

The Stone Age of Palestine

by DOROTHY A. E. GARROD

THE archaeology of Palestine, though far less spectacular than that of its neighbours, Egypt and Iraq, can always rely on a certain public outside the circle of specialists. Even the most uninspiring potsherds, if they are dug up in Jericho or Samaria, are invested with a certain glamour by their association with Joshua or Ahab, and the hope of unearthing the Ark of the Covenant or the tomb of David has inspired more than one forlorn venture. Until recent years, however, the Stone Age of Palestine, which receives no adventitious help from association with the Bible, has suffered from neglect. It is true that a considerable amount of surface material was collected, and the names of Père Germer-Durand, Père Vincent, Père Mallon and Dr Paul Karge stand out as pioneers of prehistoric studies in this region, but until 1925 no systematic excavation had taken place. Ten years ago an article on the prehistory of Palestine would have been a very brief affair; today it is difficult to compress into a limited space all there is to say, so rich has this small country proved in the short time that excavation has been carried out.

There is no need to dwell on the pioneer efforts of Mr Turville-Petre which resulted in the discovery of the Galilee skull; these are well known and have already been published. Nor shall I describe in detail the admirable work done by Monsieur René Neuville on behalf of the Institut de Paléontologie Humaine, since much of his work still awaits publication. I propose instead to describe the results of excavations carried on during six seasons in the Wady al-Mughara (Valley of the Caves) on Mount Carmel by a Joint Expedition of the British School of Archaeology in Jerusalem and the American School of Prehistoric Research. This remarkable site supplies the key to a large section of Palestinian prehistory. Various Palaeolithic stages have been found in other sites, but at the Wady al-Mughara these all fall into place as part of a great sequence of deposits unequalled in this region. To

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describe this sequence is, for all practical purposes, to describe the Stone Age of Palestine from the Upper Acheulean onwards.

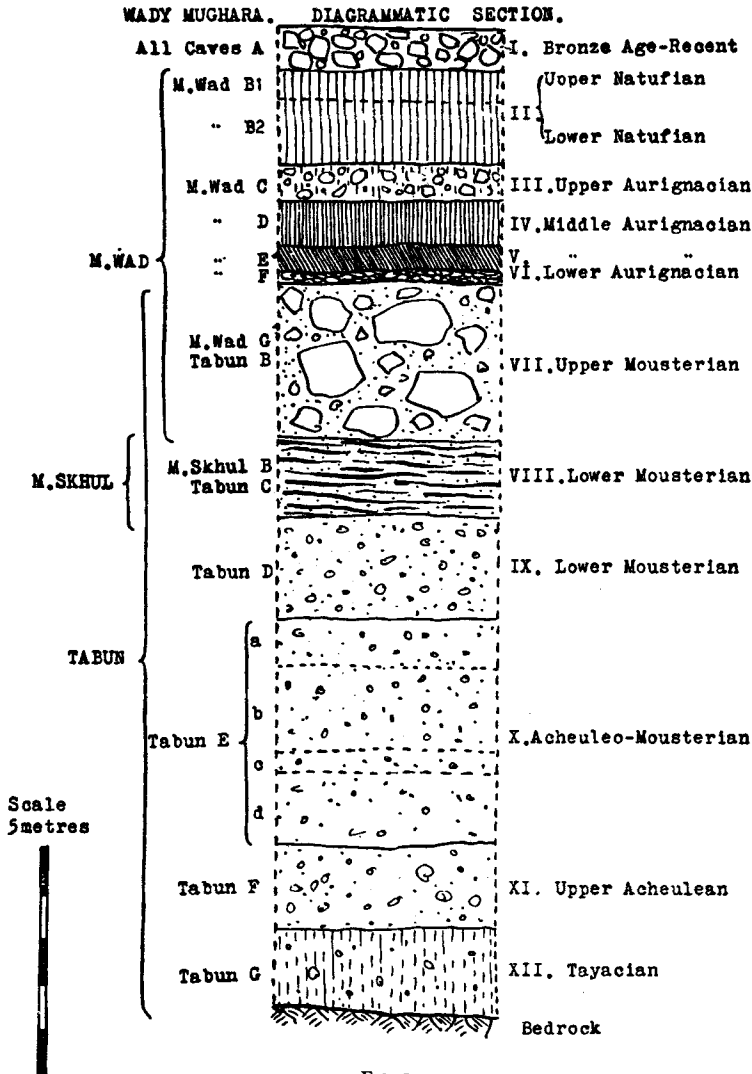


FIG. 1

The Wady al-Mughara lies at the western foot of Carmel, $3\frac{1}{2}$ miles southeast of the Crusaders' Castle at Athlit. (FIG. 6, p. 144). Both sides

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of the valley are riddled with caves, but the only ones of interest to the archaeologist are those which lie in a lofty cliff on the southern side, at the point where the valley opens on to the coastal plain. They are four in number ; the Mugharet el-Wad (Cave of the Valley), Mugharet ej-Jamal (Cave of the Camel), and the Tabūn (Oven), all of which face northwest and command the coastal plain, and the Mugharet es-Skhūl (Cave of the Kids), more a rock-shelter than a true cave, which lies a little way up the valley, apart from the other three.

The Mugharet ej-Jamal has been largely emptied of its deposits at an unknown date, and the traces of prehistoric occupation are too slight to be of value. The other three, however, more than make up for this. The full prehistoric sequence is not present in any one of them, but they overlap and complete each other in a remarkable way. In the Mugharet el-Wad we start at the top with a Mesolithic layer, and go down through several stages of Aurignacian to the Upper Mousterian ; in the Tabūn the Upper Mousterian lies at the top, and the underlying layers are Lower Mousterian, Acheuleo-Mousterian, Upper Acheulean, and finally Tayacian (a rough flake-industry only recently recognized and named). The Mugharet es-Skhūl contains only one Palaeolithic layer, the Lower Mousterian, but this has yielded nine human skeletons of a type closely related to Neandertal.

The detailed stratigraphy of the caves is rather complicated, and as it will be published in due course I do not propose to describe it here. It is sufficient to say that if we add together the average thicknesses of the different prehistoric layers we get a synthetic section roughly 21 metres in thickness ; of this 2 metres represents the Mesolithic, 2.50 metres the Upper Palaeolithic, and 16.50 metres the Middle and Lower Palaeolithic. In describing these levels I shall follow the order of excavation, and begin at the top, passing backwards in time. (FIG. 1).

The top level in all the caves is very stony, and contains remains of all ages from the Early Bronze down to modern times, without any trace of stratification. Immediately below this in the Mugharet el-Wad comes the Mesolithic layer, which is very rich in material.

The Mesolithic of Palestine, for which the name Natufian has been accepted, while undoubtedly related to the Tardenoisian and other microlithic industries, has a strongly marked individuality, especially in its older stages. The Upper Natufian is somewhat uninteresting ; it is marked by an abundance of microlithic lunates, micro-burins, and rather rough sickle-blades, with occasional notched arrow-heads. In the Lower Natufian the flint implements are slightly larger, and much

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better made. The sickle-blades are neatly squared at the ends, and care is taken that the cutting-edges shall be as straight as possible. Microburins are very rare, and arrow-heads completely absent. A large number of implements of all types, including lunates and sickle-blades, do not show the ordinary blunted-back technique, but instead have their backs sharpened by careful retouch from both faces. There is no doubt that this is meant to facilitate setting in a grooved haft. (FIG. 2).

Although the flint industry of the Lower Natufian is decidedly attractive, the thing that gives this industry its distinctive character is the presence of a large number of objects carved out of bone or stone. (FIG. 7). In the Mugharet el-Wad we found bone pins, pendants, fragments of harpoons, and a number of bone blades grooved down one edge. The latter we interpreted as fragments of sickle-hafts, and this was presently confirmed by the discovery of a piece of rib with two flint blades still in place. The Natufians were also artists of some merit. From the Mugharet el-Wad come two carvings; one in bone of a young deer with head thrown back in the attitude of sucking, the other, in calcite, a small human head, rather roughly executed. These finds were supplemented in a remarkable way by discoveries made in 1931 by Mr Turville-Petre, who was excavating on behalf of our Expedition a cave lying 10 miles south of the Wady Mughara, near the colony of Zichron Jacob. This is the Mugharet el-Kebara, and in it Mr Petre found a very rich Lower Natufian layer which yielded a quantity of bone pins, harpoons, fish-hooks, pendants and two superb grooved sickle-hafts with animal heads carved on the handles—one apparently a goat, the other indeterminable. Two more heads—one of a deer, the other, some kind of bovine creature—have probably been broken off similar hafts. M. Neuville has recently found a very fine piece of sculpture in a Lower Natufian layer in the cave of Umm ez-Zuweitina, near Bethlehem. This is carved in the round in grey limestone, and represents a deer with legs drawn up under the body and neck stretched forward. The head unfortunately is missing, owing to an old break, and has not been recovered.

