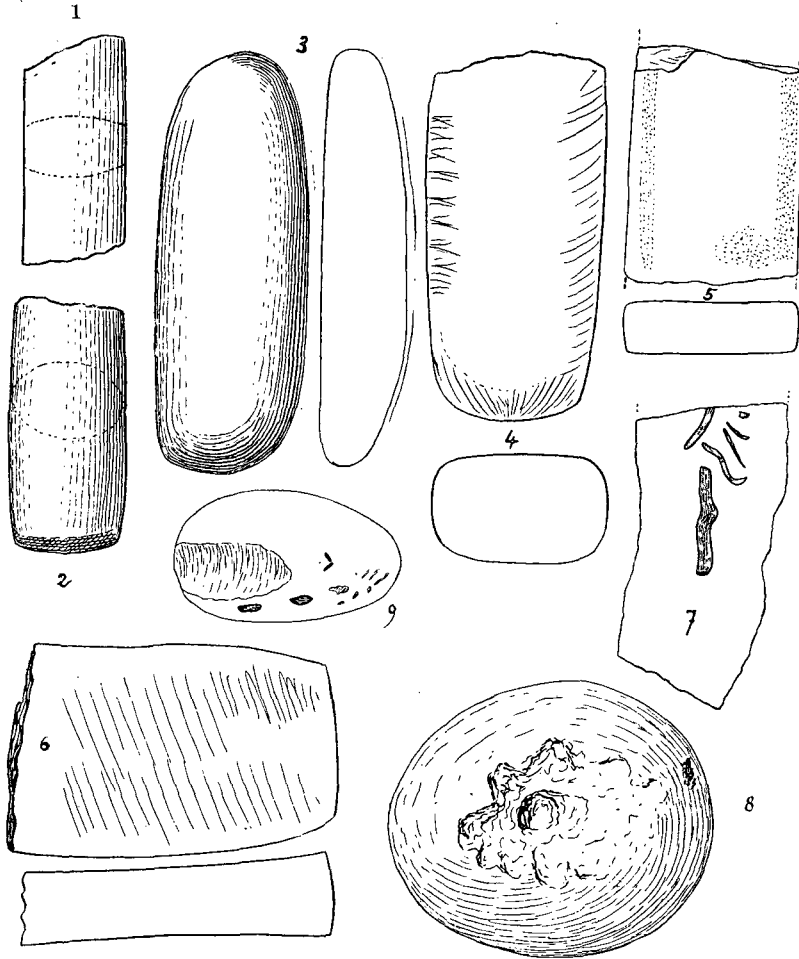


Fig. 10. Implements of Sandstone and Schist, probably Azilian, from the Victoria Cave. ($\frac{1}{2}$.)

Pebble No. 9 shows dashes of colour (ochre); the plate of sandstone No. 7 has been painted with ochre; the plate of sandstone No. 5 shows bands of same colour dotted in, which seem due to the use of the object in the preparation of the colour and not painted intentionally.

with worn convex faces, which may have served as a rasp or sharpening stone (fig. 10, No. 1). (5) An elongated oval pebble, with the ends worn by use into the arc of a circle, which may have served as a pestle for making up colours (fig. 10, No. 3). (6) A fragment of another analogous object, with the ends so worn as to form a transverse facet caused by

