A NEW UPPER PALAEOLITHIC AND MESOLITHIC FACIES AT BELBAŞI ROCK SHELTER ON THE MEDITERRANEAN COAST OF ANATOLIA

This article is dedicated to the memory of the late Ordinarius Professor Dr. Muzaffer Şenyürek, Chairman of the Division of Palaeoanthropology, University of Ankara.

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The rock shelter at Belbaşı is situated about five kms. from the Beldibi rock shelter and is on the western side of the bay of Antalya. It is approximately 300 metres above sea level and is at the head of a shallow valley which runs down to the sea and is covered with pine trees. The new coastal road which has recently been completed passes near the Belbaşı rock shelter but it can only be reached on foot and is an hour's climb from the road. I discovered this rock shelter during the season of 1959 but the first opportunity I had to make a sounding was in September 1960[1]. The journey from Antalya can also be made by motor-boat and this takes about three hours.

Belbaşı is a narrow pass through which ran an old Roman road leading to the interior of Lycia. At the top is a small plateau which has been cleared of trees and cultivated by the present-day villagers. On the north-eastern side of this plateau the mountain rises up steeply again and a rock shelter has been formed in the cretaceous limestone

[1] The Beldibi and Belbaşı excavations continued in May and September 1960. I must thank the Professors Council of the Faculty of Letters for their help in the carrying out of these excavations and my Professor and Dean of the Faculty, Ord. Prof. Dr. Muzaffer Şenyürek, for his close interest and encouragement. Thanks to the assistance of the Hittitology Research Institute and the Archaeological Research Institute it was possible to extend the excavations at Beldibi (see Bostancı, 1959, Anatolia, p. 129-130) and Belbaşı. I should here like to thank the Directors of these institutes, Ord. Prof. Ekrem Akurgal and Ord. Prof. Sedat Alp respectively, for the interest they have shown in the development of the excavation.

which has emerged by erosion.[2] The rock shelter faces due south and is in the centre of a wooded area which must have been very suitable for hunting in prehistoric times, as it is to-day, and mountain goats, deer, wild boar, etc. are still to be found. The general position is more sheltered than at Beldibi.

Only the central part of the rock shelter is open now, as the overhanging rocks have fallen down and closed both ends. This is no doubt the result of earthquakes, which, as mentioned in previous articles, have caused extensive falls of rock in the neighbourhood.[3] The open area suitable for excavation is 3.80 metres in length and it was possible to clear this of the rocks which were lying about and to open a trench 2.40 metres in depth from the rock face.

STRATIGRAPHY OF ROCK SHELTER AT BELBAŞI

At the conclusion of my excavation at Beldibi rock shelter, I began work at Belbaşı on the 22nd September 1960. I had noticed in 1959 that the villagers in the district had been digging on the right side of the shelter in a search for money or other valuable objects and a large pottery vessel came to light. This obviously belonged to the classical period. During their digging, some flint implements and bones had been thrown up and it was these that prompted me to undertake an excavation here. The first sounding which I made to a depth of 1.60 metres fully justifed this decision and yielded a very interesting industry which belongs to a new facies of the late Upper Palaeolithic which does not appear in the stratigraphy at Beldibi.

The soil in the top levels is black and soft and contains a high proportion of humus mixed with small sherds of modern, Greek and Roman pottery, and lower down with small pieces of Neolithic pottery.[4] The latter has been made from a sandy reddish-brown substance,

[2] The Beldibi rock shelter was also formed by floods caused by heavy rains in the pluvial periods. It is likely that the formation of the Beldibi rock shelter was affected by the Tyrrhenian Sea, as the cave is partly filled by pebbles and sand cemented together as a result of this (Bostancı, 1959, P. 132).

[3] Bostancı, 1959. p. 147.

[4] There are in the district the remains of buildings from the classical period. These ruins are not far from the rock shelter and it is probable that a large part of them belonged to the inhabitants of Trissa, one of the oldest cities of Lycia higher up in the mountains.

which has no doubt been obtained locally. It is similar to that from which the pottery found at Beldibi has been made.[5] The Neolithic pottery is, however, sparse and there was obviously no continuous occupation of the Belbaşı rock shelter in that period. After about 50 cms. the soil became browner and contained no humus or pottery. Towards the bottom the earth became more mineralised and calcareous and the sounding was abandoned when the earth became hardened. A large quantity of flint tools emerged at all levels from top to bottom and there was no interruption in the industry, although it could be observed that there was a gradual change in the type of tools.[6]

According to the distribution of the type of tools, as shown in Table A, we may examine the sounding in three main sections:

I. The top level of about 50 cms. had been removed by villagers and for this reason pottery sherds belonging to modern and classical periods were mixed with some Neolithic sherds[7] and flint industry, intrusive from the lower levels. In this section were tranchets, very small square-ended blades, a few lunates, microburins, small cores, various types of small burin, together with a few bone points and other worked bone tools. In addition, there were some small pieces of animal bone and a few fragments of human skull bone, which showed signs of burning.

II. After the mixed pottery and flint material finished, the colour of the earth slightly changed and a pure flint industry began. In this section the following type of tools occurred: Core scrapers, round steep scrapers, end scrapers, side-scrapers on flakes, pyramidal cores, truncated points, flake points, flakes and blades, blade points, angle

[5] The material from which the pottery at Beldibi is made contains white chalk and shells. In spite of it being older than that at Belbaşı, there is not a great difference in the basic material.

[6] In the upper levels the soil is not so hard as at Beldibi, no doubt because the Belbaşı rock shelter occupies a more sheltered position.

[7] Neolithic sherds are not so plentiful, and it is impossible to give much information about the shape of the pottery as a sufficient number of pieces could not be collected. Only one sherd was found from the rim and this indicated that some of the forms may be similar to that found at Beldibi. It is probable that the pottery shows a simple Neolithic form. Neolithic people only visited the rock shelter from time to time, probably using it as a summer residence. (Bostancı, 1959. p. 167, Plate IV).

burins, polyhedric burins, bec-de-flute burins, small backed blades, borers, small tanged points on flakes, lunates, parallel-sides blades, square-ended blades, triangular flake points and one Heluan point. Among these tools the most plentiful are core-scrapers, blades, blade points and angle burins. Geometric microliths were not very plentiful in this section, but microburins occurred. In addition there were a few long narrow curved backed blade points and bone tools for making holes. There was one large lunate showing Natufian, i. e. ridge-backed technique.[8] There were plenty of animal bones, mostly of mountain goat and deer, together with pieces of human bone, viz. one lower jaw, one frontal, fragments of tibia and femur. On two of the pieces of tibia there are marks where the bone has been gouged out by burins, possibly to obtain the marrow to eat. At Beldibi some pieces of human bone were found showing signs of having been burnt and these two facts would suggest that cannibalism was practised by the inhabitants of these rock shelters.

III. This section was characterised by the following tools: long thin backed points and long thin curved points, truncated backed points, four nose-scrapers, backed burins, triangles and a few end scrapers on blades. Square-ended and parallel-sided blades were rare but blade points decreased and core scrapers were abundant. Microburins were also present, which gave a Mesolithic appearance to this culture, but the other tools were late Upper Palaeolithic in character.[9] There were many different types of burin, which will be described in detail below. In this section there was one shouldered point and

[8] The ridge-backed lunate found at Belbaşı resembles in size and technique specimens from Jabrud in Syria, but it is not so typical. It is not worked on both sides but the ridge is formed by striking off small flakes. Last summer I had the opportunity of re-examining the Natufian material in Berne and Cambridge. The Natufian lunates are very different from the specimens found at Beldibi and Belbaşı. This technique is characteristic of the Natufian culture but it is not so plentiful in the Beldibi and Belbaşı cultures as in the Natufian (Garrod, 1937. Plate VIII, IX No. 30, 35; Bostancı, 1959. p. 170. Plate VII).

[9] According to Bordes, the microburin has been noticed more than once in the French Upper Paleolithic, and the technique used is the 'Coup de microburin' (Bordes, 1958. p. 578). At Beldibi also the microburin appeared together with Upper Palaeolithic culture. According to Leakey, the microlithic industry in Africa does not characterise any special period. (Leakey, 1953. p. 127) (For Beldibi microburins, see Bostancı, 1959. p. 169, Plate VI, No.3-6,7. p. 170, Plate VII, No. 8-10).

one tanged point worked on both sides of the tang and one stemmed tool with a bec-de-flute burin on the tip.[10] A few triangular flakes also occurred.[11]

The culture of the Belbaşı rock shelter as a whole is characterised by core tools, thin backed blade points, blade points, burins and tanged elements. The whole industry shows an individuality which has not so far been seen in Anatolia. After comparing it with the Beldibi industry, it can be observed that the Belbaşı industry was not met with in the Beldibi stratigraphy. It may have developed here in a pluvial period. Possibly the rock shelter at Beldibi was not inhabited continuously during this period, while the more favourably situated Belbaşı rock shelter higher up was lived in then. As in the Beldibi stratigraphy, pieces of iron oxide were found at Belbaşı and this also confirms that they were collected by the inhabitants no doubt for use in making the schematic rock paintings and painted pebbles which have already been discovered at Beldibi and in the district.

DESCRIPTION OF THE TOOLS

Cores and core scrapers (Plates XII and XIII, XIV) are extremely abundant and form the bulk of the tools.[12] From the top to the bottom they are very similar in type and the majority are irregular cores, the next largest group being pyramidal cores.[13] Many of these

[10] Most of the tanged elements are made on flakes, some of which have burins on the tip and on the tang. Generally there is not a high proportion of flakes. This shows the continuation of a blade culture parallel with a flake culture in the Upper Palaeolithic at Belbaşı. At Beldibi also such a continuation can be seen from the lowest levels to the pottery level.

[11] On only one flake the upper part of the striking platform is worked by the striking off of small flakes. On one side it is roughly retouched as far as the tip. Although on the other side there is retouch from the lower face in the same direction as far as the tip, the flake is flat and the striking platform is plain.

[12] At the top of the second section the Sauveterrian type of nucleus found at Le Martinet is present, although not very plentiful. The nuclei are mainly of the pyramidal type (Coulonges, p. 13. fig. 6, 7, 8.)

[13] The pyramidal cores are very similar to those drawn by Burkitt (The Old Stone Age, p. 67, fig. 5, No. 11). The core types also resemble those from the Jabrud Atlitian culture (Rust, 1950. Plate 89, Fig. 1, 2, 3, 5 and Plate 90, Fig. 10, 13 and Table 84), the Middle Aurignacian type (Rust, 1953. Plate 85, No. 1 ,2. 3) and 'Jungaurignacien' (Plate 87, No. 1, 2, 21, 22). Small cores are also present and

have burins on the tip or on the platform. One core has been used as a scraper and there is a bec-de-flute burin on the tip (Plate XIII, Fig. 6, B3). Another has the point as an end scraper and there is a polyhedric burin on one side (Plate XIII, Fig. 12B 3, Fig. 11A 1). Some of the pyramidal cores slope forwards and the back is not properly finished (Plate XII, Fig. 10). Similar types occur at Beldibi.[14] Others have the apex sharpened as a working edge. Some small pyramidal cores have a steep working edge on the platform side and from the tip a piece has been struck off obliquely and the core used as a polyhedric burin or as a scraper (Plate XIII, Fig. 11A1, 13A 3, 14A 9). Other types have double platforms and there are some discoidal types. There are some thick flake cores. About 100 cores have been used as scrapers (Plate XII, Fig. 5-7, 10-13; Plate XIII, Fig. 1-5, 12, 14-17). On one small disc core a burin has been made by cutting from the platform obliquely (Plate XIII, 2, drawn from above) and another has a most unusal type of burin made on the platform, with a narrow strip obliquely cut encircling the edge on the platform. This is the first burin met with on a disc core in this culture and such a type was not found at Beldibi. The core has a very sharp cutting edge and it was probably used to skin animals.

Scrapers on flakes and blades: Most of the scrapers are on thick flakes and a few are on thin blades (Plate XII, Fig. 1-4, 8, 9; Plate XIV, Fig. 1-4, 8-10, 12). Generally end scrapers are not very plentiful or characteristic. The type of end scrapers in the upper layers are not very well made and in the lower layers most of them are on very short and thick blades with steep retouch.[15] There are also a few on flakes but the retouch is not so good as is seen on the

they resemble some Natufian types as well as some found at Beldibi. (Garrod, 1937. Plate VIII, 7-12; Plate XI, 5-9; Bostancı, 1959. p. 169. Plate VI, 34, 35. p. 171, 4-7.)

