

Excavations at the cave of Sefunim (Iraq El-Barud), Mt. Carmel¹ Preliminary report

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The cave of Sefunim is situated on the south bank of Wadi Sefunim, 10 km south of Haifa and approximately 3 km from the Mediterranean shore (Palestine grid ref. 14828 23808). The cave faces north at an altitude of 125 m above sea level and 15 m above wadi bed.

The cave (fig. 1), cut into crystalline limestone of middle Cenomanien, is 50 m long and 23 m wide. Its maximum height is 19 m. There are two chambers: the inner one, completely dark, measures 20 × 10 m is separated from the outer chamber by a line of stalagmites and a central rock column. The outer chamber is 30 × 23 m.

In front of the cave there is a terrace which slopes to NW for about 20 m to the wadi bank escarpment. Most of the surface of the terrace is eroded almost to bedrock. Several huge blocks, which once extended the cave ceiling by 5–7 m, lay near the cave entrance on its southern part. It seems that before the ceiling collapsed day light did not reach the southern part of the outer chamber, now illuminated.

In 1904, Graf von Mülinen recorded Arabs living in this cave and producing Salpeter (hence the Arabic name Barud, meaning gunpowder or rifle; Mülinen 1908). In 1941, late Prof. Stekelis has made small soundings at the center and at the eastern part of the entrance to the cave (Stekelis 1942, 1961). The central pit revealed disturbed material, while at the entrance the following stratigraphy has been found: A1, 0–0.10 m, Neolithic; A2, 0.10–0.30 m, Kebarien; B, 0.30–0.60 m, Upper Palaeolithic; C, 0.60–1.10 m, "Middle Aurignacian"; D, 1.10–1.20 m, Upper Palaeolithic. Excavations stopped here without reaching bedrock.

The excavations to be described lasted for a total period of 6 months, during 1965–1967, and were under the auspices of the Department of Antiquities².

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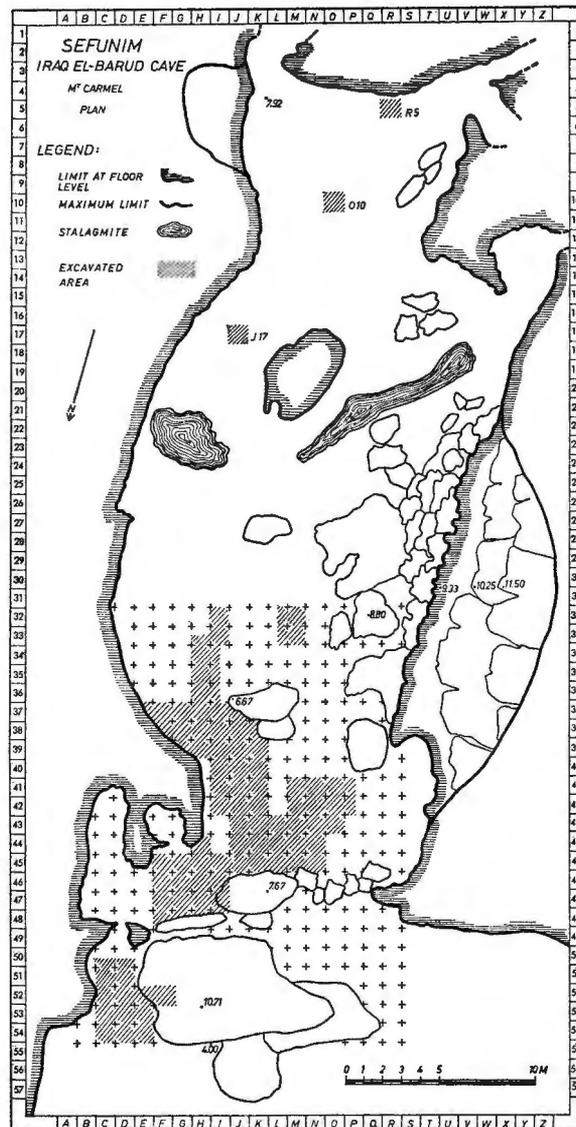


Fig. 1. Sefunim, plan.