Well-made vessels of limestone or basalt are fairly common in the Lower Natufian, and are accompanied by cylindrical basalt pestles, some of which are stained with ochre.

Our discoveries at the Mugharet el-Wad threw considerable light on the burial customs and physical type of the Natufian peoples. Remains of more than fifty individuals were found, most of them on the terrace of the cave. Sir Arthur Keith considers that they belong

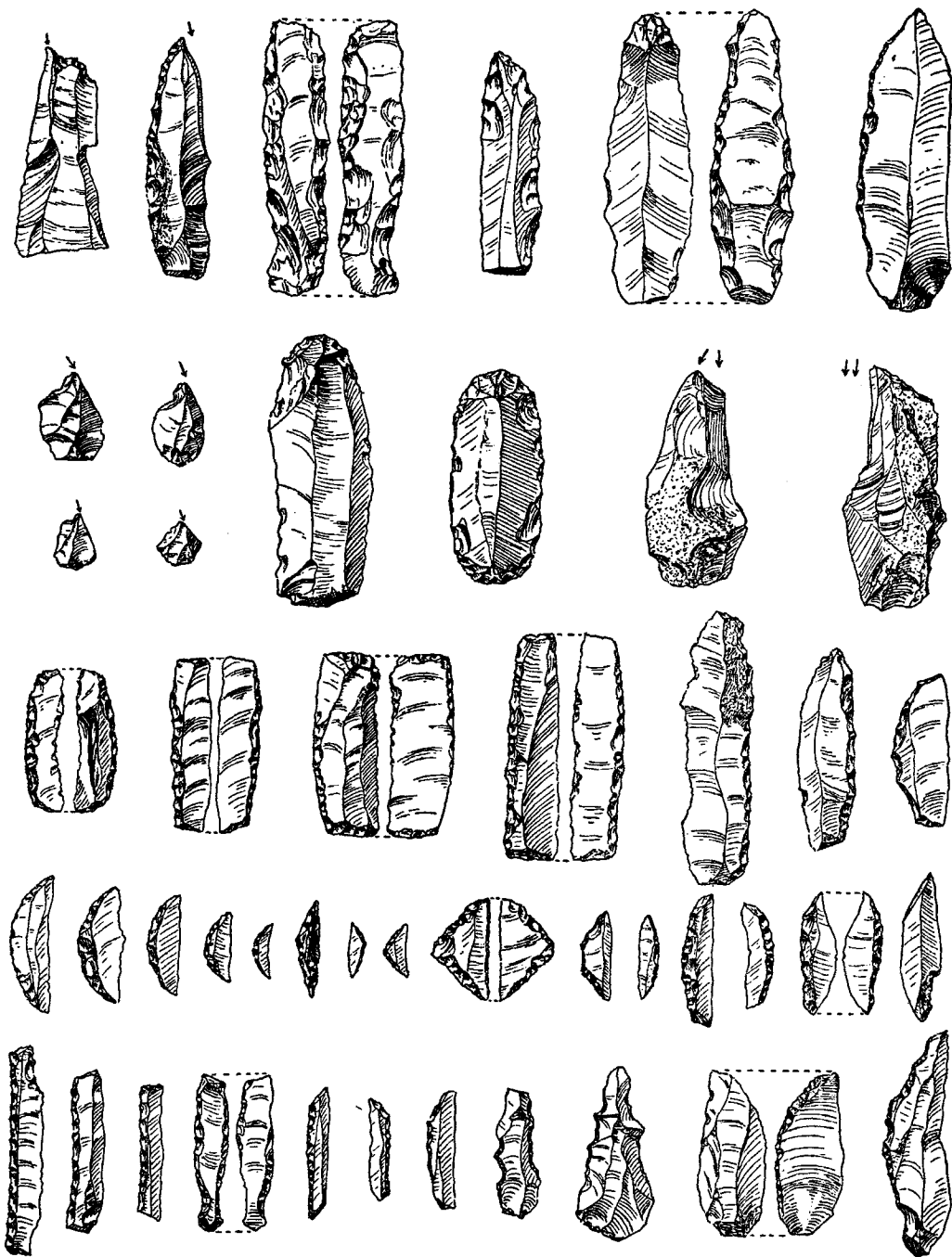


FIG. 2. FLINT IMPLEMENTS FROM LEVEL B2 MUGHARET EL-WAD, LOWER NATUFIAN

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to a short, long-headed race, resembling the pre-Dynastic Egyptians. In the majority of cases the body lay on the right or left side, indifferently, with the legs drawn up. Inside the cave, however, the bodies were all extended, and lying on the back. All burials, whether flexed or extended, were packed into place with blocks of limestone, possibly to prevent the ghost from walking. Five of the skeletons wore caps or circlets of dentalium shells, which were still almost perfectly in place, and two of these also had necklaces of bone pendants.

The observations of M. Neuville, Mr Turville-Petre and myself all go to show that no pottery is associated with the Natufian; it can therefore be truly described as Mesolithic, even though the presence of sickles points to the existence of some form of agriculture. It is possible, however, that in Palestine, where no true Neolithic has yet been found, the end of the Mesolithic does not precede by very long the Early Bronze Age, and in that case the last stages of the Natufian may not be much older than 3500 B.C., though the Lower Natufian probably goes considerably further back. In the opinion of Miss D. M. Bate, the animal remains from the Natufian of the Mugharet el-Wad and of Kebara point to a comparatively early date, and she finds no trace of the domestication of the ox and horse.

Always proceeding downwards we now come to the Upper Palaeolithic. We found in the Mugharet el-Wad remains of four stages of the Aurignacian, the total thickness of the Upper Palaeolithic layers being 2.50 m. The Upper Aurignacian of this region (which is not comparable with the Upper Aurignacian of Europe and is probably contemporary with the Magdalenian), was found in Layer Wad C, immediately underlying the Lower Natufian. It is a crude industry, which does not compare very closely with any other known Upper Palaeolithic stage. The curved flint knives of Chatelperron type at first sight suggest a connexion with the Capsian of North Africa, but the associated tools do not bear this out. By far the most abundant is the core-scrapers, generally rather rough, and next to this, the prismatic graver. In this one layer, which did not occupy a very large area in the cave, thousands of these scrapers and graters were found, as compared with barely a hundred Chatelperron points. (FIG. 3). Animal bones were abundant, but there were no bone tools, and human remains were confined to a fragment of a lower jaw.