[14] As in the Atlitian culture, the cores have subsequently been used as tools. The style of retouch and shape of the cores in the lower layers is mainly of the Atlitian and Middle Aurignacian type. (Garrod, 1937. Plate XVII, XVIII, XIV, XXI, 13, 14). The shape of the cores and the type of burins seen on them resemble very much those from the Wadi el Magara (Garrod, 1937. Plate XVII, No. 9—12, 16, 17). In Palestine and Syria and at Beldibi and Belbaşı the cores play a very important part in the culture.

[15] Some of the thick steep scrapers are El Wad Atlitian type, but microburins are still present. (Garrod, 1937. Plate XVII, No. 1-4).

thick blades. In the lower layers there is one micro-endscraper. This type has also been found at Beldibi. Four nose-scrapers came to light in the bottom layers. One is on a thick blade with a fluting retouch and the nose is diagonal to the body (Plate XIV, Fig. 1). There is only one small blade the striking platform of which has been formed into an end scraper. (Plate XII, Fig. 1).

Flake and blade points: Most of the flake points are roughly triangular and very few of them have retouch on both sides. Their striking platforms are all plain and most of them are refined from the upper surface (Plate X, Fig. 4; Plate IX, Fig. 9). Blade points form one of the largest groups and it is possible to divide them into three sub-groups:

1 — straight pointed;
2 — curved pointed;
3 — truncated points.

Most of them are thin and sharply pointed without retouch (Plate VIII, Fig. 22, 26, 27, 29); sometimes both sides are slightly retouched (Plate VIII, Fig. 28) and sometimes only the point is retouched (Plate VIII, Fig. 25). The majority of the blades are straight and some of them are very similar to Font-Yves points[16] (Plate VIII, Fig. 22, 29.) A characteristic of these blade points is the fine chipping at the butt end, sometimes with fluting retouch (Plate VIII, Fig. 8-13). Truncated blade points also occur, some of them very small thin blades, some with the truncature retouched and some not (Plate VIII, Fig. 3, 5-7). Truncated points on small blades also occur, which are mostly Magdalenian in type and are also found in Mesolithic cultures.[17] (Plate IV, Fig. 1-15, 23-29, 36, 38). Ordinary blades occur in the stratigraphy at all levels[18] (Plate IX,

[16] Some of these blade points are very similar to those of Middle Aurignacian from Jabrud in Syria (Rust, 1953. Plate 84, fig. 2-30) They also occur in Endo-aurignacian (Micro-Aurignacian) of Jabrud (Plate 92, fig. 43-53) as well as in Middle Aurignacian, Layer E at Mugharet el Wad (Garrod, 1937. Plate XXIII, fig. 14, 16).

[17] In Europe this type of point is also met with in Magdalenian III (Daniel, 1953. p. 219, fig. 6, No. 8).

[18] The longest blades found at Belbaşı are 7.5 cms. which is as long as some found at Karain by Kılıç Kökten in the upper layers attributed by him to the Aurignacian. (Kökten, 1955. Plate V.)

Fig. 1-4, 10-12), while square-ended blades appear only in the upper levels (Plate III, Fig. 20, 22-25), some of them retouched.

Backed blades: These are the most characteristic element of the Belbaşı industry (Plate V) ; They are not met at Beldibi or any where else in Anatolia. They are comparatively numerous, particularly in the lower layers, and did not begin to appear until the fifth layer. They may be divided into six groups:

1. thin backed blades, both ends pointed (Plate V, Fig. 5-9, 11-13)

2. straight thin backed blades, one end truncated (Plate V, Fig. 19-30.)

3. straight and curved, only one end pointed (Plate V, Fig. 39-45).

4. straight thin blades both sides retouched as far as the tip (Plate V, Fig. 47-60).

5. backed blades, both ends squared (Plate V, Fig. 63-70).

6. scalene backed points with the base obliquely cut (Plate IV, Fig. 29-32).

The first group are the prototype of the lunates. They have steep retouch on the back and also slight retouch on the cutting edge. They are very sharp and were no doubt used for hunting purposes. This type of pointed backed blades occurs in the Nebequian culture in Syria.[19] As we have seen in the upper layers, these lunates have developed into larger half-moons (Plate III, Fig. 3, 4, 7) which were used for cutting purposes and one shows signs of having been used to cut vegetation.

In the second and third group, there is steep retouch on the back and near to the point, which is very sharp, and the cutting edge is very slightly retouched, sometimes on the top and sometimes on the inverse side. In the fourth group there is steep retouch from both sides, making the point very sharp. Those in the fifth group also have steep retouch on the back and sometimes on one or both ends. The backed points with truncated base in the last group are met with in all the layers. Sometimes the truncature only is retouched, sometimes all three sides, usually on the top but occasionally on the inverse

[19] Rust, 1953. Plate 101, fig. 36, 37. There are technical and morphological resem blances, but these are only in the thin, long backed blades with both ends pointed and steep retouch.

surface. On some of them there are flat or angle burins on the tip. These points are microlithic in character, very finely worked.

Stemmed implements : In the upper levels these implements are made mainly on small flakes of triangular shape [20] (Plate VII, Fig. 3, 4, 5). Two have the bulbar side pointed, in one the stem is retouched on the upper surface on the right side and the lower on the left (Plate VII, Fig. 5), while in the other this is reversed. [21] One small flake is slightly retouched on both sides on the upper surface and another is very slightly retouched from both sides on the lower surface. Two others have their stems made by chipping and both have angle burins on the tang (Plate VII, Fig. 2, 4). Only one flake has the striking platform hollowed, and this technique occurs in the upper layers of the Mesolithic at Beldibi. [22] In the lower levels there is one very clearly tanged point, retouched on both sides of the tang and on one side of the point on the upper surface. One side is more winged than the other. The point is very sharp and chipped from both sides and it could have been used as a borer, or as an ordinary point. The tang also has been used as a polyhedric burin [23] (Plate VII, Fig. 1). One interesting stemmed flake has a bec-de-flute burin on the tip (Plate VII, Fig. 9) and another has a long stem with steep retouch on the right side on the upper surface and on the left side on the lower surface. There are angle burins on the tip and also on the tang (Plate VII, Fig. 6). This is a very fine example of late Aurignacian Font Robert type point which has probably been broken and a burin made on

[20] Tanged points on flakes at Belbaşı are not so similar to flint arrow-heads from El Khiam and Upper Natufian studied by Professor Garrod (1957, Plate IX). From the point of view of technique and the purpose for which they were used, the Belbaşı tanged points are in the tradition of the Beldibi tanged points which belong to the Upper Palaeolithic and Mesolithic. They show greater resemblances to the specimens found at Beldibi.

[21] On the tanged flakes a burin is usually found at one side of the striking platform or else on the tip and there are signs of use. On the flake point shown in Plate VII, fig. 2 and angle burin has been made by retouch on the right corner of the tang.

[22] Bostancı, 1959. p. 175. Plate 12, No. 11.

[23] Tanged points and polyhedric burins on tanged elements found in the bottom layer of the stratigraphy at Beldibi are not found anywhere else in Anatolia. It seems that the inhabitants of Beldibi and Belbaşı both knew the technique of making tanged points in some cases with burins.

one side. Another characteristic implement is shouldered on one side with steep retouch and the other side has slight inverse retouch, but the point has been broken off (Plate VII, Fig. 7). There is one micro tanged point, 11 mm. in length, retouched only on one side (Plate III, Fig. 18).

Lunates, triangles and trapezes: In the upper levels there were two large lunates with steep retouch (Plate III, Fig. 3). Another lunate of similar size is ridge-backed and this is the only example found in the stratigraphy (Plate III, Fig. 4). This technique is a characteristic of the Natufian and Heluan cultures and it also occurred at Beldibi, although rarely and not in a typical form.[24] The lunates in the lower layers are small, rather narrow and sharply pointed at both ends (Plate III, Fig. 8-12; Plate V, Fig. 1-4, 14-16). There is steep retouch on all of them and the cutting edge is also slightly retouched. Some of them are rather similar to the thin backed blades with both ends pointed. The percentage of lunates is not so high as that of these backed blades.

Triangles are comparatively rare among the microlithic tools and did not appear until Level six, where there is one scalene triangle, and in the lower levels there were only eight altogether, all scalene.[25] There is retouch on all three sides of three of them.

There was only one trapeze in the whole of the stratigraphy and this occurred in the second layer from the top. The type is similar to Upper Capsian trapezes. The points are retouched from only one side (Plate III, Fig. 1).

Borers: There were only seven borers in the top layers, one a flake, one on a core and five on blades. In the lower layers they were different in type, one very small and a second was on a flake with the point at the top (Plate IX, Fig. 9). Two others were on flakes with

[24] The ridge-backed technique is rare in Mesolithic stations in the Middle East. This type of tool has been found in the Mesolithic layers at the Shanidar cave (Solecki, 1955. p. 406, Plate 4, fig. a). The same technique has been shown by Coulonges to exist at Le Martinet in Tardenoisian II (Coulonges, 1935. p. 14. fig. 14, No. 12, 13). The Natufian is the culture in which the ridge-backed technique is most represented and it is a primary characterictic of this culture. (Garrod, 1932. p. p. 268, fig. B. No. 27, fig. C, No. 30, 35).

[25] Triangles are smaller at Belbaşı than those found at Beldibi. (Bostancı, 1959. p. 169, fig. 25; p. 170, fig. 12).

the borer on the lateral edge (Plate IX, Fig. 7, 8). This type of borer occurs in the Upper Magdalenian of Europe.[26]

Burins: Burins occupy an important place in the tool industry of Belbaşı. They may be divided into two groups: normal size burins and microburins. The former group are found on blades, cores, flakes, short squared thick blades and on tabular and irregular blocks of flint.

In group 1 the longest of the blades is 56 mm. and the shortest 20 mm. The majority of the burins are made on the tip of these blades (Plate VIII, Fig. 15-21; Plate X, Fig. 6, 9-4; Plate XI, Fig. 5, 6, 8, 9, 10, 12), and most are angle burins[27] (Plate VIII, Fig. 15, 19, 20; Plate X, Fig. 6; Plate XI, Fig. 5, 10, 11). The others are mainly bec-de-flute, polyhedric, flat and single-blow burins. There are also burins on thick backed blades, and some of them are double burins. On cores the majority of the burins are polyhedric (Plate XIII, Fig. 11 and 12) and bec-de-flute (Plate XIII, Fig. 6) and angle burins also occur (Plate XIII, Fig. 5). An unusual type is a core-scraper which is nosed on the opposite side and cut transversely, making a polyhedric burin. This type of burin is also found in the Shanidar cave, Layer C (Upper Palaeolithic).[28] A second unusual type occurs on disc core-scrapers (Plate XIII, Fig. 2, 3) cut obliquely from the platform. They are sometimes polyhedric, sometimes bec-de-flute and sometimes flat, depending on the position of the flakes which have been struck off. The longest flake with an angle burin on the striking platform is 55 mm. long and 27.5 mm. wide. On the other average flakes there are bec-de-flute and angle burins on the tip (Plate X, Fig. 4, 5). Flakes are generally thick and a few of them have retouch from one or both sides but it is rather poor. Polyhedric, flat and single-blow burins also occur. Some flakes are obliquely cut and retouched with angle burins (Plate XI, Fig. 10, 11). A short thick flake has a steep

[26] Daniel, 1953. p. 299, fig. 11, No. 35, 36. In this industry the small worked truncated flake points illustrated are similar.

[27] The burins made on cores are types which can be compared with those in Atlitian and Middle Aurignacian DI at Mugharet el-Wad. At Belbaşı also can be seen some specimens similar to those illustrated by Garrod, 1937. Layer C, P. XVII No. 9, 12, 16, 17.

[28] Solecki called this burin 'nosed polyhedric graver'. Possibly the technique is the same and it was used for the same purposes (Solecki, 1953. p. 5, fig. L.L. M.M.)

scraper on one side, the other side obliquely cut and slightly hollowed with an angle burin on one side. Bec-de-flute and angle burins are made on small triangular-shaped thick flakes, one of which has a double burin (Plate X, Fig. 1, 2). The same type occurs on a core of the same size and shape made with bec-de-flute burins on two points. One example of a backed burin also occurs on a tabular flint, one side of which has been used as a scraper (Plate X, Fig. 7). One bec-de-perroquet type burin occurs (Plate X, Fig. 8).