The cave

Inner chamber

Three test-pits, one square meter each³, were dug in the dark and humid inner chamber. The southernmost, in square R5, showed that bedrock – very much decayed – was covered here but with a few centimeters of dust. In square O10 bedrock, equally de-

³ Each square is designated by the letter and number intersection at the south-western corner.

cayed, was reached 0.20 m below surface, while in J17, on the limit of the outer chamber, it was found 0.70 m below surface. Bedrock thus slopes gradually from south to north with but little deposits in the inner chamber, consisting of angular stones. There is no sign of any human occupants here.

The surface of deposits was even, and on the same level with the surface of the outer chamber.

O u t e r c h a m b e r

An area of approximately 70 m² was excavated in the front chamber. Near the entrance, the stratigraphy is as follows (fig. 2 and 3):

1. Surface dust, 0.10 m, containing flint tools and potsherds of different ages.
2. Upper ash layer, white and dark lenses intermingling. Arabic.
3. Plaster-floor up to 0.20 m thick. Arabic.
4. Lower ash layer, composed as layer 2.
5. Upper, stony layer, 0.30 m maximum thickness. Stones 0.50–0.15 m with loose dust and scattered ashes in between. Mainly Arabic pottery, but some earlier potsherds occur together with flint tools.
6. Light brown clayey sand with few small stones, 0.40 m maximum thickness. Almost sterile culturally. Rich in microfauna.
7. Lower stony layer, 1.50 m maximum. Very crumbly, with almost no earth interfilling. The stones in this layer are larger than those in layer 5. Rich flint and pottery finds, from Neolithic to the end of the 4th Millennium B. C., with a few Arabic intrusive sherds.
The limit between this layer and pre-neolithic complex is very sharp.
- 8a. This layer is composed of discontinuous patches and small basins of dusky red clay (10R 3/4⁴), dug into, or thinly spread over layer 8. Few small stones. The few finds indicate Natufian Culture.
8. Clayey sand, dry, loose or very loose, made of big grains. Reddish brown (5YR 5/4), many stone fragments of 0.03–0.005 m. Rich in flint chips. Fauna and microfauna. "Kebarien" industry.
9. Same composition as layer 8, but with zones of humid, compact clay. Stone fragments of 0.005 m or less. Reddish to dark brown (5YR 5/4 to 7.5YR 4/4). "Aurignacian".
10. A "floor" composed of whitish, chalky material mingled with brown clay. A continuous layer of stones (partly rounded) covers (artificially?) the "floor", with rich flint industry and faunal remains between and above the stones. The layer is 0.04–0.15 m thick. "Aurignacian".
11. A very pale, brown layer (10YR 7/4) with chalky concretions, compact. Few small stones. Almost sterile culturally.
12. Dark, reddish brown (5YR 4/3) to reddish gray (5YR 4/2) clay, sticky, with no stones. Thin breccia at the contact with layer 13. Mousterian or Early Upper Palaeolithic.
13. Very porouse, brown clay (10YR 5/3), few stone fragments less than 0.005 m. Bone better preserved than in any other palaeolithic layer in this cave. Thin, hard breccia at the bottom above bedrock. Mousterian.
The bedrock is very much deteriorated.

D e s c r i p t i o n , z o n e s o f h a b i t a t i o n a n d f i n d s

Layers 1–5 covered the entire front chamber. The plaster floors of the Arab inhabi-

⁴ All Münsell – colour determinations were made upon extraction of the sample.