harder use (fig. 10, No. 2). (7) An analogous but larger fragment, the preserved end of which, eroded by use, is as much striated as the lateral angles, like a compressing or bruising tool (fig. 10, No. 4). (8) An ovoid pebble, having lost a flake through a blow given by striking with one end, and bearing a certain number of spots of ochre (fig. 10, No. 9). (9) A plaque of schistose sandstone, broken, bearing several lines of red colour made with a brush (fig. 10, No. 7). To sum up, it is the kit of tools of a manufacturer of ochreous colours, belonging in all likelihood to the same period as the harpoon of reindeer horn and a bone bodkin, of tawny patina, split and rounded quite carefully with a flint, and more altered than the Iron Age objects (fig. 8, No. 2). There is another bodkin (fig. 9, No. 3) worked with the same technique, but whose brown patina approaches that of the two broken assegais of Magdalenian type. These latter objects, which I figure for the first time (fig. 9, Nos. 1 and 2), are admirably proportioned, perfectly cylindrical, and made of reindeer horn; their very lustrous patina, yellowish-brown on the one and dark-brown and grey on the other, is not in keeping with a deposit so recent as the so-called neolithic bed; a very sticky grey clay adheres to one of them which, with the glossiness of these two objects and one of the bodkins, indicates as their probable provenance the lower bone layer, where the presence of man, on the other part, is, for want of definitely incised bones, signalled by bones broken by him for the extraction of the marrow, of which one, previously fossilised, is cut with a metal tool, and another scratched by a burrowing animal. There would then be in the Victoria Cave a Magdalenian lower level, and this not the final one, for the terminal bevelling of one of the assegais indicates the use of a point with a forked base which fixes the period. These points with a forked base have been found in association by M. Passemard at Isturitz, Basses Pyrénées, by the Count Begouen at Tuc d'Audoubert (Ariège), and by M. E. H. Pacheco in la Cueva de la Paloma (Oviedo).

These points with forked base belong, save at Isturitz where they are in the most recent Magdalenian levels, to relatively ancient deposits, as much in the Cantabrian caves as at Gourdan (Piette: base of the levels with engravings and harpoons) and at la Madelaine (Peyrony: levels with sculpturings and prototypes of harpoons).

It is well understood that at this time the glacial fauna was still abundant in England; the few human objects in the Victoria Cave testify only to a short halt of Magdalenian hunters. But the presence of an object of reindeer's horn and of the remains of this animal in the higher level prove that the harpoon found there is anterior, both geologically and morphologically, to the Scottish Azilian deposits.

Besides, even in France, harpoons of this form or very like it are always made of reindeer horn.

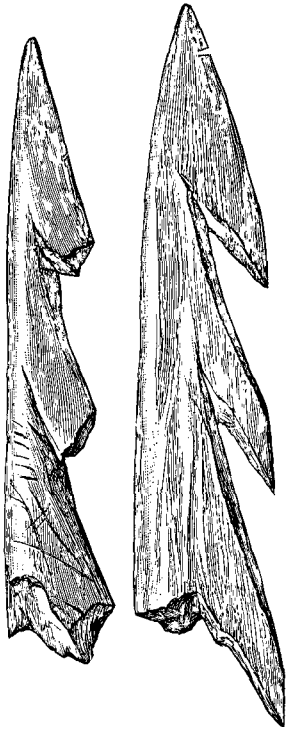


Fig. 11. Bone Harpoons from Druimvaigie, Oban. (4.)

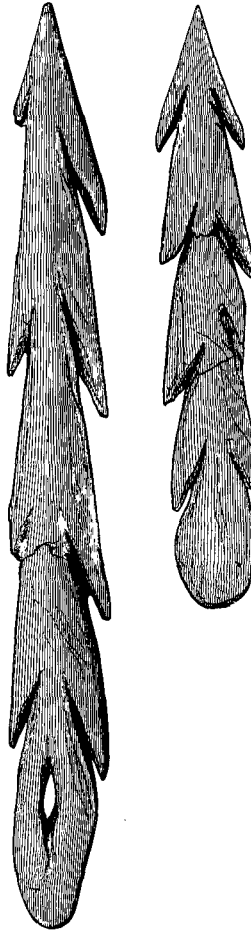


Fig. 12. Deer-horn Harpoons from the MacArthur Cave, Oban. (4.)

The harpoons of the Scottish deposits are distinguished from those of France by the fact that they are commonly made of bone and not of deer-horn. Several differences in detail ought also to be noted. Azilian harpoons with a single row of barbs are very rare in France; they are occasionally found on certain Scottish sites, as at Druimvaigie rock-shelter, Oban¹ (fig. 11). The French harpoons are rarely so long

¹ J. Anderson, "Notes on the Contents of a small Cave or Rock-shelter at Druimvaigie, Oban; and three Shell Mounds in Oronsay," *Proc. Soc. Ant. Scot.*, vol. xxxii, p. 298, figs. 1-2, and 16-18.

as those from Kirkcudbright,¹ Caisteal nan Gillean, and the MacArthur Cave, Oban² (fig. 12). This difference arises, no doubt, partly from the variation of the material first utilised, bone being more solid and more rectilinear than horn of the *cervidae*.