Generally the burins are well made and plentiful. Other characteristics of the Belbaşı culture are burins on tanged points, five on the stem (Plate VII, Fig. 1, 2, 4, 5) and two both on the tip and the stem (Plate VII, fig. 6, 9). All these different types of burin, together with the other tools, give a genuine late Upper Palaeolithic appearance to this culture.

Microburins: The microburins found in the Belbaşı stratigraphy may be classified into three groups:

1. true microburins on small flakes or blades
2. microburins on small backed blades.
3. a normal type of burin on miniature blades and flakes.

In the first group, nine microburins made on the base of flakes and blades occur, the largest is 13.5 mm. long and 8 mm. wide and the smallest 9 mm. long and 5 mm. wide. 20 microburins made on the tip of flakes or blades occur, the largest being 21 mm. in length and 7.5 mm. in width, and the smallest 9 mm. in length and 8 mm. in width. They do not all show the same technique.[29] (Plate V, Fig. 71-75; Plate VI, Fig. 1-13) Some of them have 'coup de microburin' or are notched blades straight or transversely broken.

The second group may be divided into two sub-sections: the the first are Krukowsky microburins (Plate VI, Fig. 5, 6) and the other is peculiar to Belbaşı (Plate VI, Fig. 6, 7, 8, 10). Of the first section, the largest is 19 mm. long and 3.5 mm. wide. It is a backed

[29] 'In the Crimea, then all along the Danube, as far as Poland, Bavaria, Franconia to the Geniere (Ain), Belgium, England and Scotland, there is a trail of microlithic beds where the microburin is always present, associated with several geometric microliths.' (Bordes, 1957. p. 578-582.) Mesolithic industries have an undeniable family air and the microburin is the main fossil.

blade with steep retouch on one side and very slightly on the cutting edge. The burin is on the base of the blade, which is typical of the Krukowsky burin (Plate VI, Fig. 5). The same type is also found at Beldibi. A typical example of the second group is 11.5 mm. in length and 3 mm. in width, one side steeply retouched and the other side slightly retouched, with one side pointed and the burin at the other end. The facet of the burin is at an acute angle to the cutting edge of the blade and this edge near to the top of the burin is steeply retouched and sharpened transversely (Plate VI, Fig. 7a, b, c and 8). This technique occurs in the Upper Palaeolithic[30] of France, but, as far as is known, it is not met with on a microburin in any other culture. A variation of the Belbaşı microburin is of a bec-de-flute type with the facet at an acute angle to the back of the blade.[31] In this respect it resembles the Krukowsky microburin.

In the third section, the technique is similar to that of normal sized burins but they are all on miniature blades and flakes. Only a few examples have been found (Plate VI, Fig. 14—19) and in size they are equal to true microburins. Generally they are angle and bec-de-flute types. This type of microburin also occurs in the Upper Palaeolithic of France.[32]

As regards microburins generally, there is a close relationship between those at Beldibi and at Belbaşı, except of course for the Belbaşı microburin mentioned above. At Beldibi they are a better made and some are of typical Tardenoisian type. Some very long pointed microburins are, however, not seen at Belbaşı. In Plate VI, fig. 20, 21, 22 are illustrated some specimens from Beldibi for comparison. There are similar types of miniature burins of all types at both Beldibi and Belbaşı, and a special study will be necessary on these.

[30] Bourlon, 1911. p. 273. fig. 3. no. 14, 16, 17. Bourlon in an article concerning the classification of burins in the Upper Palaeolithic, gave the name 'coup de burin anterieur' to the form drawn at No. 16, pages 2 and 3. This technique conforms to that of the microburin found at Belbaşı. In that respect it would be more correct to call these microburins 'coup de microburin anterieur de Belbaşı' or 'Belbaşı microburins'.

[31] According to the Bourlon classification we may give the name 'coup de burin posterieur de Belbaşı' to these microburins in order to distinguish them from normal burins.

[32] The microburins illustrated by Bordes, 1957. p. 579, fig. 2 are also mainly included in this group and most of them belong to the Upper Palaeolithic.

SUMMARY AND CONCLUSION

Belbaşı is the second prehistoric site which I have investigated in the ancient Lycia on the Mediterranean coast of Anatolia.[33] It is a rock shelter 300 metres above sea level formed in the cretaceous limestone facing south. The first sounding which I undertook in September 1960 extended to a depth of 1.60 metres, where the bottom was reached. The flint industry was plentiful at all levels and according to the distribution of the type of tools and fossil bones in the stratigraphy the sounding was examined in three main sections.

Pottery of modern, classical and Neolithic periods was found only in the top section, together with some pieces of human and animal bones and a few flint and bone tools.

The second section is characterised by plentiful core-scrapers,[34] blades,[35] burins and by tanged points on flakes, large lunates, one with ridge-backed technique,[36] one Heluan point,[37] some small truncated points together with triangular flake points and microburins. Most of the tools are characteristic of the late Upper Palaeolithic (Mesolithic). Bone tools also occurred and some important pieces of human bone, including a lower jaw, came to light.

The lowest section is characterised by thin backed blades pointed at both ends, together which typical microburins and plentiful blade points, shouldered points, stemmed tools and a better made tanged point. All types of burin and cores were plentiful but scrapers on blades were rare.

The culture of the Belbaşı rock shelter as a whole is characterised by core tools, thin backed blade points, blade points, burins and tang-

[33] Beldibi was the first prehistoric site to be discovered on the western side of the Bay of Antalya (Bostancı, 1957. p. 129-178.

[34] The core scrapers in the second section are smaller. Some of them resemble small cores and core scrapers from the industry of Zarzi (Iraq) (Garrod, 1930. p. 18, fig. 8, 11, 12, 16).

[35] Some of the tools found in the Zarzian Layer B show similarities with the tools met with in the top two layers of Belbaşı, especially with regard to the subtriangular backed blades (Garrod, 1930. p. 19, fig. 9, No. 13, 14).

[36] Garrod, 1957. p. 224. Garrod, 1934. p. 30. 'The other, a special form in which the back is not flat but is worked to a blunted edge by chipping on both faces'. (Plate VIII, No. 14).

[37] In this connection see De Morgan, p. 39, fig. 30. No. 37.

ed elements and shows an individuality which has not so far been seen in Anatolia. After a comparison with the Beldibi industry, it can be seen that the Belbaşı culture fills an evolutionary gap in the stratigraphy at Beldibi.

The small backed blade points and the triangular backed points with truncated base and the square-ended small backed blades are closely similar to the Sauveterrian of Europe.[38] Blade points, some retouched on both sides and some on the tip and refined at the butt end, are very similar to those found in Micro-Aurignacian of Jabrud (Syria).[39] Long thin backed blades with both ends pointed and small truncated points, parallel-sided blades with transverse retouch and some of the nose-scrapers, connect the Belbaşı culture with the late Aurignacian and Nebequian cultures of Syria.[40] On the other hand, stemmed tools, tanged points and shouldered points, together with microburins and especially thin backed blades obliquely truncated and some of the backed blade points distinguishes the Belbaşı industry from those mentioned above, but closely relates it to the Beldibi industry.[41]

It can be said that whatever relationships there are between the technique and morphology of the tools in the Belbaşı and Beldibi stratigraphy and those of the Syrian and Palestine cultures, the formei are also reminiscent of the same type of tools in European cultures such as Grimaldi, Azilian, Sauveterrian and Tardenoisian[42]. The type and variations of microburin are similar to specimens from European, African and Middle East cultures but in addition, as has been expl-

[38] Coulonges, 1935. p. 16, fig. 8, No. 29-45 and 46-49; No. 16, 17, Pl. III, No. 19-24, No. 43-47.

[39] The similarity is not only morphological but also in size.

[40] Rust, 1953. Plate No. 92 Endoaurignacien No. 3, No. 27, 29; No. 30, 38; No. 43-53; Plate 93, No. 8, 23; Plate 99, No. 1-3; 7-10; 11-16; Plate 101, No. 1, 2, 5, 6; 17, 18; 41, 44; Plate 102, Nebequian; No. 31-37.

[41] Preliminary Report, Bostancı, 1959. p. 175, p. XII, No. 7.

[42] Some of the material from the Grimaldi culture is in the Monaco Museum and I had an opportunity of examining this in August 1959. I observed that there was a similarity between these tools with those from Beldibi in particular. The same type of blade points, backed blades and small scrapers found in the Abri Pages in the Azilian of Lot in France also emerged at Beldibi. Niederlander, Lacam and Bordes, 1956. p. 421, Fig. 1; p. 436, Fig. 8; p. 443, Fig. 2; p. 424, fig. 42. Azilian type harpoons have not yet been found at Beldibi.

ained above, a new type of microburin was discovered[43]. Up to now, such a type of microburin has not been found in the Middle East Mesolithic cultures, in the African Capsian, in the Sebilian, or in Palestine, Syria or Iraq.

Prehistoric man preferred the Mediterranean coast of Anatolia as it offered more plentiful possibilities for living. The most important settlement areas from the point of view of food were the coast and the districts near to rivers. In Anatolia the prehistoric sites in Hatay with Levallois - Mousterian and Aurignacian culture are approximately 1 - 1.5 km. from the sea and Karain near Antalya is 25 km. inland[44]. The Upper Palaeolithic cultures of Beldibi are only 100 metres away from the sea and Belbaşı is not more than 5 km[45]. Southern Anatolia is not only rich in Middle and Upper Palaeolithic cultures but at the same time has Lower Palaeolithic cultures. In the Gaziantep, Urfa and Hatay areas, my own findings and those of colleagues of Chellean, Acheulean, and Micoquian handaxes show that there is no difference from the specimens from Europe, Africa and the Middle East[46].

Anatolia is no doubt a rich country in Palaeolithic cultures which needs more intensive research work in the field to find comparative material for all periods. As a result of new findings which are continually coming to light, the relationship between the Mesolithic and

[43] For specimens of microburin see: Daniel, 1953. p. 217, Fig. 40-76 (Tardenoisian, Troglodyte); Mesolithic facies, Sauveterrian, p. 231, Fig. 48, 49, 58; Rocher de Chaintreanville, Mesolithic, p. 233, Fig. 13, No. 49. Daniel, 1948, p. 218, Fig. 3 and 1-12, 14, 15; Tardenoisian of Bruyeres-sur-Fere, Fig. 4, No. 21, 29, 30; Tardenoisian of Fere-en-Tardenois, Fig. 5, No. 34, 35, 36; Tardenoisian of Montbani, Fig. 6, No. 29, 30, 31, 32; p. 439, Fig. 11, No. 30-40. Coulonges, 1935. p. 16, Fig. 8, No. 56, 57, 58; p. 24, Fig. 14, No. 1-4; Le Martinet, Tardenoisian II and p. 26, Fig. 15, No. 1-8; Le Martinet, Tardenoisian III. Garrod, 1937. Plate VIII, No. 33-36; Upper Natufian microburins, Plate IX. Lower Natufian microburins No. 7-10. Rust, 1950. Plate 101, No. 63-66, Nebequian microburins, Plate 102, No. 20, Upper Capsian, Plate 103, No. 34-76, Plate 104, No. 30, 31; Plate 106, No. 38, 39. Vaufrey, 1933, p. 468, No. 9-13, 19, 20. Typical Capsian microburins

[44] For the Palaeolithic cultures of Hatay see: Şenyürek and Bostancı, 1956, p. 81-83; Şenyürek and Bostancı, 1958, p. 147-164; Şenyürek and Bostancı, 1958, p. 184-187; Şenyürek, 1959. p. 27-44; Şenyürek, 1961, p. 149-175; Plate 1-23; Kökten, 1948, p. 195-209; Kökten, 1955, p. 377-405.

[45] Bostancı, 1959. p. 131.

[46] Şenyürek and Bostancı, 1958. p. 184, 204. Plate XII, 1-6. Plate XIII, 1-6. Şenyürek and Bostancı, 1961. p. 307, 309. p. 311; Şenyürek, 1961. p. 149-175.

Upper Palaeolithic cultures and those of Europe, Africa and the MiddleEast are being further clarified.

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In 1959 and 1960 I had an opportunity of examining the Palaeolithic cultures of France, the Middle East and North Africa in the following Museums: Musee de l'Homme, Paris; Institut de Paleontologie Humaine, Paris; St. Germain-en-Laye; Perigueux and Les Eyzies; and I also visited all the sites and caves in the neighbourhood of Les Eyzies and the Dordogne. In addition I was able to visit the Monaco Museum; the Natural History Museum in Vienna; the Natural History Museum in Berne and the Department of Archaeology and Anthropology in Cambridge. I should here like to extend my grateful thanks to the officials of all these institutions for their helpful co-operation, in particular Mr. Harper Kelley (Musee de l'Homme); Professor J. L. Baudet (Institut de Paleontologie Humanine); Dr. W. Ehrgartner (Vienna) and Mr. C.B.M. McBurney (Cambridge).