Layer Wad D was subdivided into D1 and D2, but in fact the industries found in these two divisions resemble each other very closely, the chief difference being that in D2 the implements are better finished,

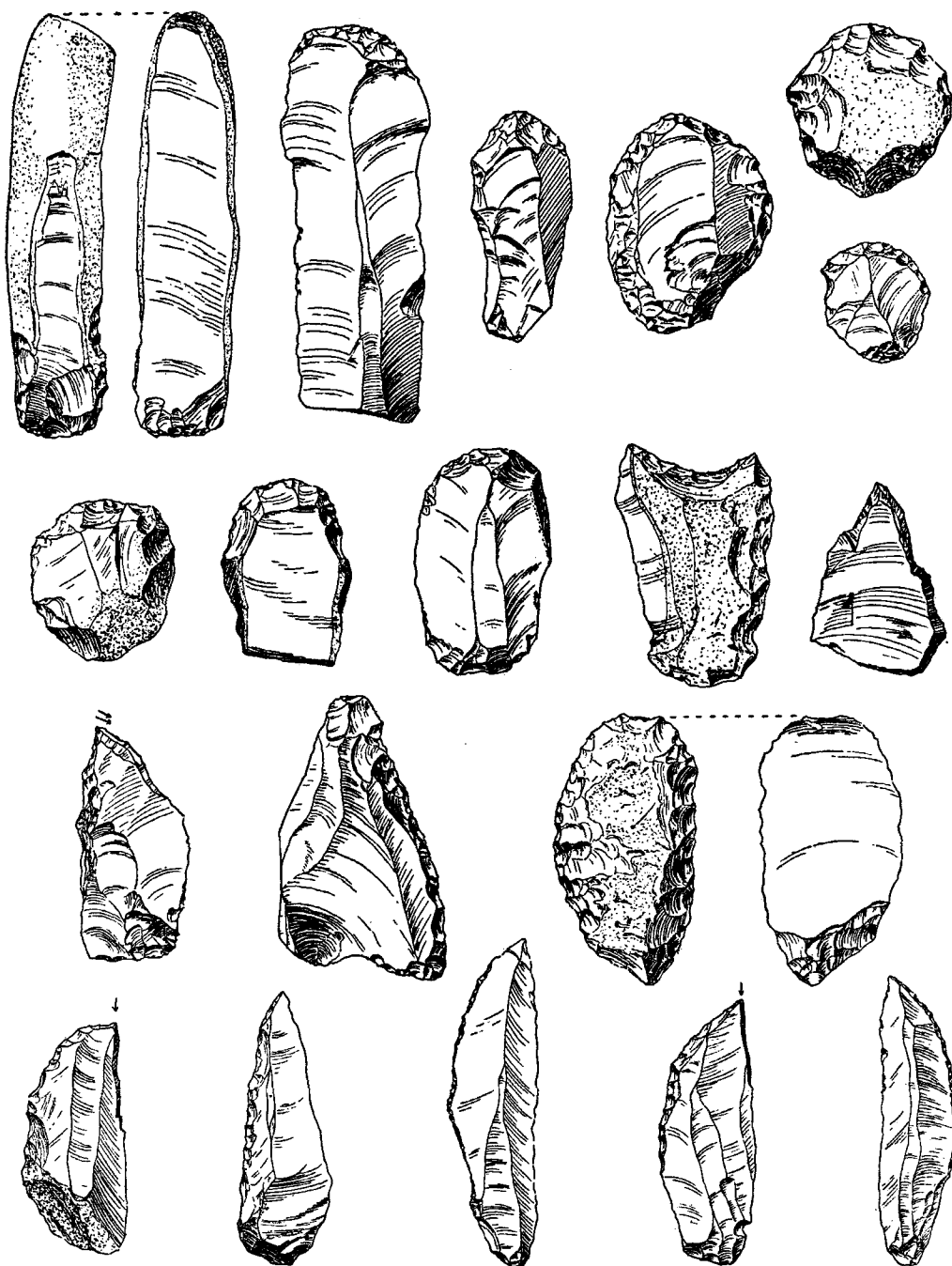


FIG. 3. MUGHARET EL-WAD: UPPER AURIGNACIAN, LAYER C

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and show more clearly defined types. Layer D provided one of the surprises of the Wady Mughara. On general grounds it seemed likely that one might look for African influences in the Palaeolithic of Palestine, since geographically it can almost be considered an extension of Egypt; moreover, as we have seen, the curved points of Wad C had already suggested a possible Caspian connexion. The industry of D however resembles as closely as possible the Middle Aurignacian of Europe, a stage which was considered until fairly recently to be a development *in situ* of the Lower Aurignacian, at a time when Europe was closed to North African influences. The presence of a flourishing industry of Middle Aurignacian type in the Near East suggests that the part played by Oriental influences in the Upper Palaeolithic has been overlooked up to the present in favour of what M. Vaufreycy has described as a *mirage africain*. (FIG. 4).

The Aurignacian of Wad D yielded beautifully made rostrate scrapers with fluted retouch, carinated and end-scrapers, graters of all kinds, including the busqué type, and blades and points worked all round with the broad flat retouch so characteristic of the Middle Aurignacian. No bone tools or weapons were found, and this was rather surprising, as in Europe the bone 'split-base' point or *pointe d'Aurignac* is absolutely typical of this stage. A possible explanation offers itself. The very large amount of charcoal found in this layer suggests that wood was readily obtainable; in Western Europe, on the other hand, the conditions produced by the second maximum of the Würmian glaciation were unfavourable to the growth of trees. May not the Aurignacian people of Palestine have been in the habit of using wood for many of the purposes for which their European kinsmen used bone? The *pointe d'Aurignac*, in particular, with its technique of splitting the base instead of cutting it into a fork, is a form that may well have been copied from a wooden prototype.

Layer Wad E (FIG. 5) also contains an industry of Middle Aurignacian character, but belonging definitely to an earlier type than that of D. It is marked by broad end-scrapers and round scrapers, the rostrate form being rare. A characteristic implement is a small finely retouched sharp flint point; this is already well-known from Krems in Lower Austria, and from Font-Yves near Brive, and I have named it the Font-Yves point. Both these sites are considered to belong to an early stage of the Middle Aurignacian, and the position of Layer E in the Mugharet el-Wad confirms this. A few bone points were found in E; these are made from a metacarpal or metatarsal of goat or gazelle, with

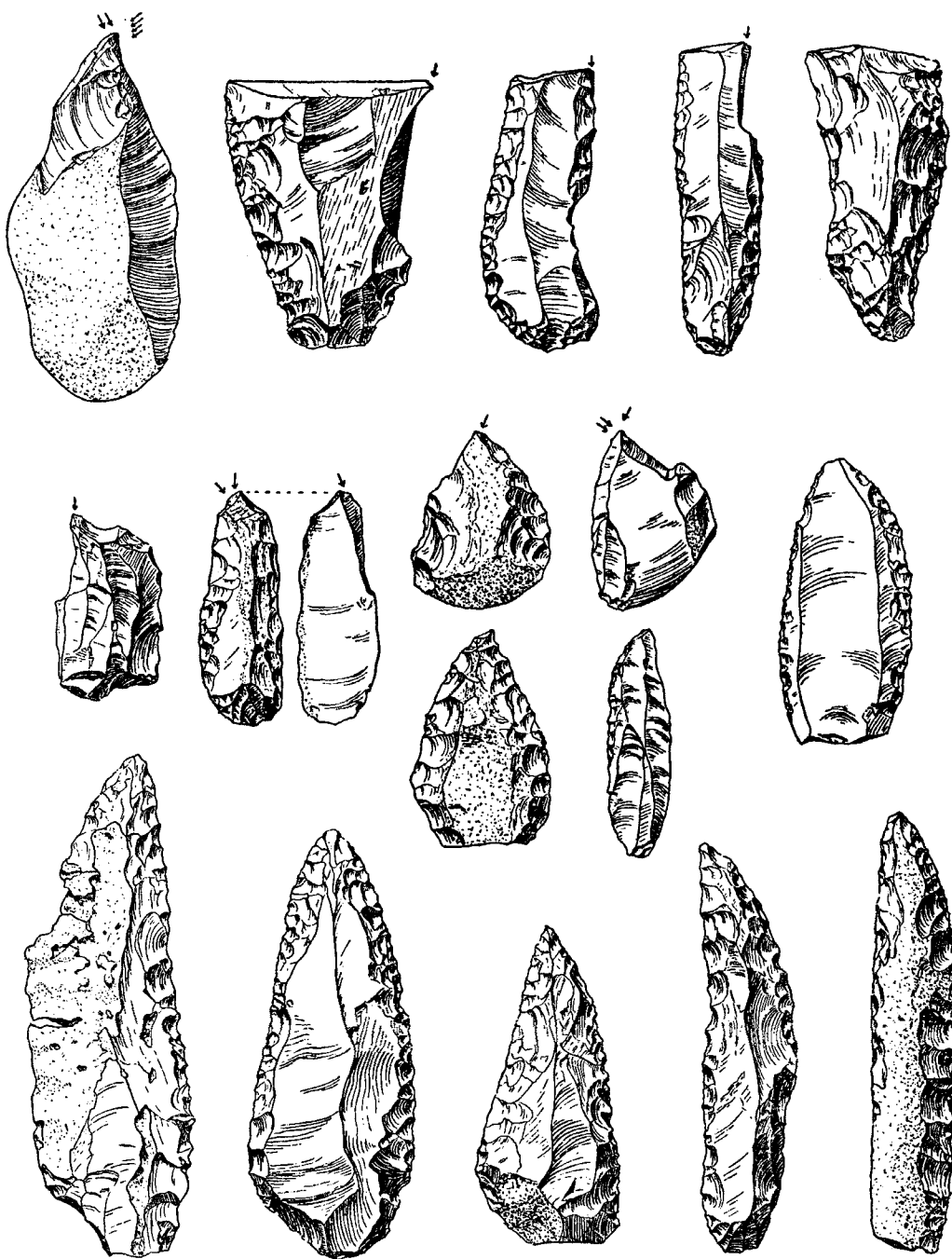


FIG. 4. MUGHARET EL-WAD : MIDDLE AURIGNACIAN, LAYER D

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the articular surface of the distal end left untouched. Two human jaws and some skull fragments were found in this layer, and according to Keith they do not differ markedly from the Natufian type.