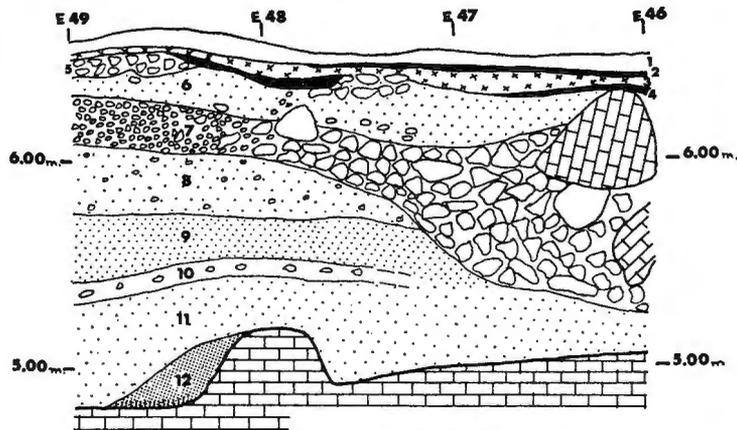


Fig. 2. Sefunim, cave. S-N section along E meter-line.

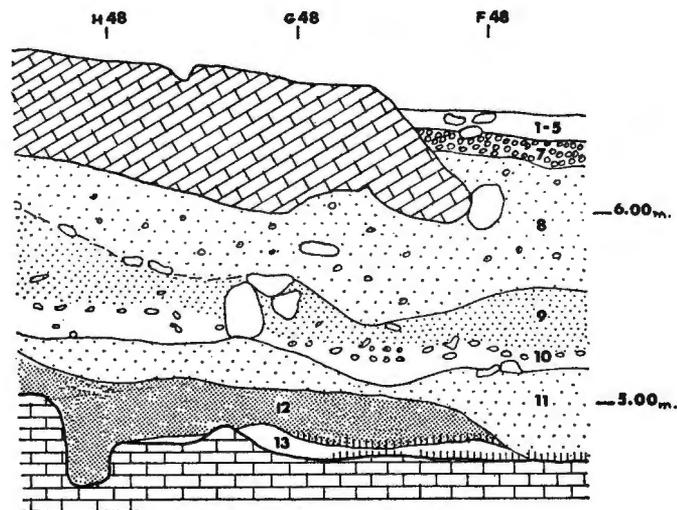


Fig. 3. Sefunim, cave. W-E section along 48 meter-line.

tants (up to 3 superimposed) with the characteristic ash layers beneath each of them run from the eastern to western wall, and from the entrance back at least to the 31 meter-line, where it was found. It was not found in the test pit at J17; it ends, most probably, around the 24 meter-line.

Two peculiar fire constructions, which were in use during the Arabic period, were found: the first, in square G-H44, was 1 m deep, with an upper diameter of 1.60 m and a bottom diameter of 0.60 m. The pit, dug to bedrock against the cave wall, was completely filled with soft ash and a few stones. The second pit, dug against the eastern wall of the cave, in square C-B47, measured as follows: upper diameter 1.25 m, bottom diameter 0.80 m and a depth of 1.60 m (1.16 m of which was dug through palaeolithic

layers). This pit was also filled with ash, and sealed by a circle of flat stone slabs nicely fitted.

Since these two constructions exceed normal Arabic kitchen accommodations, they might have been connected with the salpeter fabrication, mentioned by von Mülinen (cf. *supra*).

Layer 6 existed only from the 45 meter-line northwards, towards the entrance, forming a lense-shaped separation between upper stony layer 5 and lower stony layer 7. Where layer 6 did not exist, layer 5 could be separated from 7 by the loose earth filling in between the stones, consisting of a gray dust in layer 5 and light brown in layer 7. Sometimes, though, the separation was impossible.

Layer 7 covered the entire front-chamber. In most of this area it layed on bedrock. The size of most of the stones is 0.10–0.40 m, some blocks reaching 2 m. Slight weathering occurred at the bottom. The size of the stones gradually decreased towards the north till, near the entrance, on the 48 meter-line, they suddenly diminished in size up to less than 0.05 m (fig. 2). The layer contained abundant industry: axes (fig. 6 ; 2), adzes, picks (fig. 6 ; 1), chisels, grattoirs, steep scrapers and burins; a few arrow heads (fig. 6 ; 4-5), many cores, flakes and blades. Polishing was very rarely practised. Pottery of the 4th Millennium B. C. forms the majority of pottery types.