In connection with the 1960 visit, I must thank the French Cultural Attache, Monsieur Gabriel Beis, for awarding me a French Government Bursary to enable me to attend the International Anthropological and Ethnological Congress in Paris, and also Professor A. J. Greimas, Professor of French Literature in the Faculty of Letters, Ankara University, and Ord. Prof. Muzaffer Şenyürek, Chairman of the Division of Palaeoanthropology, Ankara University, for their help and support.

The above article was written before the death on 23rd September 1961 of Ord. Prof. Dr. Muzaffer Şenyürek in an air crash while returning from an excavation in the south of Turkey. I should like to pay a final tribute here to all the help and encouragement which he gave me during the fifteen years we worked together. We collaborated in many field researches and in subsequent publications and without his support a great deal of my own work would have been impossible. He was a true scientist and his death is an irreparable loss to the world of palaeoanthropology, both in Turkey and elsewhere.

Distribution of tools in Trench A at Belbaşı

	LAYERS												
Type of Tools	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}	A_{12}	Total
Irregular cores	12	26	22	23	62	26	16	64	18	32	30	28	359
Pyramidal cores	7	2	2	3	6	–	5	7	9	2	2	2	47
Double platform cores	2	–	3	1	1	1	3	3	4	–	5	1	24
Double platform flat cores	1	–	2	–	1	1	1	1	–	1	–	–	8
Discoidal cores	1	2	3	–	–	1	3	2	2	1	–	–	15
Discoidal cores, no platform	1	–	2	–	1	–	1	–	1	2	–	1	9
Side scrapers	1	2	1	–	–	–	2	–	–	1	–	–	7
End scrapers on blades	3	2	1	1	2	1	1	–	–	–	3	1	15
Thumb scraper	–	1	–	–	–	–	–	–	–	–	–	–	1
Steep scrapers	1	3	2	1	3	1	2	1	1	1	4	2	22
End scrapers on flakes	1	1	–	–	–	–	–	1	–	–	–	1	4
Round steep scrapers	3	1	1	1	1	2	1	1	1	–	–	–	12
Round flat scrapers	1	–	–	–	1	–	–	–	–	–	–	1	3
Nose-scraper on blades	–	–	1	–	–	1	–	–	–	–	2	1	5
Nose-scrapers on cores	–	–	–	–	1	–	–	–	2	–	2	–	5
Core scrapers, various types	3	2	2	5	10	4	10	13	9	10	11	5	84
Flake points	6	1	1	1	4	1	6	1	1	3	3	1	29
Blade points	10	38	21	6	14	16	15	13	7	8	11	15	174
Truncated blades points	1	2	2	2	3	1	3	–	–	2	8	2	26
Square-ended blades	3	3	4	–	–	–	–	–	–	–	1	1	12
Truncated blades	2	4	1	–	1	1	–	–	–	–	–	1	10
Ordinary blades	8	10	12	6	4	8	9	12	15	10	14	16	124
Heluan Point	1	–	–	–	–	–	–	–	–	–	–	–	1
Shouldered Points	1	–	1	–	–	1	–	–	–	–	–	–	3
Tanged points on flakes	4	2	–	–	–	1	–	1	1	–	–	–	9
Tanged point on blades	–	–	1	–	–	–	–	–	–	–	–	–	1
Stemmed tools	–	–	1	–	–	–	–	–	1	–	–	–	2
Micro-tanged point	–	–	–	–	–	–	1	–	–	–	–	–	1
Angle burins	25	19	18	9	4	7	5	2	8	6	9	4	116
Bec-de-flute burins	1	3	7	1	4	1	1	–	4	1	2	4	29
Flat burins	–	2	2	–	–	1	–	3	9	–	–	2	19
Faceted angle burins	–	–	3	–	–	–	1	1	2	–	–	–	7
Polyhedric burins	3	2	5	1	5	2	2	2	7	3	4	2	38
Backed burins	–	–	–	2	–	1	–	–	–	–	1	–	4
Bec-de-perroquet	–	1	–	–	–	–	–	–	–	–	–	–	1
Burins on discs	1	2	1	–	–	1	–	–	–	–	–	–	5
Microburirs	1	2	2	5	3	5	–	6	4	–	8	4	40
Burins on miniature blades and flakes	3	2	6	1	2	5	4	–	6	2	2	2	35
Krukowsky microburin	–	–	–	–	–	1	–	1	–	–	–	1	3
Belbaşı microburins	–	–	–	–	–	1	–	–	–	–	–	1	2

Distribution of tools in Trench A at Belbaşı

	LAYERS												
Type of Tools	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}	A_{12}	Total
Backed blades both ends pointed	–	–	–	–	2	4	4	–	13	–	6	6	35
Straight backed points	–	–	–	–	3	4	14	7	4	3	–	5	40
Straight backed points pointed one end	–	1	1	–	6	–	–	–	–	–	–	–	8
Parallel-sided backed blades one end truncated	–	–	1	1	1	2	5	4	3	3	2	6	28
Parallel-sided backed blades square-ended	–	–	2	2	3	10	–	1	2	2	3	7	32
Backed blades truncated base	–	–	9	3	1	2	7	1	4	11	7	18	63
Triangles	–	–	1	–	–	1	–	–	2	2	1	2	9
Lunates	1	1	4	–	4	4	10	1	2	2	3	3	35
Micro-flakes truncated by retouch	1	1	4	1	2	1	2	3	2	1	3	1	23
Trapeze	–	1	–	–	–	–	–	–	–	–	–	–	1
Borers	2	4	1	–	–	1	–	1	–	–	–	3	12
Pick	–	–	1	–	–	–	–	–	–	–	–	–	1

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LEVHALARIN İZAHI

LEVHA I — Belbaşı kaya sığınağının batı-doğu istikametinden çizilmiş şematik profili. Sondaj sahası ile mağara önüne düşmüş olan büyük kalker blokları göstermektedir.

LEVHA II — Belbaşı kaya sığınağının kesiti. Kesit tabakaların meylini, kalınlıklarını ve tabakalar arasında raslanan kalker bloklarını göstermektedir. Boş tabakalar mevcut değildir. kültürler biri diğerini takip eder. Kesitin yan kenarına konan ölçekte Icm. = 12.30 cm. yi gösterir.

LEVHA III — Belbaşı kaya sığınağının üst seviyesini temsil eden aletlerden bir kısmı. Tabii büyüklüklerde çizilmişlerdir. I— Bir kenarı işlenmiş trapez; 2,3-Arkası dik işlenmiş yarım aylar; 4— Sırtlı yarım ay; 5— Yarım aya benziyen arkası dik kesilmiş lâm; 6— İşlenmiş uç; 7-12— Muhtelif tipte yarım aylar; 13— Arkası dik işlenmiş uç kısmı kavisli ince lâm; 14-16— Paralel kenarlı arkası dik işlenmiş lâmlar; 17— Mikro uç; 18— Saplı mikro uç; 19— İşlenmiş mikro yonga; 20-29— Paralel kenarlı lâmlar. Yanlardan ve uç kısımlarından işlenmişlerdir; 30— İşlenmiş bir yonga; 31- Bir tarafı işlenmiş yonga uç; 23-34— Kaideleri meyilli üçgen şekilli lâmlar. Sauveterre la-Lemance tiptedirler; 35— İşlenmiş fakat ucu kırılmış bir lâm; 36— Ucunda burin bulunan paralel kenarlı bir lâm; 37— Ucunda burin bulunan mikro yonga; 38— Ucunda burin bulunan mikro lâm.

LEVHA IV — Belbaşı kaya sığınağında bulunan muhtelif tipte lâm uçlar. Tabii büyüklüklerde çizilmişlerdir. 1— Heluan tip uç: 2-15— Uçları yanlamasına kesilerek işlenmiş muhtelif tipte uçlar; 16-22— Bazıları işlenmemiş üçgen tip uçlar; 23-26 Barbelures tip uçlar; 27, 28, 38— Üçgen tip işlenmiş lâmlar; 29-34— Kaideleri meyilli kesilmiş arkası işlenmiş lâmlar; 35-38— Muhtelif tip mikro uçlar.

LEVHA V — Belbaşı kaya sığınağında çıkan arkası dik işlenmiş ince uzun lâm uç endüstrisine ait örnekler. Tabii büyüklükte çizilmişlerdir. 1-4 ve 14-16— Arkası dik işlenmiş yarım ay örnekleri; 5-9 ve 11-13— Arkası dik işlenmiş ve her iki ucu sivriltilmiş yarım ay tipte lâmlar; 10— Arkası dip kısmına kadar işlenmiş bir uç; 17-31— Arkası düz uç kısmı meyilli dik işleme görülen ince uzun lâm uçlar; 32-46— Arkası dik işlenmiş uç kısmı meyilli ince uzun lâm uçlar; 47-60— Her iki taraftan uç kısmına kadar işlenmiş ince uzun lâm uçlar; 61-70— Arkası dik işlenmiş paralel kenarlı lâmlar; 71-75— Belbaşı kaya sığınağında bulunan mikroburin tipleri.

LEVHA VI — Belbaşı ve Beldibi kaya sığınaklarında bulunan mikrobürin örnekleri. Tabii büyüklükte çizilmişlerdir. 1-4— Belbaşına ait muhtelif tip mikrobürinler. Bürin mikro lâm ve yongaların uç kısımlarına yapılmıştır; 5-6— Krukowsky mikro bürin tip örnekler. Arkası dik işlenmiş

mikro lâmlara yapılmışlardır; 7-8— Yeni bir tip mikrobürin BELBAŞI MİKROBÜRÜNÜ (Coup de microbürin anterieur de Belbaşı) 8 nolu şekil 7 numaralı örneğin biraz büyütülmüş şeklidir; 9-10— Bec-de-flute tip mikrobürin. Lâmın iki tarafı işlenmiştir. Normal bec-de-flute burinlerden ayırmak için (Coup-de-mikroburin posterior de Belbaşı) ismi verilmiştir; 11-15— Diğer mikroburin varyasyonları; 16-19— Mikro lâmlara yapılmış normal tip bürinler; 20-22— BELDİBİ kaya sığınağında bulunmuş örnekleri.

LEVHA VII — Belbaşı kaya sığınağında bulunan ve lâmlarla yongalara yapılmış olan saplı uçlar. Tabii büyüklükte çizilmişlerdir. 1-2— Saplı uçlar. Yongalardan yapılmışlardır ve sap kısmında bürin bulunur; 3-5— Üçgen şeklindeki yonga uçlara sap yapmak için alt ve üst taraftan işlenmişlerdir; Beş numaralı şekilde, uç vurma yumrusunun bulunduğu dip kısmına yapılmıştır; 6— Saplı uç, üste sağ kenar altta sol kenar uca kadar gayet güzel işlenmiştir; Hem sap ve hemde uç kısmına Angle bürin yapılmıştır; 7-9— Saplı lâmlar. 8, 9 numaralı lâmların sap kısmı iki taraftan işlenmiştir; Dokuz numaralı saplı lâmın uç kısmına bec-de-flute burin yapılmıştır; 10— Tipik bir burun kazıyıcı; 11-16— Kemik uçlar 17— Balık omurgası.

LEVHA VIII — Belbaşı kaya sığınağının lâm örnekleri. Tabii büyüklükte çizilmişlerdir. 1-7— Uç kısımları işlenmiş veya kesilmiş lâmlar. Bu lâmlar dip kısmından küçük yongalar kopartılarak inceltilmişlerdir; 8-14— Hususiyle dip kısımları inceltilmiş lâmlar ve lâm uçlar; 15-25— Uçlarına gayet güzel burinler yapılmış ve dip kısımları üst taraftan inceltilmiş lâmlar; 22-29— Dipleri üst taraftan inceltilmiş, kenarlarda ve uç kısımlarında işleme görülen tipik ince lâmlar.

LEVHA IX — Belbaşı kaya sığınağında bulunan diğer bazı aletler. 1-4— İşlenmemiş muhtelif tipte lâm örnekleri; 5-8— Delici tipler, 5, 6 yongaların uç kısmı sivritilmiştir. 7, 8 Lâmların yan kısmı sivriltilerek delici uç yapılmıştır; 9-12— Diğer lâm örnekler; 13-16— Küçük lâmlar üzerine yapılmış bürin tipleri.