Layer F contains an industry which I believe to be the earliest Aurignacian of this region. Unfortunately the layer had been much disturbed by water action, and considerable admixture had taken place with the underlying Mousterian bed. It is not difficult, however, to separate the material which belongs to the Upper Palaeolithic level proper, and although not very striking in appearance it is of considerable interest. The graters from F are massive, and a number of double-ended specimens show a peculiarity which is rare in the overlying layers. The graver-facets from both ends break short abruptly, leaving a projecting 'stop' or bar about half-way down the side of the tool. In addition to the graters there are end-scrapers, some very small and delicate. The most important feature however is a small group of leaf-shaped points, with careful retouch at the base of the bulbar face. Here at last is a definite link with Africa; these points are unknown in Europe, but they occur in the Aterian of North Africa, though I am not aware that they have ever been described. Mr Burkitt having drawn my attention to a well-made, perfectly typical specimen in the Cambridge Museum from the Aterian station of Tabelbalat, in the Sahara, I have named this implement the Tabelbalat point. I do not think that the industry of Wad F can itself properly be called Aterian, since the typical tanged point is missing, but the presence of Tabelbalat points is a definite link with the Aterian, and confirms the position of this culture at the base of the Upper Palaeolithic, already demonstrated by Miss Caton-Thompson as a result of her work at Kharga.

The fauna of the Aurignacian layers of the Mugharet el-Wad has been studied by Miss Bate, who considers that it indicates a change from a wooded to a more open country in the course of the Upper Palaeolithic, for while in the lower layers *Dama Mesopotamica* occurs with gazelle, at the top of the deposit gazelle, a typical desert dweller, is more plentiful than any other species.

Underlying Layer Wad F is the Upper Mousterian deposit, which rests on the bedrock of the cave, but it has been much disturbed by water action, owing to the presence of a spring at the back of the cave, and many of the flints are heavily abraded. In the Tabūn, on the other hand, the Upper Mousterian layer is very thick, and completely undisturbed, and provided a much better illustration of this stage.

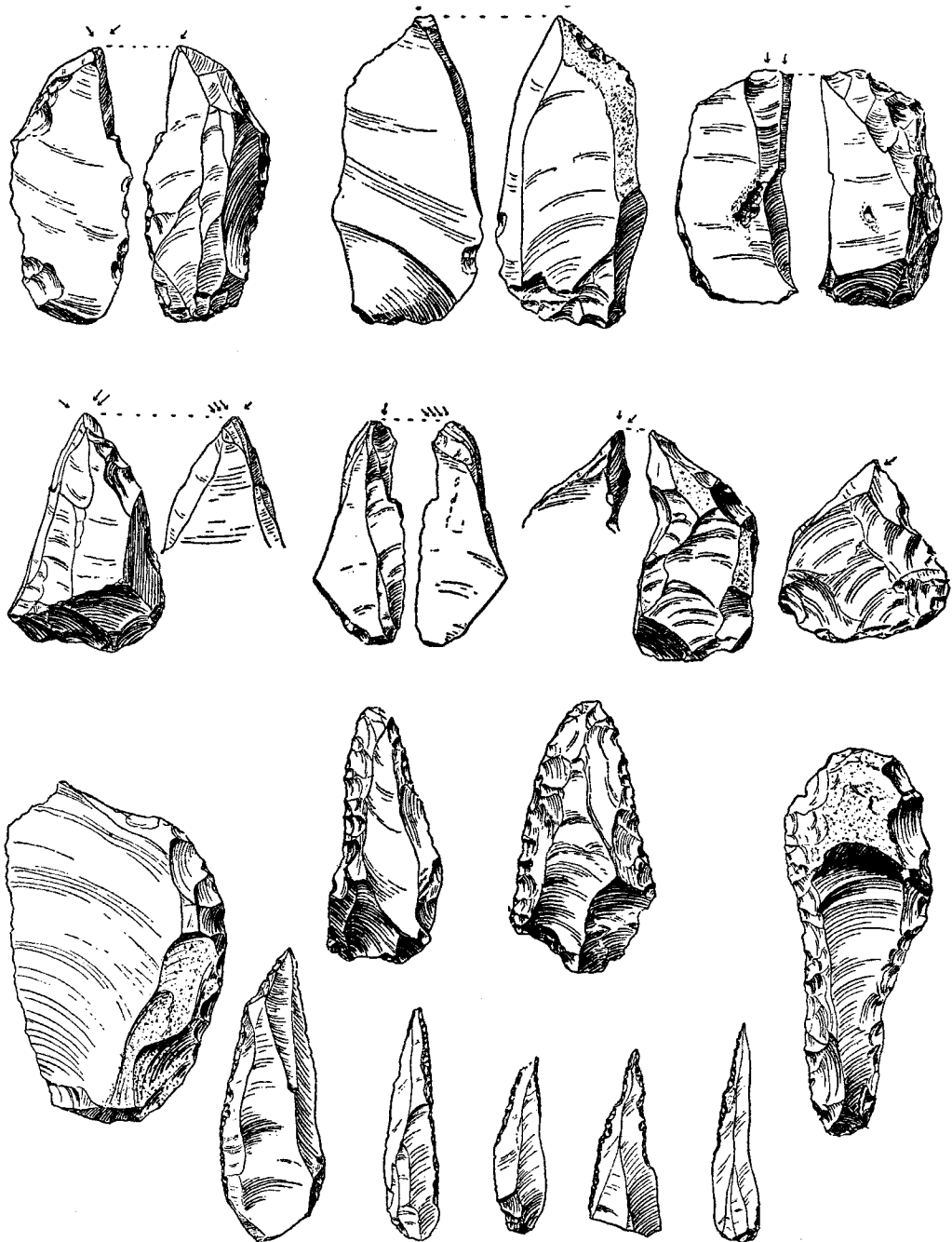


FIG. 5. MUGHARET EL-WAD: MIDDLE AURIGNACIAN, LAYER E

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Before excavation the Tabūn appeared to be quite small, and I thought it might be possible to finish it in one season. It has turned out, however, to be the largest cave of the group, with a very great thickness of deposit.

Layer A was uninteresting, containing much less material than Layer A in the Mugharet el-Wad. The sherds range from Early Bronze to modern Arab, and a small number of Natufian flints were found. This site was not inhabited in Upper Palaeolithic times, and immediately below A we get the Upper Mousterian in Layer Tabūn B. That differs considerably from the Upper Mousterian of Europe. It is definitely in the Levallois tradition, with numbers of small triangular and oval Levallois flakes. (FIG. 8). The points and scrapers have a very beautiful flat retouch, and resolved flaking is rare. Gravers occur in small numbers, and some of these are indistinguishable from Aurignacian forms. The animal remains in this layer consist almost entirely of two species of deer; *Dama Mesopotamica*, which is very abundant, and a species of red deer, and this fauna points to forest conditions, with a considerable rainfall.