A human skeleton, without the skull, was found in square K38, 0.15 m above bedrock. It lay in a contracted position. About 1 m to north a broken limestone mortar was found, similar in shape and size to those found near the Natufian burials at Nahal Oren (Stekelis and Yisraely 1963). Right under this mortar a pit measuring 1 × 0.30 m was dug into the soft bedrock, 0.30 m deep. This might have been the original burial place.

The Neolithic inhabitants of layer 7 were the last to occupy the entire front chamber. The lower layers occurred only from the 44 meter-line northwards. Starting as a thin strip of several centimeters, they reach a depth of 1.30 m at the 48 meter-line, the actual northern limit of excavations. The main pre-neolithic zone of habitation is, apparently, further north, closer to the then-existing cave entrance.

Layer 8a consists, as stated above, of isolated patches or depressions of a red clay, amidst the loose, brown clay of layer 8. The depressions had very thin ash layers at their bottom, and small charcoal pieces occurred in the red filling. The largest depression was found in squares H47–48, 1 m in diameter and 0.33 m deep. On the bottom there was a circle of big, flat pebbles, with fragments of charcoal, but no distinct ash layer. Dentalium beads were found in and around this depression.

Layer 8a yielded a small number of tools: crescents, a rectangle and other retouched microlithes (fig. 6 ; 7), as well as Dentalium beads. Few crescents and Dentalium were found in the brown, loose layer 8, but always near to depressions of 8a, where they probably originate from.

Layer 8, with many small stone fragments, was extremely rich in chips of flint and small pieces of bone. The area excavated has yielded numerous cores (fig. 7 ; 2), flakes and blades, and seems to be a zone of flint industry and kitchen waste. The tools included grattoirs, steep and nosed scrapers (fig. 6 ; 6), burins mainly of opposed facets

(fig. 7 ; 1, 3), few retouched microlithes (fig. 6 ; 3), notched and retouched blades, and several racloirs. The only bone tools in the cave (three broken points) were found in this layer.

Layer 9 had less stones than layer 8. The industry is similar to that of layer 8 with the addition of a Font-Yves point and typical Levallois (fig. 7 ; 5) and Pseudo-Levallois points. A burin busqué with retouch instead of a notch is to be mentioned here (fig. 7 ; 4). The retouch is confined to the central part of the right edge, and was clearly made before the burin blows. The single vertical blow preceded the three convex ones, like in similar tools in the French Aurignacian. The working edge is of a triangular shape.

Layer 10, the whitish "floor", exists only from the 46 meter-line northwards. This thin layer contained abundant cores, flakes and blades, indicating a workshop area. The layer is 0.05–0.07 m thick, at one point reaching 0.15 m. The tools include grattoirs, nosed scrapers (fig. 8 ; 2), one steep-scraper (fig. 8 ; 1), few burins (only with opposed facets), Levallois and Pseudo-Levallois points.

Layer 11 appeared on the 46 meter-line, and varied in thickness from 0.05–0.40 m, where, in absence of layer 12, it layed directly on 13. It is almost sterile, and seems to be partly redeposited.

Layer 12 exists from the 46 meter-line northwards, as layers 10 and 11. In some places there was a thin breccia at the bottom. The industry, poor as yet, is of a transitional character: cores, flakes mostly with faceted platform, several racloirs (fig. 8 ; 5) and a Mousterian point (fig. 8 ; 3), together with a grattoir, a steep-scraper (fig. 8 ; 4), a burin and several unretouched bladelets.

Layer 13, the lowest in the cave, is the most porous of all and had hard, discontinuous breccia at the bottom. It appeared on the 47 meter-line, lying on the much deteriorated bedrock, which slopes slightly to North-East. The industry, poor at the moment, includes mainly simple and double racloirs (fig. 9 ; 1, 2), Levallois points, cores and flakes of Levalloisian technique.

S u m m a r y

The cave contains cultural layers from the Mousterian to late Arabic periods. The industry found so far is not sufficient for a detailed study; it is, however, worth noting the existence of typical Levallois and pseudo-Levallois points, associated with the faceted-platform technique, in the upper palaeolithic layers (particularly 12, 10 and 9).