LEVHA X — Belbaşı kaya sığınağında bulunan burin tipleri. Tabii büyüklükte çizilmiştir. 1-3— Küçük çakmak taşı blokları üzerine yapılmış Angle ve polyhedric bürin tipleri. Çakmak taşı parçaları üçgen şeklindedir; 4— Yonga üzerine yapılmış bürin tipleri; 5— Yonga ucuna yapılmış angle burin; 6— Lâm ucuna yapılmış angle burin; 7— Yassı bir çakmak taşı üzerine yapılmış Becked burin tipi; 8— Bir tarafına bec-de perroquet burin ve diğer ucuna bec-de-flut burin yapılmıştır; 9— İnce uzun lâm ucuna çok fasetli polyhedric burin yapılmıştır; 10-14— Çeşitli burinler; 15— Bir yonga uç.

LEVHA XI — Belbaşı kaya sığınağında çıkan diğer bürin tipleri. Tabii büyüklükte çizilmişlerdir. 1— Angle burin, çekirdek üzerine yapılmıştır. 2— Çok fasetli polyhedric burin; 3— Angle burin; — -12— Yonga ve lâmlara yapılmış çeşitli burinler.

LEVHA XII — Belbaşı kaya sığınağından muhtelif tip kazıyıcılar. Tabii büyüklükte çizilmişlerdir. 1— Vurma yüzü tarafına kazıyıcı yapılmış bir lâm; 2— Yassı bir yonga üzerine yapılmış kazıyıcı; 3— Yan kazıyıcı; 4— Üç kazıyıcı; 5— Disk kazıyıcı; 6, 7, 10-13— Muhtelif tipte çekirdek kazıyıcılar; 8— Yan kazıyıcı; 9— Kalın bir yonga kazıyıcı olarak yapılmıştır.

LEVHA XIII — Belbaşı kaya sığınağında çıkan muhtelif tip çekirdekler üzerine yapılmış burin ve kazıyıcılar. Tabii büyüklükte çizilmişlerdir. 1— Disk tip bir çekirdek; 2-4— Kazıyıcı olarak kullanılan disk tip çekirdekler; Bu aletlerin platform kısmında yanlamasına koparılan bir parça ile kenarda burin meydana getirilmiştir. Yeni bir burin tipidir. 5-9— Piramit kor tipleri üzerine yapılmış angle ve bec-de flute burinler; 10-14— Korlar üzerine yapılmış angle ve bec-de-flute burinler; 10-14— Korlar üzerine yapılmış polyhedric burin tipleri; 15-17— Çekirdek kazıyıcılar.

LEVHA XIV — Belbaşı kaya sığınağında bulunan ve kalın yongalarla çekirdekler üzerine yapılmış kazıyıcı örnekleri. Tabii büyüklükte çizilmişlerdir. 1— Kalın bir blok çakmak taşı üzerine yapılmış burun kazıyıcı; 2— Kalın bir çakmak taşının üç tarafına burun kazıyıcı yapılmıştır; 3-4— Uzun çakmak taşı parçaları üzerine burun kazıyıcı yapılmıştır; 5— Çekirdek üzerine yapılmış burun kazıyıcı; 6-12— Muhtelif tip kazıyıcılar. Bütün levhalar yazar tarafından çizilmiştir.

EXPLANATION OF THE PLATES

PLATE I — Schematic cross-section of the Belbaşı rock shelter drawn from the west-east direction. The sounding area, together with large blocks of rock fallen on the deposits in front of the rock shelter, can be seen.

PLATE II — Cross section of the sounding at the Belbaşı rock shelter. The inclination and thickness of the layers and the blocks of limestone between them can be seen. There are no sterile layers and the cultures follow each other continuously. The scale at the side is 1 cm. = 12.30 cm.

PLATE III — Some of the tools from the upper level of the Belbaşı rock shelter, all drawn in natural size. 1— Trapeze retouched on one side only; 2, 3— Lunates with steep retouch on the back; 4— Ridge-backed lunate; 5— half-moon shaped blade; 6— Retouched point; 7-12— Various types of lunate with steep retouch on the back; 13— Thin blade with curved point and steep retouch on the back; 14-16— Parallel sided blades with steep retouch on the back; 17— Micropoint; 18— Micro-tanged point; 19— retouched micro-flake; 20-29— Parallel-sided blades, some retouched on the side and some on the point; 30— A retouched flake; 31— A micro-flake retouched on one side; 32-34— Triangular blades obliquely cut at the base (Sauveterre-la-Lemance type); 35— Retouched blade obliquely broken at the point; 36— Parallel-side blade with burin on the tip; 37— Micro-flake with burin on the tip; 38— Micro-blade with burin on the tip.

PLATE IV — Various types of blade point from the Belbaşı rock shelter, all drawn in natural size. 1— Heluan type point; 2-15— Various points with oblique retouch; 16-22— Triangular shaped points, some with no retouch; 23-26— "Barbelures" type points; 27, 28, 38— Triangular-shaped retouched blades; 29-34— Triangular blades obliquely cut at the base; 35-37— Various types of micro-point.

PLATE V — Examples of the blade industry with steep retouch on the back from the Belbaşı rock shelter, all natural size. 1-4 and 14-16— Lunates with steep retouch; 5-9 and 11-13— Lunate-type blades pointed both ends and with steep retouch on the back; 10— Blade-point with steep retouch on the back from point to base; 17-31— Obliquely truncated points with straight backs steep retouch; 32-46— Curved thin blades with only one end pointed; 47-60— Thin blade points both sides retouched as far as the tip; 61-70— Various parallel-sided blades with steep retouch on the back; 71-75— Belbaşı microburins.

PLATE VI — Some examples of Belbaşı and Beldibi microburins, drawn in natural size. 1-4— Various types of microburin, made on the tip of micro-blades and flakes; 5-6— Krukowsky type microburins made on micro-blades with steep retouch on the back; 7-8— A new type of microburin

found at Belbaşı (coup de microburin anterieur de Belbaşı); No. 8 is the same tool as No. 7 enlarged in size); 9-10— Bec-de-flute type microburin retouched on both sides. To distinguish it from the normal bec-de-flute type the name "coup de microburin posterior de Belbaşı" has been given; 11-15— Some other types of microburin; 16-19— Normal type of burins made on micro-blades; 20-22— Examples of Beldibi microburins.

PLATE VII — Tanged points made on flakes and blades from the Belbaşı rock shelter. 1-2— Tanged points made on flakes with burin on the tang; 3-5— Flake points roughly tanged some with retouch and some not; 5 has the striking platform pointed and the point of the blade is broken and roughly tanged; 6— Tanged point finely retouched on the right side on the upper surface and on the left on the lower surface as far as the tip; with angle burins on the tip and on the tang; 7-9— Tanged blades, two retouched on both sides of the tang; 9 has a bec-de-flute burin on the tip; 10— Typical nose-scraper; 11-16— Bone points; 17— Vertebrate of fish.

PLATE VIII — Examples of blades from the Belbaşı rock shelter, all drawn natural size. 1-7— Blades some with truncated and retouched tips; the butt ends are refined by striking off small flakes from the upper surface; 8-14— Blades and blade points specially refined at the butt end on the upper surface; 15-21— Blades with burins on the tip and butt end refined from the upper surface; 22-29— Blade points, some with retouch on one side and two with retouch on both sides of the tip, all with butt ends refined;

PLATE IX — 1-4—. Examples of various types of blade points with no retouch; 5-8— Various types of borers, 5 and 6 made on flakes and 7 and 8 on blades; 9-12— Various types of blade points; 13-16— Small blades with burins on the tip. (all drawn natural size).

PLATE X — Various types of burin from Belbaşı rock shelter, all drawn natural size. 1-3— types of burin made on pieces of flint; 4- A flake with bec-de-flute burin on the tip; 5— Flake with angle burin on the tip; 6— Backed blade with angle burin on the tip; 7— Backed burin on one side of a flat piece of flint; 8— Bec-de-perroquet burin on one side and bec-de-flute burin on the side of a piece of flint; 9— Polyhedric burin on the tip of a long thin blade; 10-15— Various types of angle burin on the tip of blades; 15— Flake point retouched on the tip.

PLATE XI — Some other types of burin from Belbaşı rock shelter, all drawn natural size. 1— Angle burin made on a care; 2— Polyhedric burin made on a core; 3— Angle burin on a piece of flint; 4-12— Various types of flakes and blades with burins on the tip.

PLATE XII — Various types of scrapers from Belbaşı rock shelter, all drawn natural size. 1— Blade with screpar on the striking platform side; 2— Slake with scraper on the tip; 3— Side scraper on a piece of flint; 4—

Scraper on a block of flint; 5— Disc scraper; 6, 7, 10-13— Various types of scrapers on cores; 8— Side scraper 9— Thick flake used as a scraper.

PLATE XIII — Scrapers and burins made on various types of core from Belbaşı rock shelter, all drawn natural size. 1— Disc-shaped core; 2-4— Disc-shaped cores used as a scraper; the platforms are cut obliquely and used as a burin; 5-9— Bec-de-flute, and angle burins made on the tip of pyramidal cores; 10-14— Types of polyhedric burin made on cores; 15-17— Core scrapers.

PLATE XIV — Examples of scrapers made on thick flakes and various types of core from Belbaşı, rock shelter, all drawn natural size. 1— Nose scraper made on a thick piece of flint; 2— Nose scraper made on three sides of a block of flint; 3-4— Nose scrapers made on a long piece of flint; 5— Nose scraper made on a core; 6-12— Various types of scraper.
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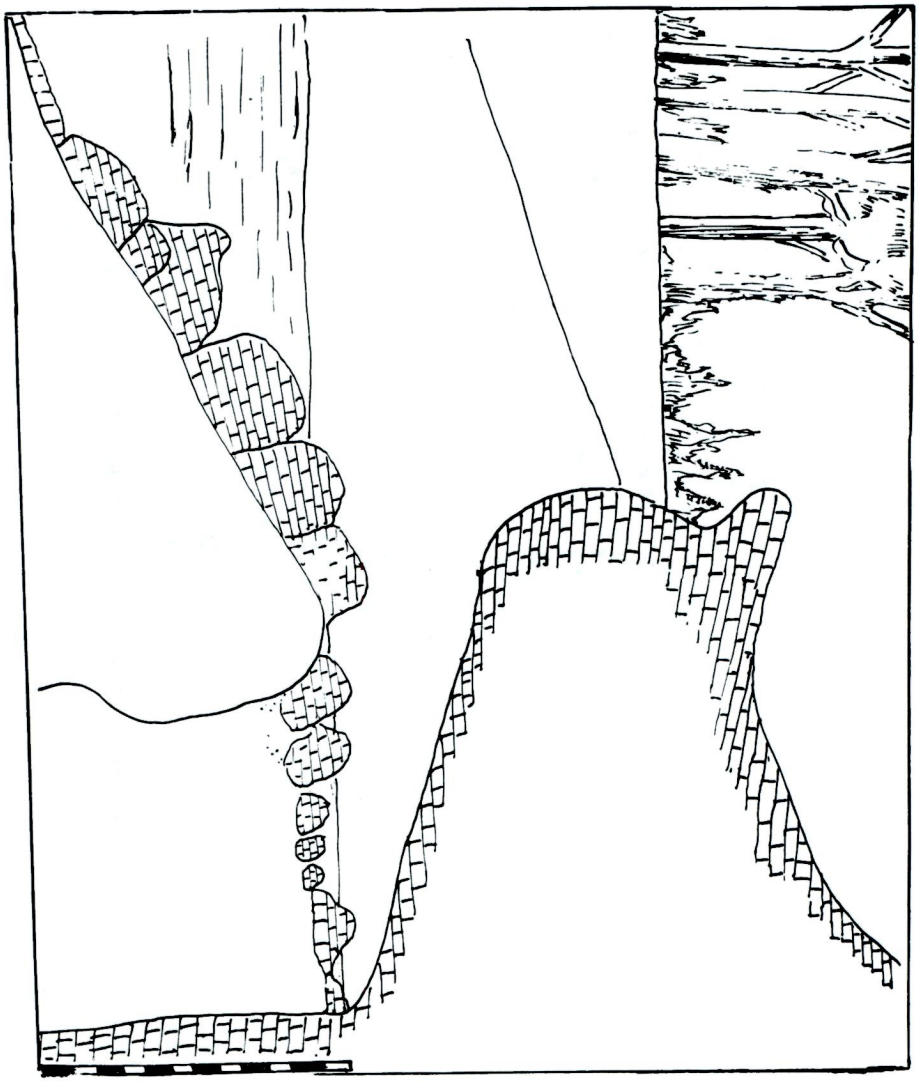