Layer Tabūn C I have placed in the Lower Mousterian, because, for reasons which I shall explain later, I believe it to date from the latter part of the Riss-Würm interglacial. We are still in the Levallois tradition, and the most typical and abundant form is the oval Levallois flake, often of very large size. Triangular flakes are very rare, and in relation with this is the fact that points are much less abundant than scrapers. A small number of gravers was found, and some of these are indistinguishable from Aurignacian specimens.

The fauna of Tabūn C is very abundant, and points to warm swampy conditions, with a heavy rainfall. Miss Bate has identified rhinoceros (allied to *Rhinoceros hemitoechus*), hippopotamus, crocodile and a very large fresh-water tortoise.

A nearly complete human skeleton was found in the upper part of the layer, and 90 cm. below it, at the base, was a well-preserved lower jaw. The skeleton is of a type closely related to the Neandertal, but with certain well-marked peculiarities. It belongs to a small person, almost certainly a woman, and has a low cranial capacity. The frontal torus is very massive, and the mandible is shallow and receding, with no trace of a chin. The mandible found at the base of the layer, on the other hand, is deep and has a well developed chin, and at first sight presents a striking contrast to the other. Sir Arthur Keith, however, having regard to the characters of the teeth and other details, considers that the two represent extreme variations of the same race.

PLATE I

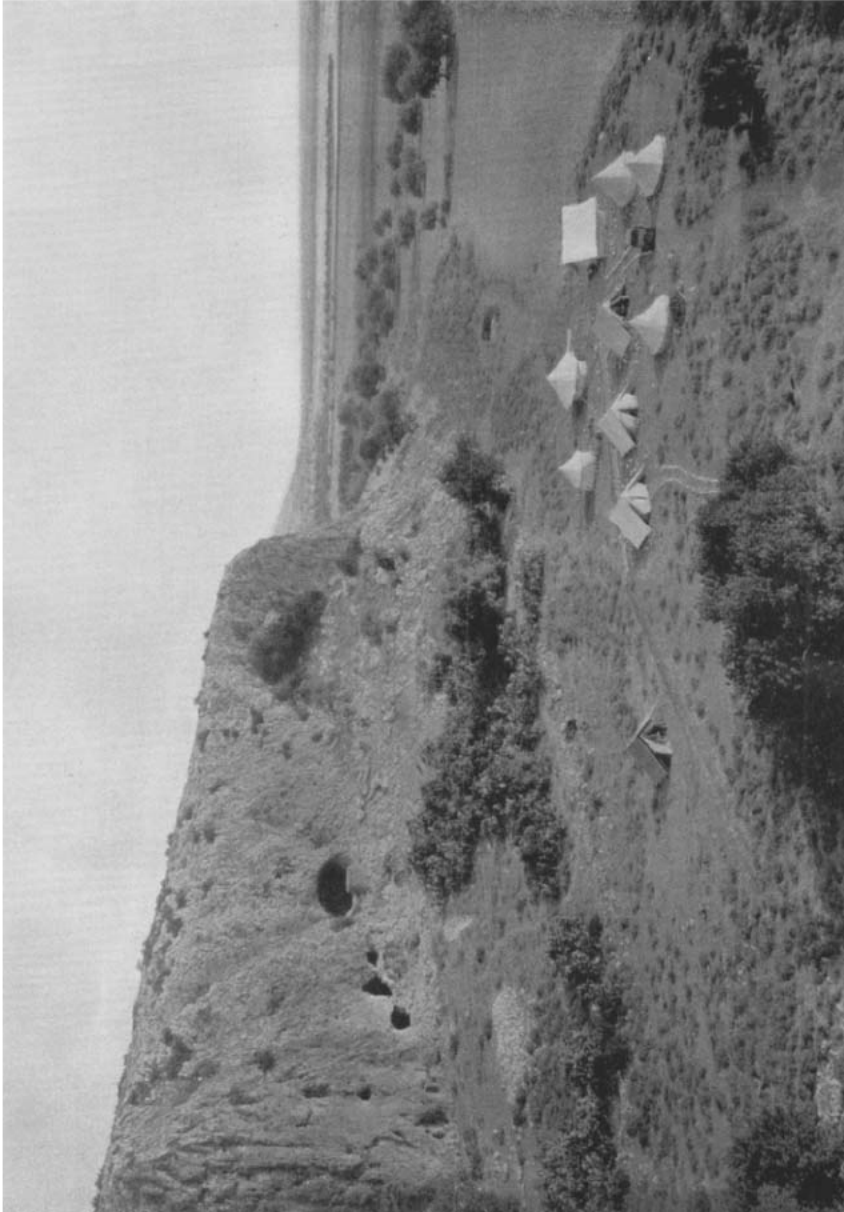


FIG. 6. WADY AL-MUGHARA; GENERAL VIEW LOOKING SOUTH

PLATE II



FIG. 7. SICKLE-HAFTS, LOWER NATUFIAN, MUGHARET EL-WAD

PLATE III

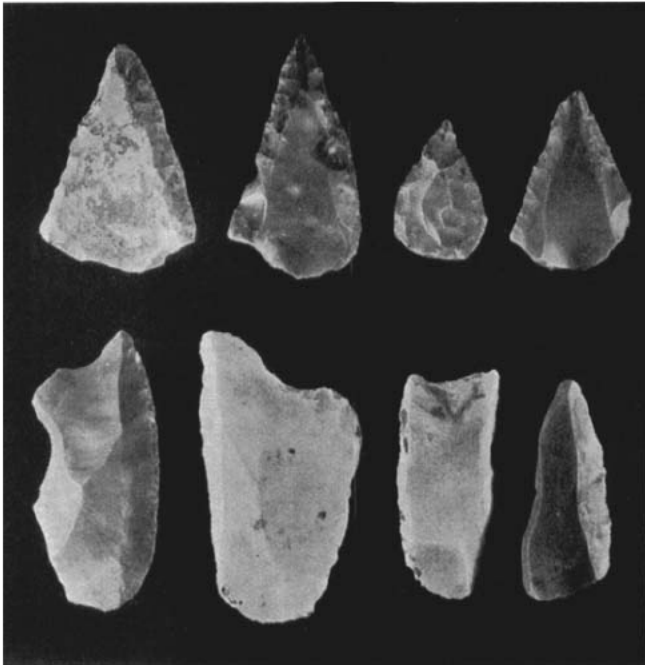


FIG. 8. TABŪN: UPPER MOUSTERIAN, LAYER B
POINTS AND SCRAPERS

PLATE IV

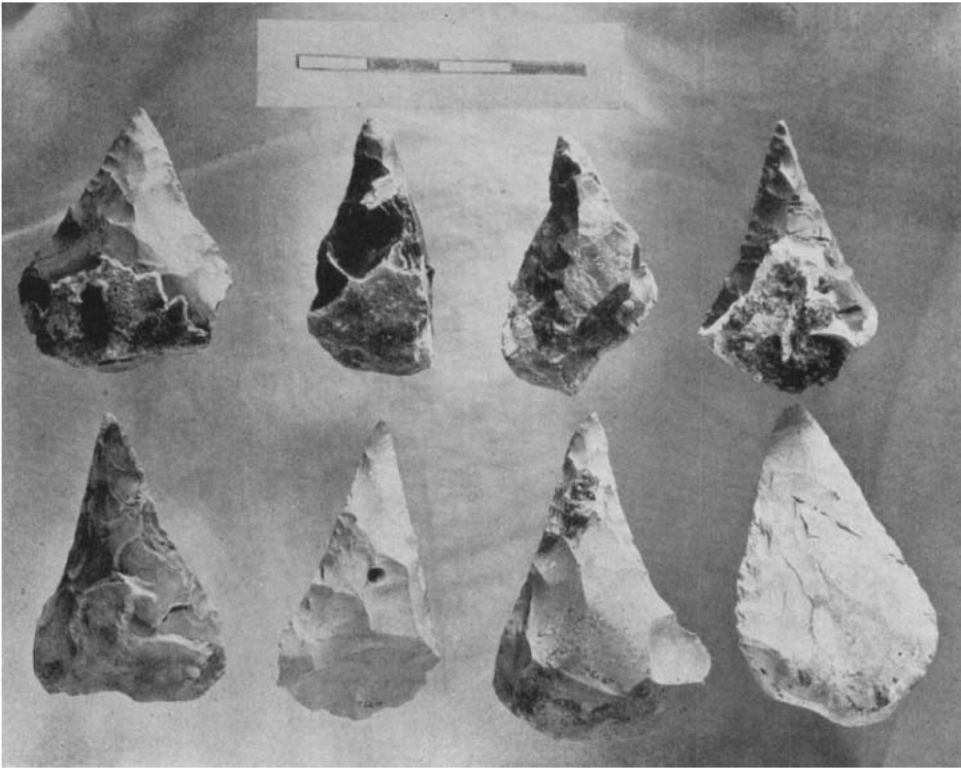


FIG. 9. TABŪN: ACHEULEO-MOUSTERIAN, LAYER E₂
HAND-AXES OF LA MICOQUE TYPE (scale cm.)