But one of the Oronsay harpoons³ (fig. 13) figured by Mr A. Henderson Bishop departs clearly from the normal Azilian form as

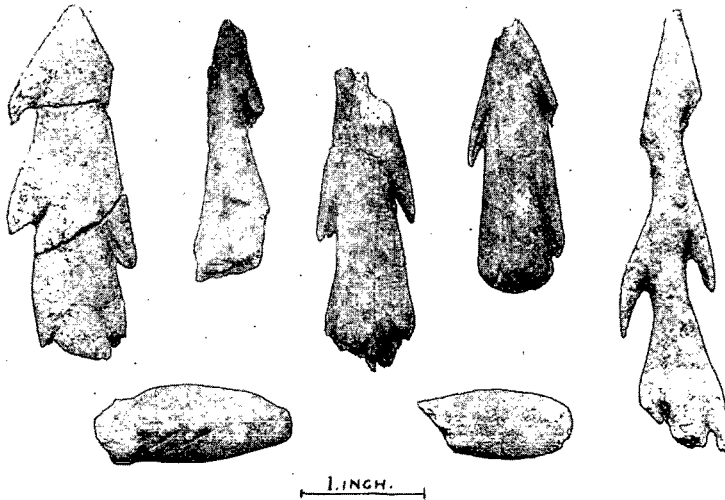


Fig. 13. Bone Harpoons from Cnoc Sligach, Oronsay.

much in its lightness and delicacy of manufacture as in the care with which the long and incurving barbs have been carved.

Is it a question of the local development of a spontaneous type approaching anew Magdalenian forms, or of a different influence coming from some other place and mixing with the Azilian civilisation?

Perhaps, indeed, one may consider the hypothesis of another epipalaeolithic current, which had come from the Baltic, derived from the Maglemosian civilisation. In fact, Professor Boyd Dawkins has recently sent me a photograph of two bone harpoons discovered in Holderness,

¹ R. Munro on the transition between the Palaeolithic and Neolithic civilisation in Europe, *Archaeological Journal*, 1908, vol. lxxv. p. 231, fig. 39, No. 1.

² J. Anderson, "Notice of a Cave recently discovered at Oban," *Proc. Soc. Ant. Scot.*, vol. xxix, p. 223, figs. 11-12.

³ *Proc. Soc. Ant. Scot.*, vol. xlvi, p. 97, fig. 38.

near Hull, Yorkshire: one found under peat at Hornsea, associated with bones of *Cervus elaphus*; the other also found under peat at Skipsea, associated with a skeleton of *Cervus megaceros*. These two harpoons are of Maglemosian type, with numerous short barbs on one side.

An almost similar harpoon has been discovered in France, in a peaty marsh in the neighbourhood of Béthune (Pas de Calais), and is figured by M. Mortillet in the *Musée préhistorique*, pl. xlvi, No. 477. His attribution to a Maglemosian incursion is rendered the more likely, as one can now recognise the work of Maglemosian artists in a series of objects of deer-horn, perforated and decorated with punctulated ornament, published formerly by D'Acy, and coming from Somme turbaries,¹ so that one can give an account of them by comparing them with the Danish relics.²

¹ M. d'Acy, "Marteaux, casse-têtes, et gaines de haches néolithique en bois le cerf ornementés," *L'Anthropologie*, 1893, p. 385 *et seq.*, figs. 1-5.

² P. Wernert, "Figures biomorphes schématiques de l'ancien âge de pierre du Danemark," *L'Anthropologie*, 1920, p. 503. Sophus Müller, "Nouveaux types d'objets de l'âge de la pierre," *Mémoires de la Soc. Royal des Antiquaires du Nord*, 1896-1901 (1897) p. 84-164; traduit par Beauvois, Copenhagen.