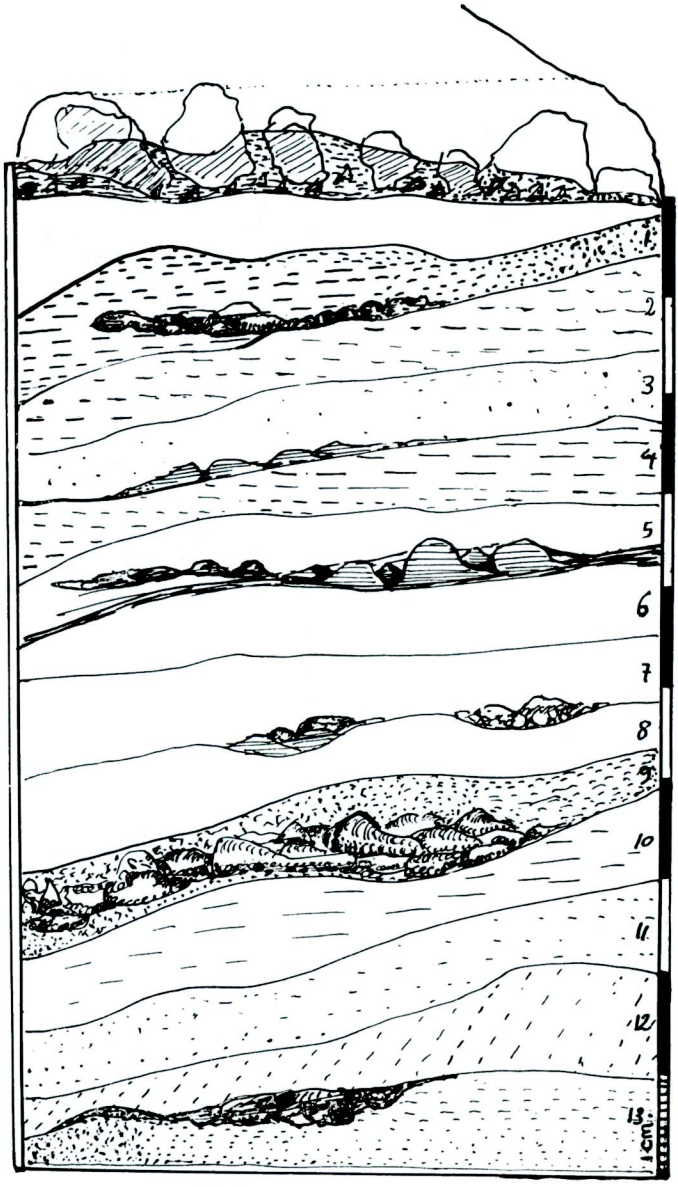
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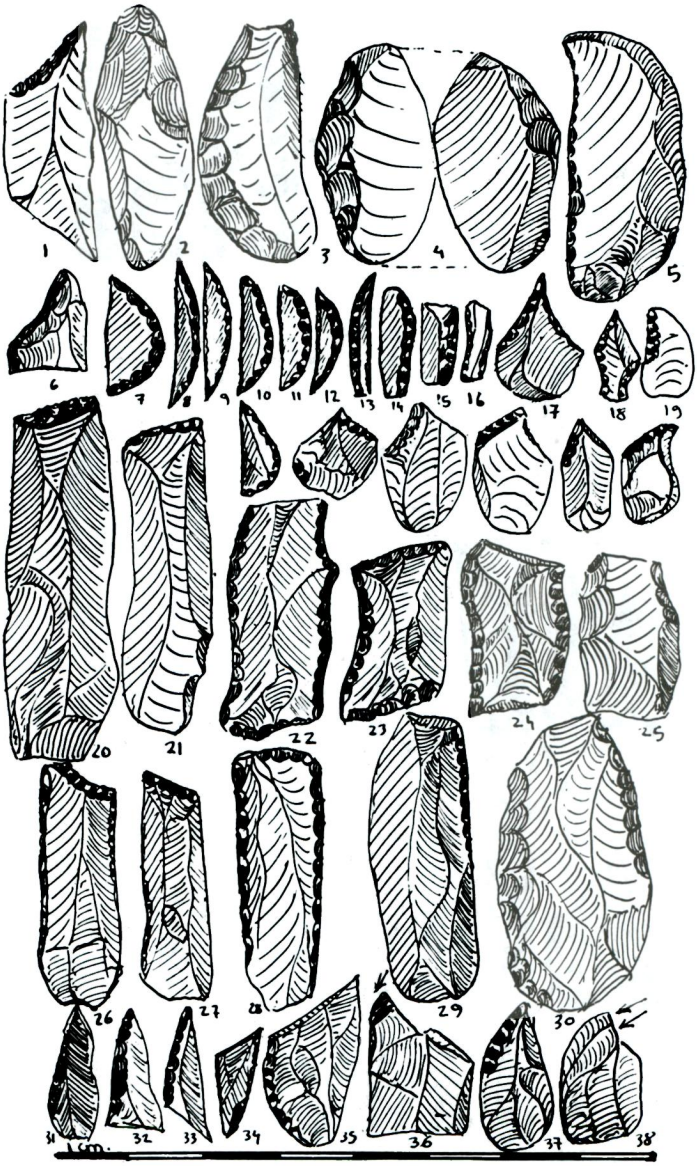
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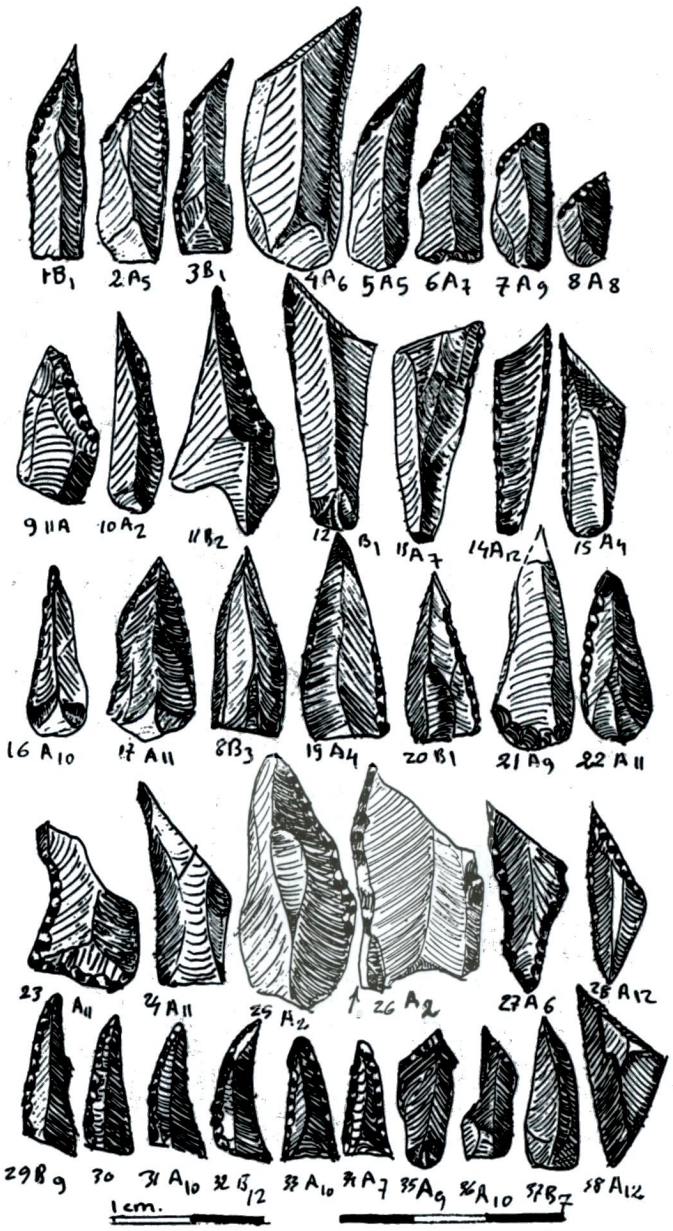
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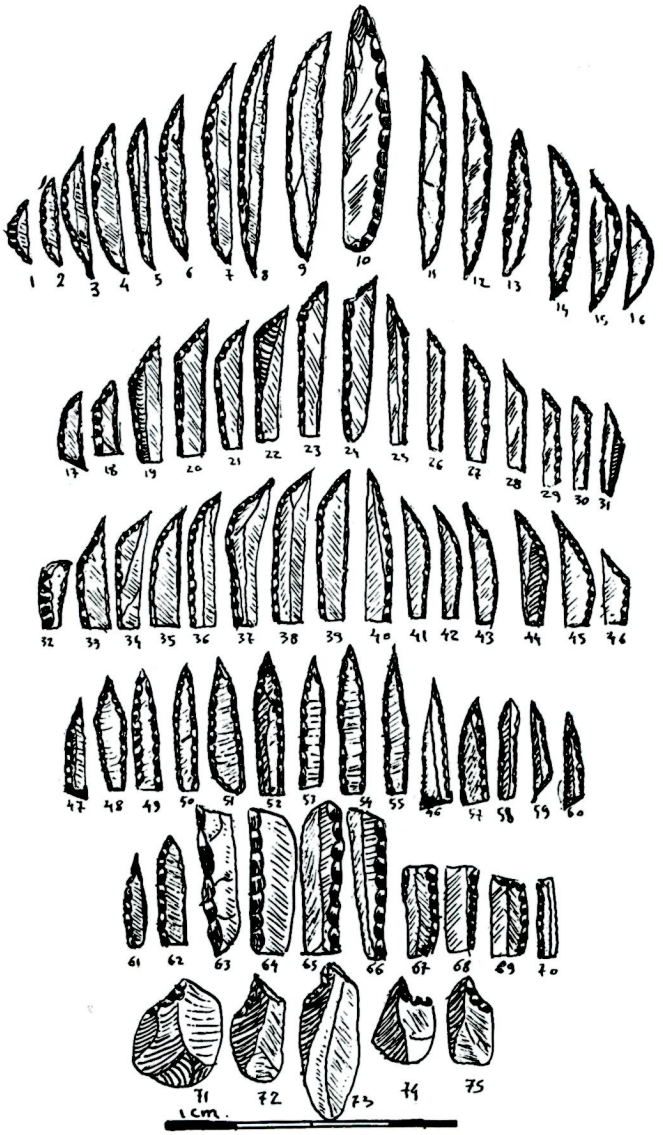
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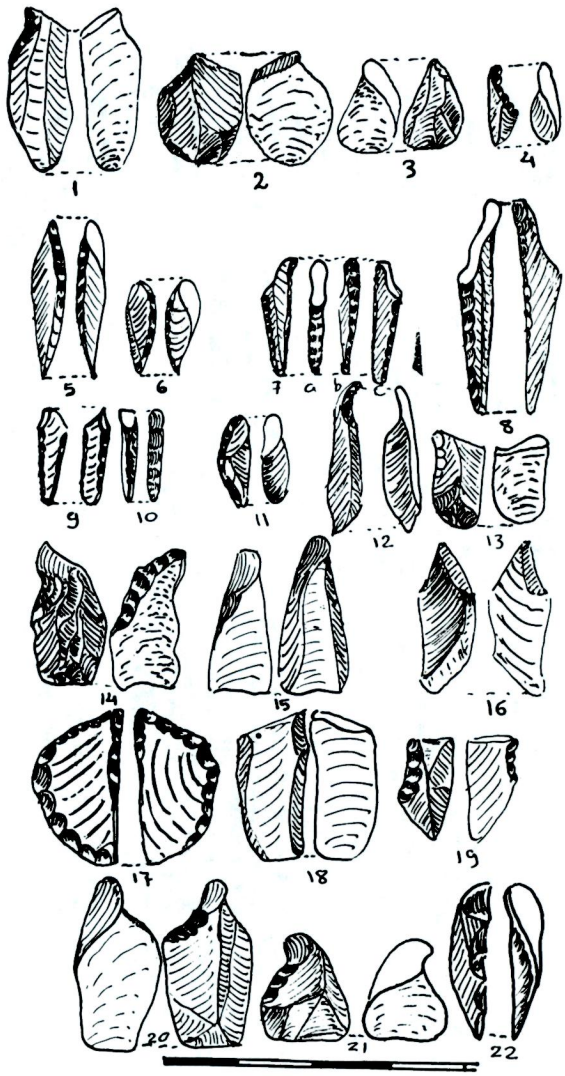