PLATE V

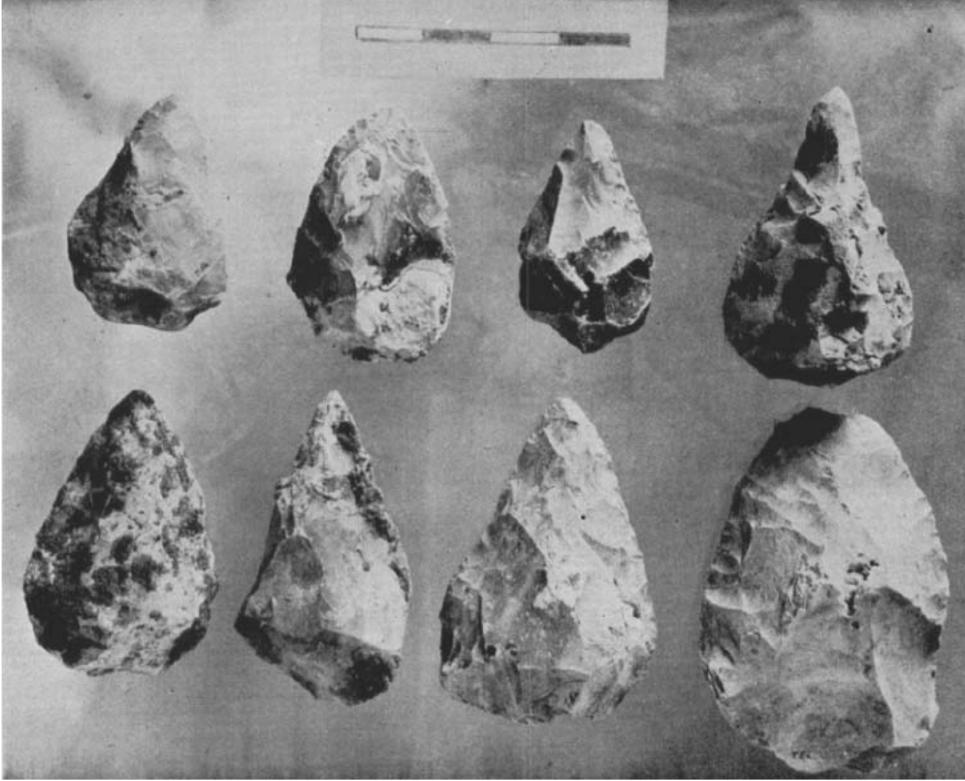


FIG. 10. TABŪN: ACHEULEO-MOUSTERIAN, LAYER E₀
HAND-AXES (scale cm.)

PLATE VI

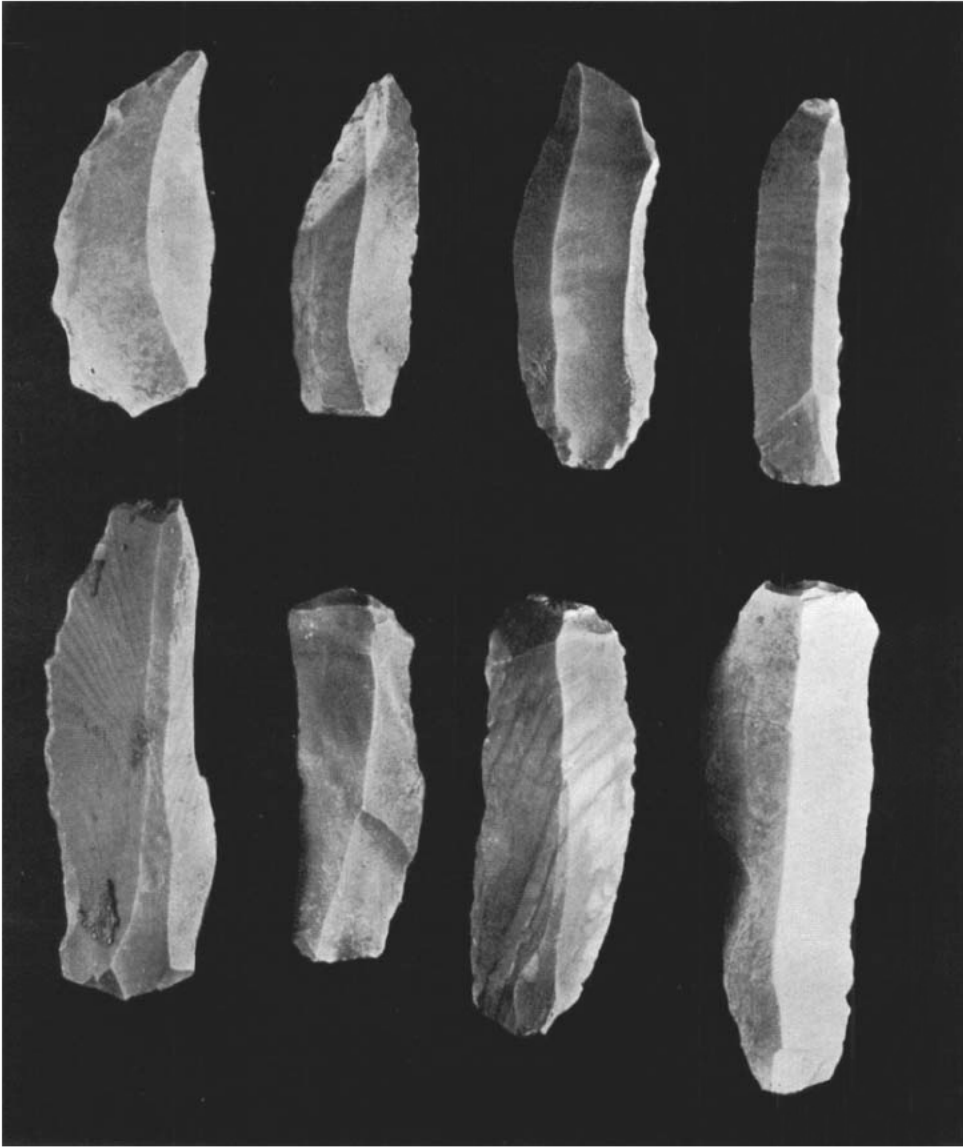


FIG. 11. TABŪN: ACHEULEO-MOUSTERIAN, LAYER E_B
POINTS AND END-SCRAPERS OF UPPER PALAEO-LITHIC TYPE

PLATE VII

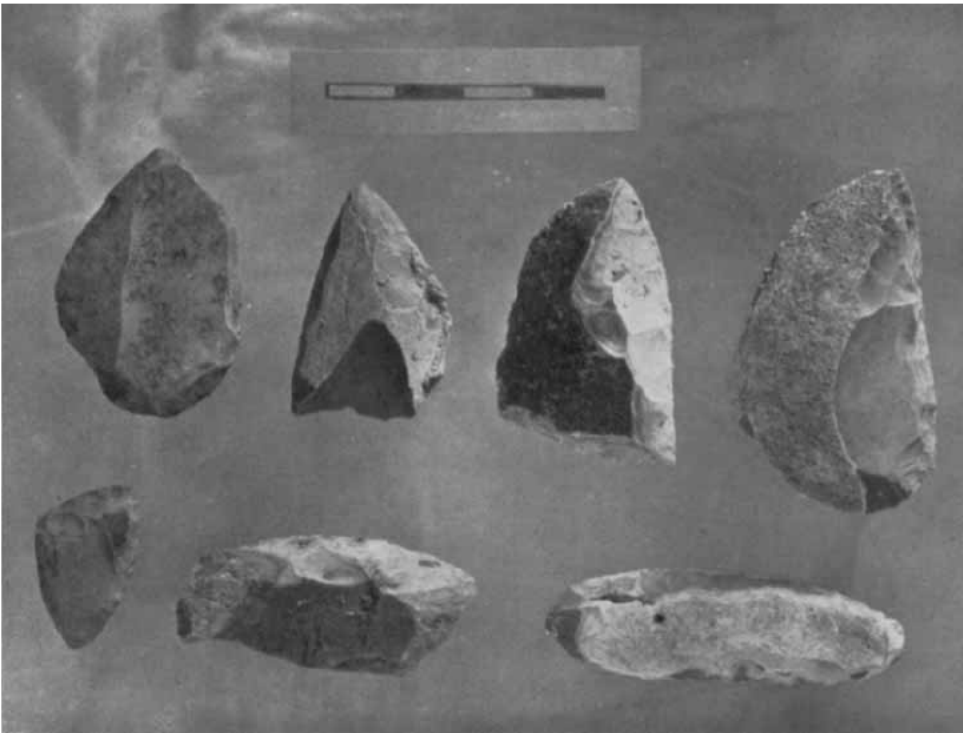


FIG. 12. TABŪN: ACHEULEO-MOUSTERIAN, LAYER E_B
SCRAPERS, UPPER PALAEOLITHIC TYPE (scale cm.)

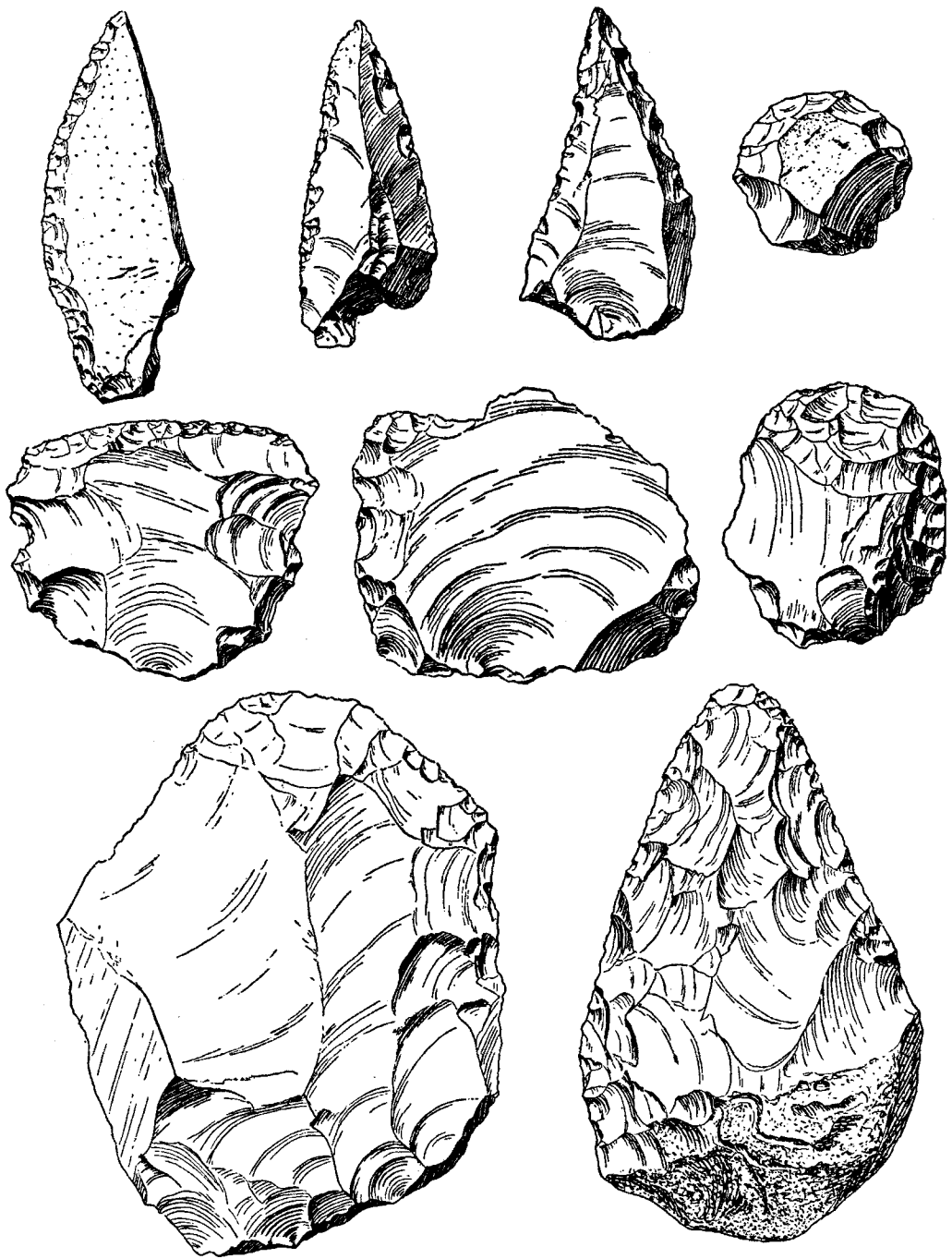


FIG. 13. MUGHARET ES-SKHUL: LOWER MOUSTERIAN

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Here I must refer to the Mugharet es-Skhūl, since the single archaeological layer present in that site corresponds to Tabūn C. (FIG. 13). The excavation of the Mugharet es-Skhūl was entrusted to Mr T. D. McCown, of the American School of Prehistoric Research, and in the course of two seasons (1931-2) he unearthed the remains of nine individuals, lying at the base of the layer, close to the bedrock, and enclosed in an intensely hard bone-breccia. Three of these skeletons (two of adults and one of a child) have been sufficiently cleared to allow some idea to be formed of their physical type, but it is still doubtful whether they belong to the same race as the Tabūn skeleton and mandible. Both the adult skeletons have mandibles with well-developed chins, and well developed skulls with a fairly high vault, in contrast with the low-pitched skull and chinless mandible of the Tabūn skeleton.

The fauna of the Mugharet es-Skhūl is substantially the same as that of Tabūn C, with the addition of a single tooth of wart-hog, which confirms the conclusions as to climatic conditions already based on the presence of rhinoceros and hippopotamus, and shows that the way was open for an interchange of species with Africa.

To return to the Tabūn; the layer underlying C—Tabūn D—contains an industry of Levallois tradition, which is not unlike that of Tabūn B. The triangular flake is much more abundant than in C, and in consequence there is no marked disproportion in the number of points and scrapers; at the same time, the broad flake is much smaller than in C. A fair number of points have retouch on the bulbar face, and some of these approximate to the Bambata and Still Bay types.

The fauna of D is much less abundant than that of C, but it seems to point to similar conditions, both rhinoceros and hippopotamus being present. At the same time the other species present are very varied, and seem to call for a varied topography. Miss Bate suggests that there must have been permanent rivers of some size, with the low country consisting of open grassy plains and bordered by wooded hills; a great contrast with the Palestinian landscape of today.

The three layers I have just described, Tabūn B, C and D, although they undoubtedly cover a long period of time, contain flint industries that are fundamentally alike. All belong to the Levallois tradition, and they differ from each other mainly in such matters as the size of the implements, and the relative abundance or scarcity of certain types. With the transition from D to E comes a complete change. In the place of the scrapers on flat flakes with prepared striking platform, we get a very large number of thick scrapers with resolved flaking, the majority

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made on flakes with plain striking-platform, in some cases of definite Clactonian type. There is a great variety of shapes ; pointed, elliptical, fan-shaped, triangular, etc. Associated with these are hand-axes, the majority pear-shaped, and often rather rough. Hand-axes are not unknown in Tabūn B, C and D, but they are extremely rare, and in some cases have the appearance of being derived from other levels ; in Tabūn E, on the other hand, the proportion of hand-axes to scrapers is about 10 per cent.