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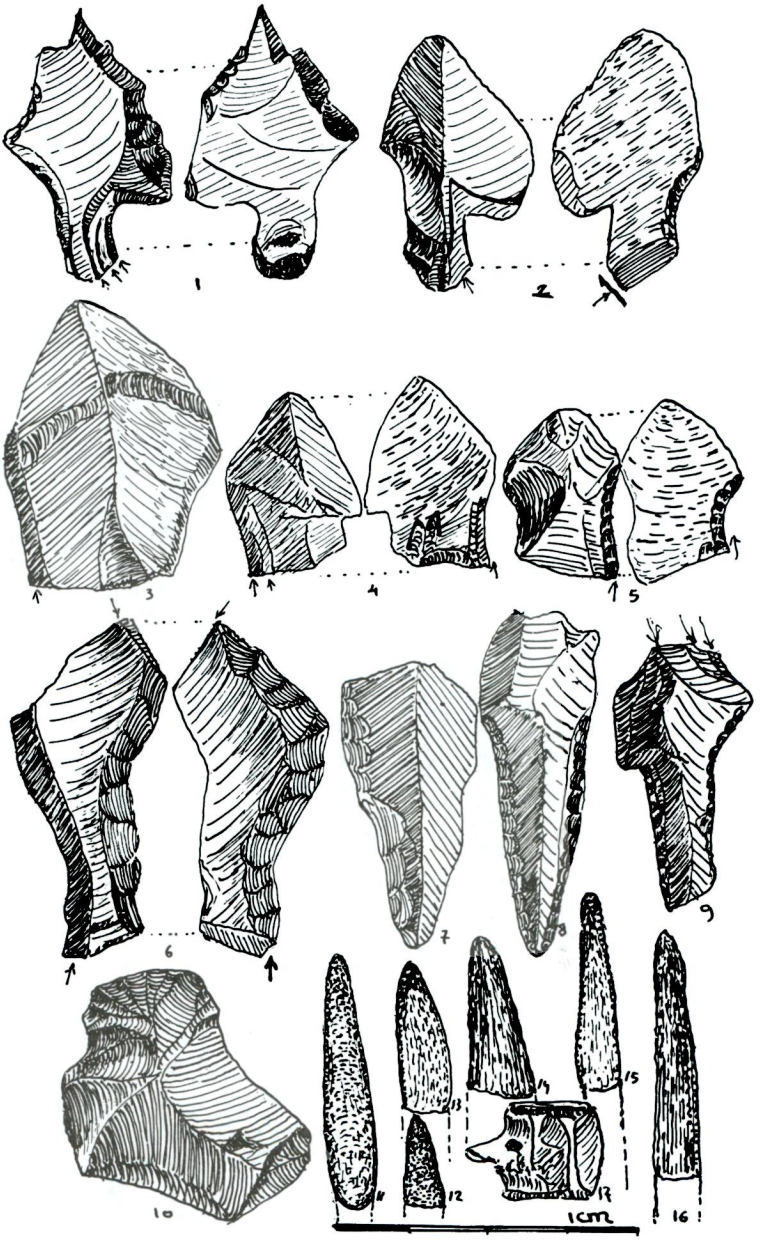
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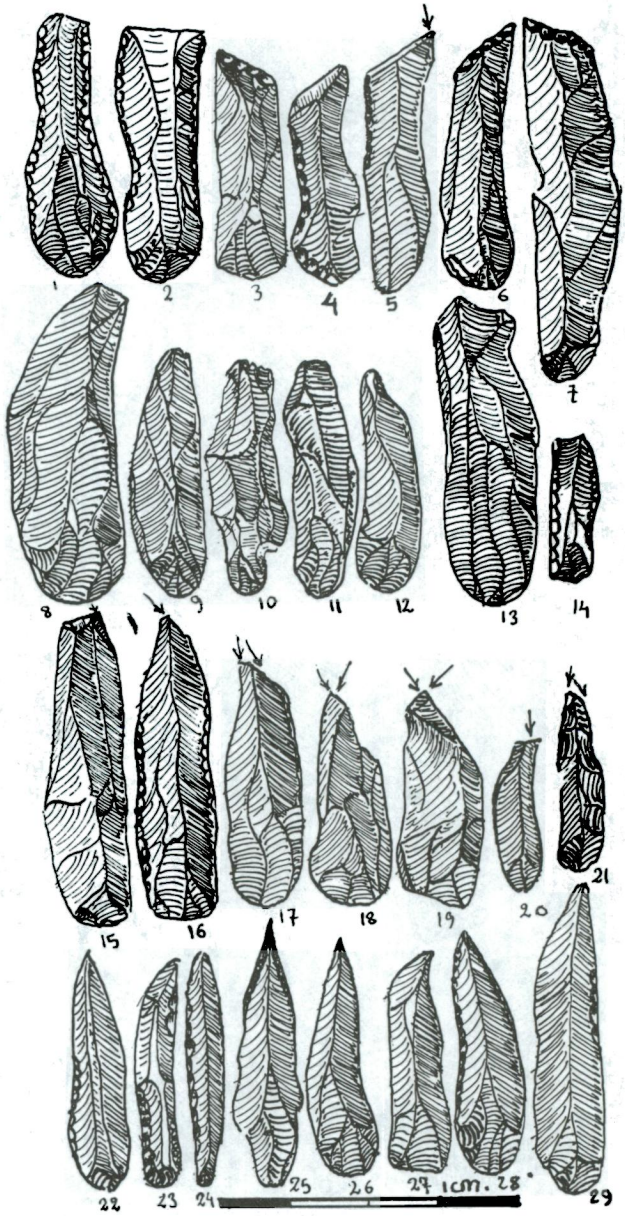
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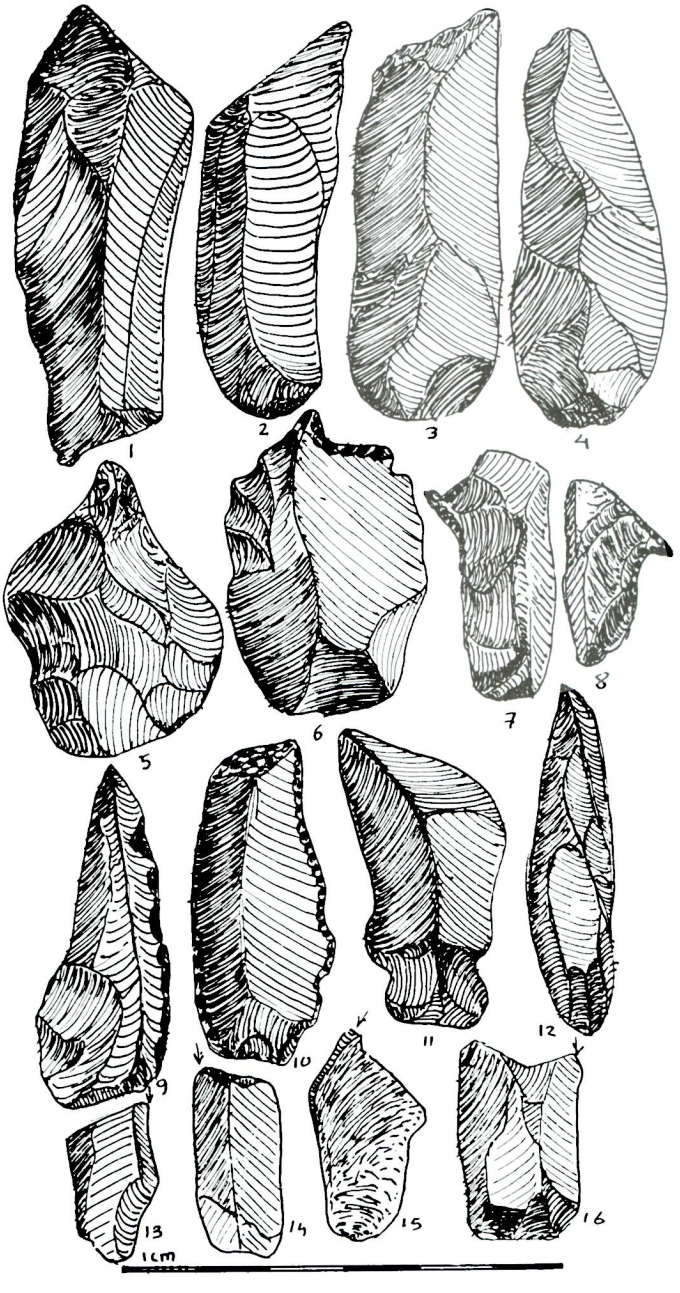
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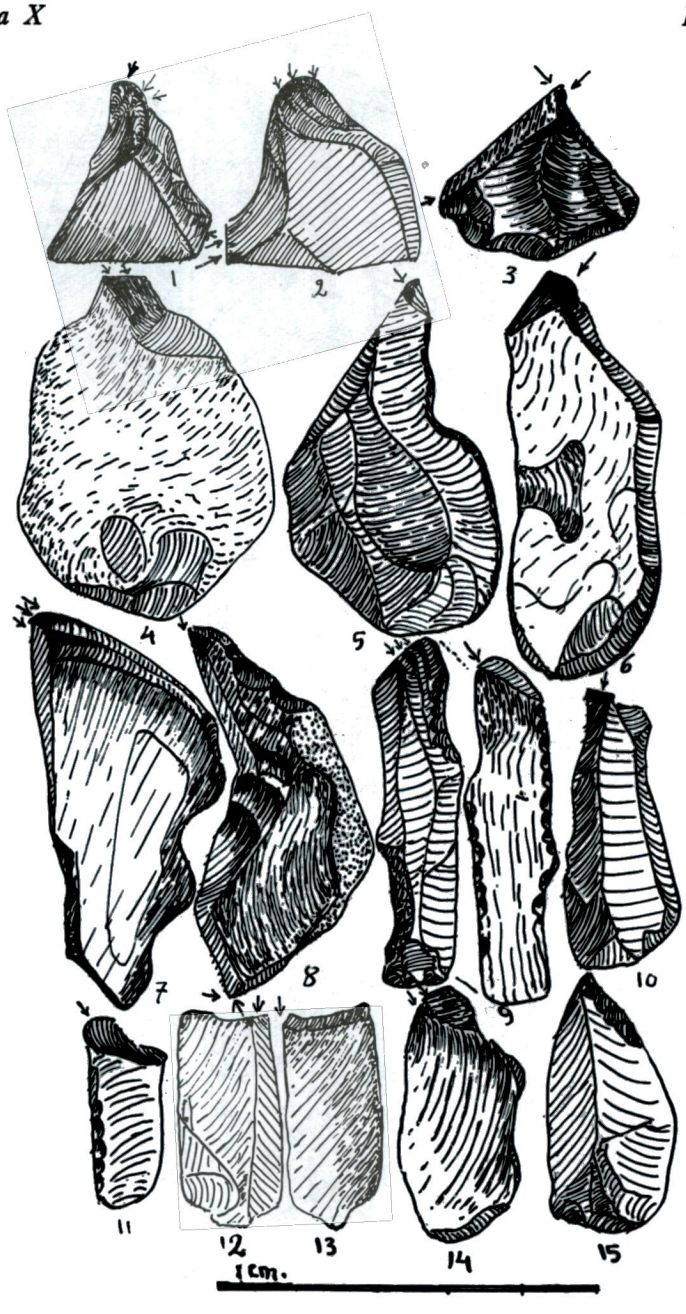