Layer E is very thick, and has therefore been subdivided into Ea, Eb, Ec and Ed, but the differences between these divisions are in most cases not very marked. On the whole Ea contains the largest and best-made implements, Ed the smallest and least well-made, but the transition is gradual, Ec, however, is marked out from the others by the character of its hand-axes. In Ea, Eb, and Ed the hand-axes are generally pear-shaped and on the whole rather roughly made ; in Ec we get hand-axes of true Micoquian type, broad at the base with fine tapering points, often excessively sharp. (FIG. 9).

I have named the industry of Layer Tabūn E, Acheuleo-Mousterian, though I am not entirely satisfied with this label. The flake-industry is certainly Mousterian of a kind ; it is reminiscent of High Lodge, though probably later in time, and must lie somewhere on the line which leads from the true Clactonian to the Mousterian of the French caves. The hand-axes are generally rougher than those of the true Acheulean (FIG. 10), and the majority have undoubtedly been made with a stone hammer, but the presence of a characteristic Micoquian horizon is a definite link with the final stages of the Acheulean, and I see no reason to suppose that it is not roughly contemporary with the Micoquian of Europe. The Acheuleo-Mousterian of the Tabūn must I think be added to that group of industries rather unsatisfactorily labelled pre-Mousterian which appear in the course of the Riss-Würm interglacial (for instance, Ehringsdorf, Krapina, Grimaldi) and which are more or less ancestral to the typical Mousterian of the first Würmian maximum.

A very interesting feature of Tabūn Eb is the presence of a group of implements of Upper Palaeolithic type. (FIGS. 11-12). These include Chatelperron points, end-scrapers and graters, and a whole series of narrow blades with nibbling retouch of the edges. There can be no doubt that these implements are perfectly in place ; the great thickness of the overlying deposits rules out any possibility of their being a later intrusion. The whole technique of their manufacture is in marked contrast to that of the typical implements of this layer, and I consider them to be due to contact with a very early Aurignacian rather

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than a development *in situ* of the Acheuleo-Mousterian industry. Dr Leakey has found Acheulean tools associated with a primitive form of Aurignacian in East Africa in a deposit older than that of the Tabūn, and there seems to be no doubt that the origins of the Upper Palaeolithic must be sought a very long way back. Part of the shaft of a human femur was found in Tabūn Ea. It does not give us much information about the individual to whom it belonged, but as far as can be judged it is of Neandertal rather than of modern type.

The fauna of E is less abundant than that of the upper layers, and the remains collected cover only Ea and Eb. The reason for this is that the deep levels have only been reached in a trench which does not extend to the walls of the cave, and has therefore missed the area close to the rock where bone is usually best preserved. When the trench is extended next season I hope to add considerably to the fauna of the deep layers. Up to the present the great majority of remains belong to fallow deer, though ox and gazelle are also represented. No rhinoceros or hippopotamus has been found. This fauna suggests a wooded habitat, but Miss Bate reserves her opinion, as the collection of bones is small.

The industry of Layer F, I consider to be true Upper Acheulean. The hand-axe predominates all through, and towards the bottom scrapers and points become more and more uncommon. The hand-axes are on the whole better made than those of E, and there are one or two true ovates, though the pear-shape still predominates. The true La Micoque type is very rare.

No fauna has yet been found in F, but as in the case of Ec and Ed, I hope this may be remedied next season.

Underlying F is our oldest layer, Tabūn G, which rests immediately on the bedrock. This contains an industry of miserable appearance, almost entirely composed of small utilized flakes, the majority with plain striking-platform. There are no hand-axes, and very few of the flakes show secondary working. It is closely comparable with that found by Peyrony in the middle layers of La Micoque, well below the level of the Micoquian hand-axes. Breuil considers this industry to be derived from the Clactonian, and has named it Tayacian. He places Tayacian I at the end of the Mindel-Riss interglacial and Tayacian II at the beginning of the Riss-Würm. Tabūn G appears to correspond to Tayacian II, and its position in the sequence at the Tabūn agrees with the La Micoque section, as well as with that of Castillo, where a Tayacian layer occurs below the bed containing Acheulean hand-axes.

This closes the sequence at the Wady Mughara, and the question

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at once arises :—Is it complete for the period which it covers, or are there gaps ? This cannot be answered quite definitely at present, but the evidence is in favour of its being complete as far as the Palaeolithic proper is concerned, The layers follow each other without any visible trace of a hiatus, and nothing has been found elsewhere in Palestine which does not fit into this sequence. The only place where a gap may probably occur is between the Upper Aurignacian and the Lower Natufian ; that is, between Wad c and Wad B2. The appearance of the deposits suggested that Layer c, which was rather hard, might have been in position for some time before B2, which was very soft, was deposited. Evidence from other places also points to the existence in Palestine of a microlithic industry of Capsian affinities which probably fills this gap.

For the oldest stages of the Palaeolithic we must look outside the caves, and our information is very incomplete because until quite recently the Chellean and the older stages of the Acheulean were found only on the surface. Sir Flinders Petrie, however, has now found Acheulean ovates *in situ* in a silt not far from Gaza, and more recently still Breuil and Neuville have found Chellean and Acheulean tools in deposits in the Baqa'a near the Jerusalem railway station. When these finds have been fully worked out we may hope for more light on the chronology of the earliest stages of the Stone Age in Palestine.

I will now indicate how discoveries made elsewhere in the country fit into the framework established at the Wady Mughara. Before the excavation of the Tabūn, Neuville had already found Upper Acheulean deposits, with Tayacian underneath, in the cave of Umm Qatafa, some miles south of Bethlehem. Since then, in the same region, he has identified Mousterian levels corresponding to Tabūn B and D, Aurignacian corresponding to Wad D and E, and Upper and Lower Natufian. The Upper Mousterian and Upper Natufian are also known from my own excavations at Shukba in Western Judaea, and at Kebara Turville-Petre found Aurignacian levels corresponding to Wad D and E. I have recently re-examined the material from Turville-Petre's excavations in Galilee, in order to see how they fit into this framework. The Upper Palaeolithic of the Mugharet el-Emireh appears to correspond with the Lower Aurignacian of Wad F ; it contains Tabelbalat points, dos rabattu knives, and small end-scrapers, all typical of Wad F. In the Mugharet ez-Zuttiyeh, the Galilee skull cave, I found that instead of a single Mousterian industry, as was originally supposed, there were two, of quite different types. One appears to correspond to Tabūn B, Upper Mousterian ; the other is identical with the Acheuleo-Mousterian

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of Tabūn ea. It is not possible to decide to which of these stages the Galilee skull belongs, but there appears to be no doubt that it is of the same race as the Mousterian men of the Wady Mughara.

All that now remains is to consider the question of dating. The evidence for this has not yet been completely worked out, but a tentative scheme can be put forward. As I have said, I can see no reason to suppose that the Tayacian and Acheulean levels of the Tabūn are not roughly contemporary with those of Europe. Even if we take the shortest admissible chronology, this places them in the Riss-Würm interglacial, and if we accept the longer dating of Breuil and Koszłowski, at the beginning of the Riss-Würm. This agrees with the faunal evidence, indicating subtropical conditions in Tabūn c and d, which presumably coincide with the interglacial maximum. Dr Leakey has drawn my attention to the interesting point that the prevalence in east Africa of the dry conditions of an interpluvial would involve a northward shift of the African rain-belt, and the northward migration of African fauna, leading in Palestine to an increased rainfall and the arrival of African species; precisely the conditions realized in Tabūn c and d. The return to forest conditions in Tabūn b may be correlated with the oncoming of the first Würmian maximum, since a temperate climate with fairly heavy rainfall is precisely what we should expect in the Mediterranean region when glacial conditions prevailed in Europe.

These conclusions are provisional, but they appear to fit the evidence. The Mousterian skeletons of the Skhūl and the Tabūn are placed in the Riss-Würm interglacial, and would therefore be considerably older than the Neandertal remains of La Chapelle-aux-Saints, La Ferrassie, Spy, Gibraltar, etc. They would, in fact, be roughly contemporary with those of Ehringsdorf and Krapina.

The work carried out has been possible only by the collaboration of the two institutions most closely concerned. Mr T. D. McCown of the American School, who is more especially associated with the discovery of the Skhūl skeletons, was Acting Director during my absence one season.

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