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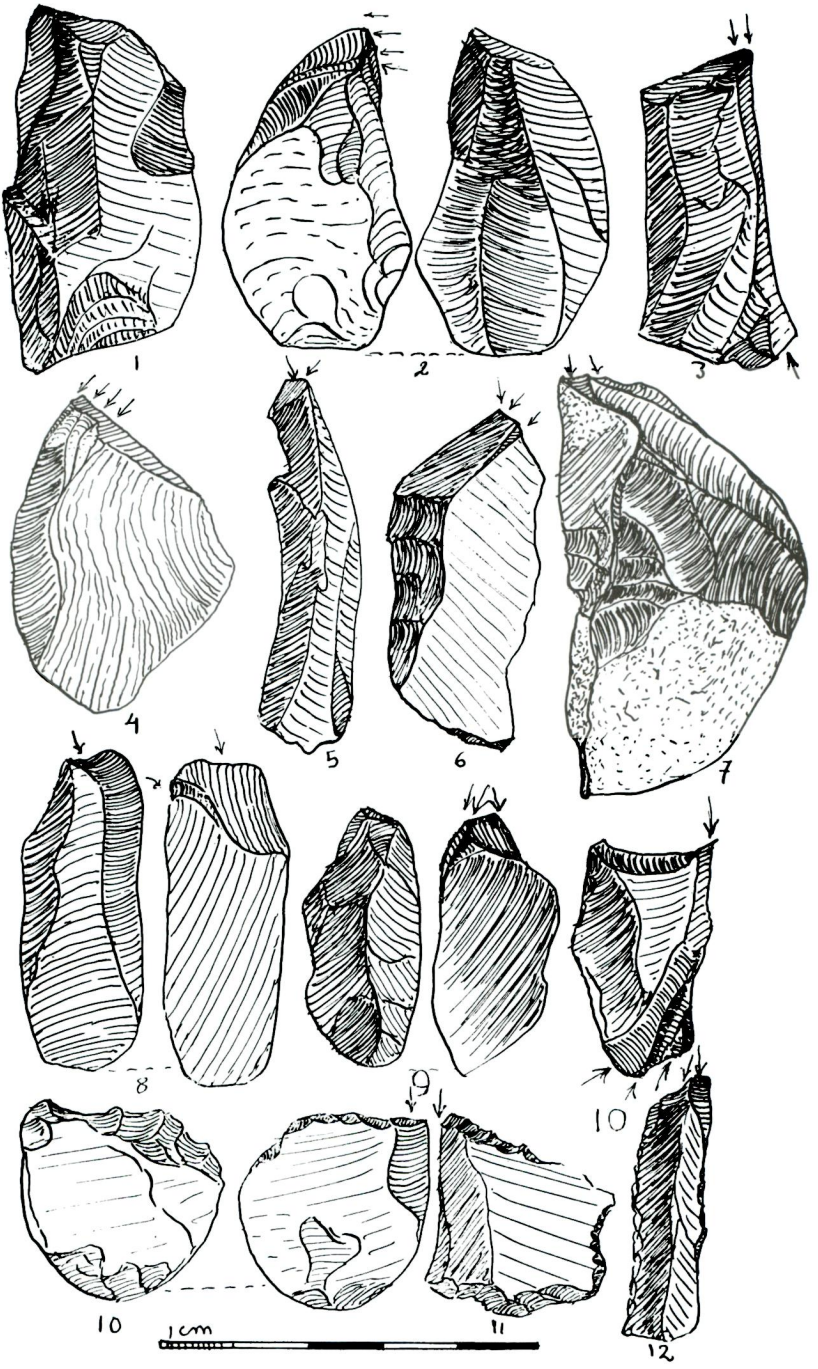
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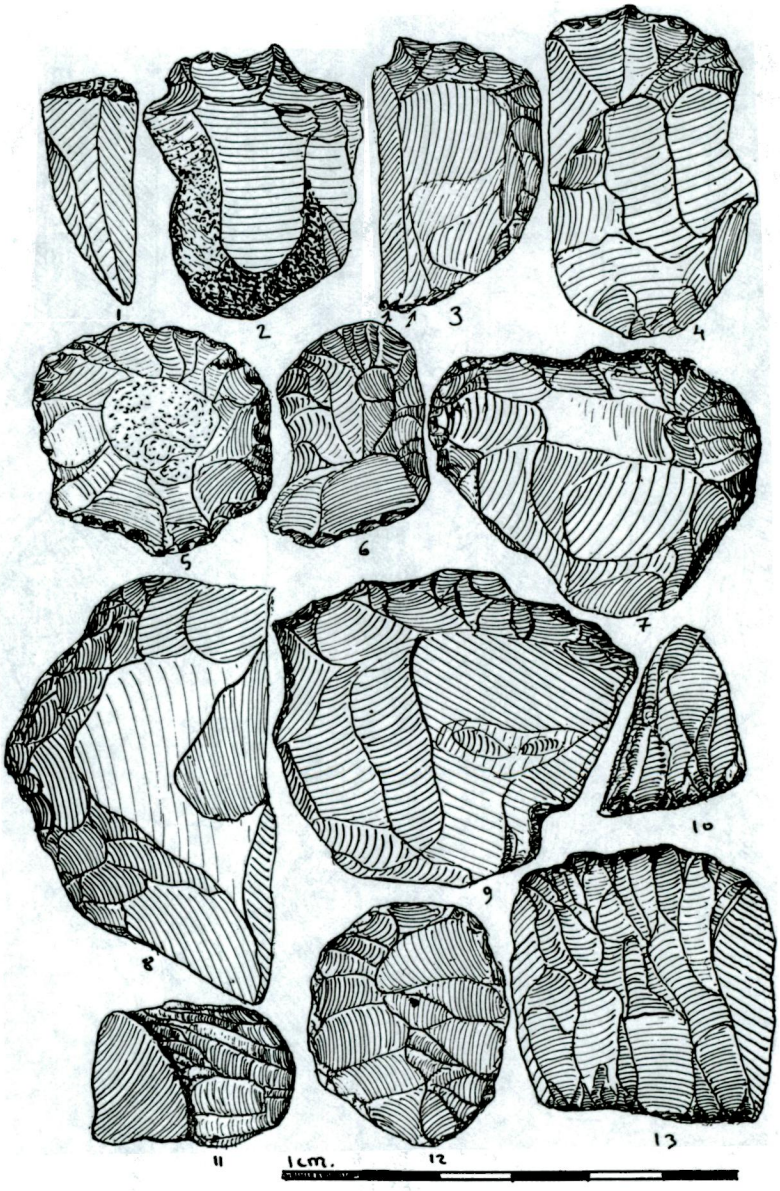
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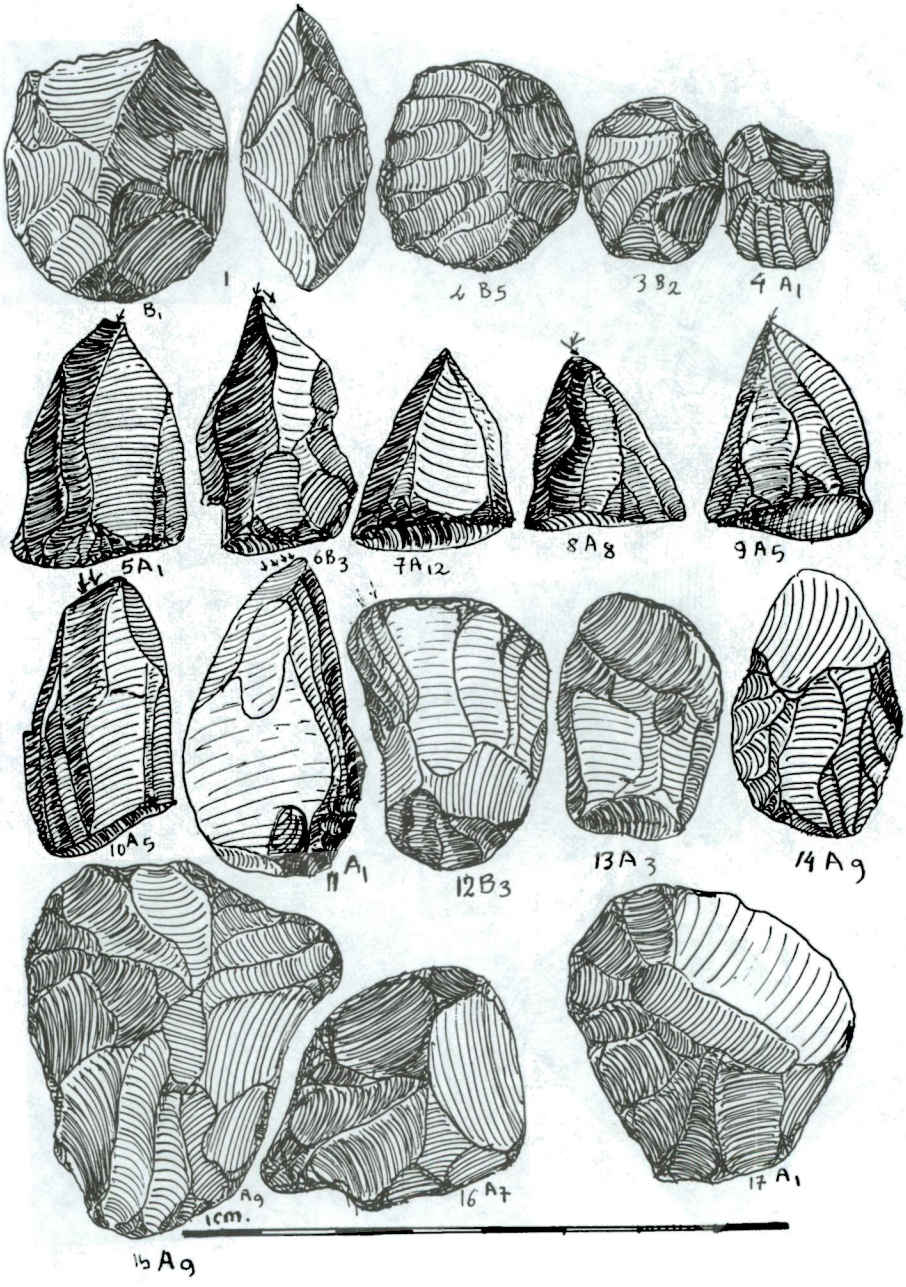
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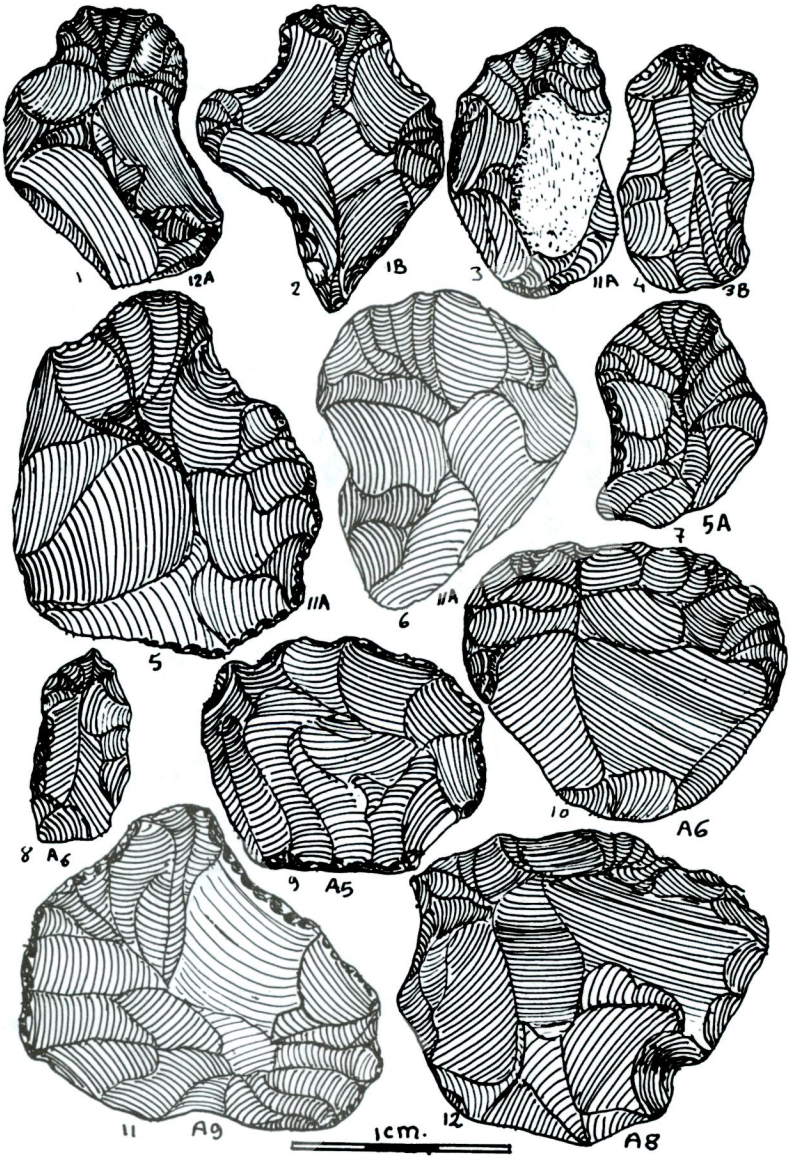
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