An important rock-fall occurred after layer 8a (the blocks lay either upon 8a or 8, where the former did not exist). Inhabitants of 7th to 4th Millennium occupied this stony layer 7 (or its top alone?), their industries are mingled and impossible to separate due to the loose and crumbly character of the deposit. In one case only, a block partly penetrated down to layer 11, its upper part reaching above layer 1. This might belong to an earlier phase of rock-fall, the moment of which is at present difficult to ascertain.

A last, small rock-fall forms layer 5, with only a few big blocks.

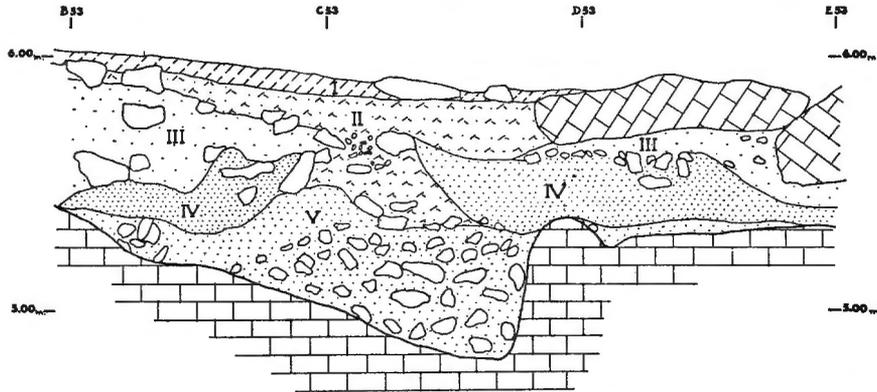


Fig. 4. Sefunim, terrace. W-E section along 53 meter-line.

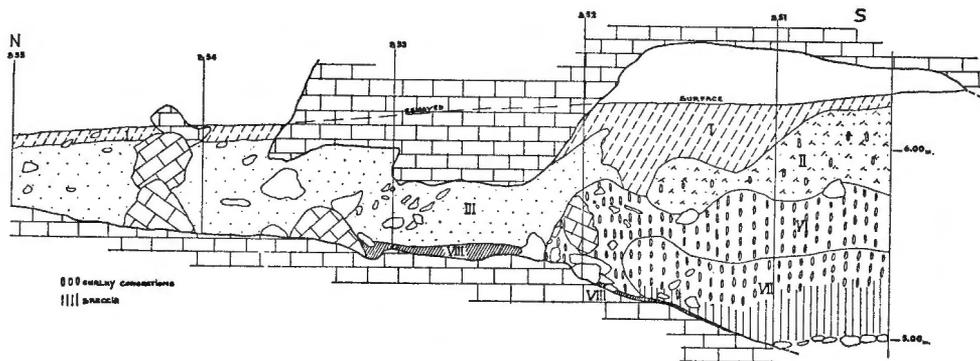


Fig. 5. Sefunim, terrace. S-N section along B meter-line.

The terrace

We excavated at the south-eastern part of the terrace, where surface was quite even and a small rock overhang avoided erosion. The rock wall limited our excavation on the East (B meter-line) and the huge, fallen block on the West (fig. 1). Correlation has not yet been established with the cave layers, hence the terrace layers are enumerated independently (fig. 4 and 5):

- I. Gray recent soil 0.10 m.
- II. Reddish brown clayey sand (5YR 4/4), with small chalky concretions and few stones. 0.40 m maximum thickness. Recent pottery, flint tools.
- III. Dark red clay (2.5YR 3/6), hard, with stones. 0.50 m maximum. Neolithic, with flint tools and pottery.
- IV. Dark reddish brown clay (5YR 3/2), with many stones. 0.30 m maximum. Ash layer at the bottom. Pre-pottery Neolithic.
- V. Dark brown clay, sometimes sandy (7.5YR 4/4), humid and sticky. Small stone fragments of 0.03–0.05 m, few stones up to 0.05 m. Maximum thickness 0.50 m. Poor, non characteristic flint industry. Upper palaeolithic? At the bottom an elliptical hearth, partly dug into layer VI.

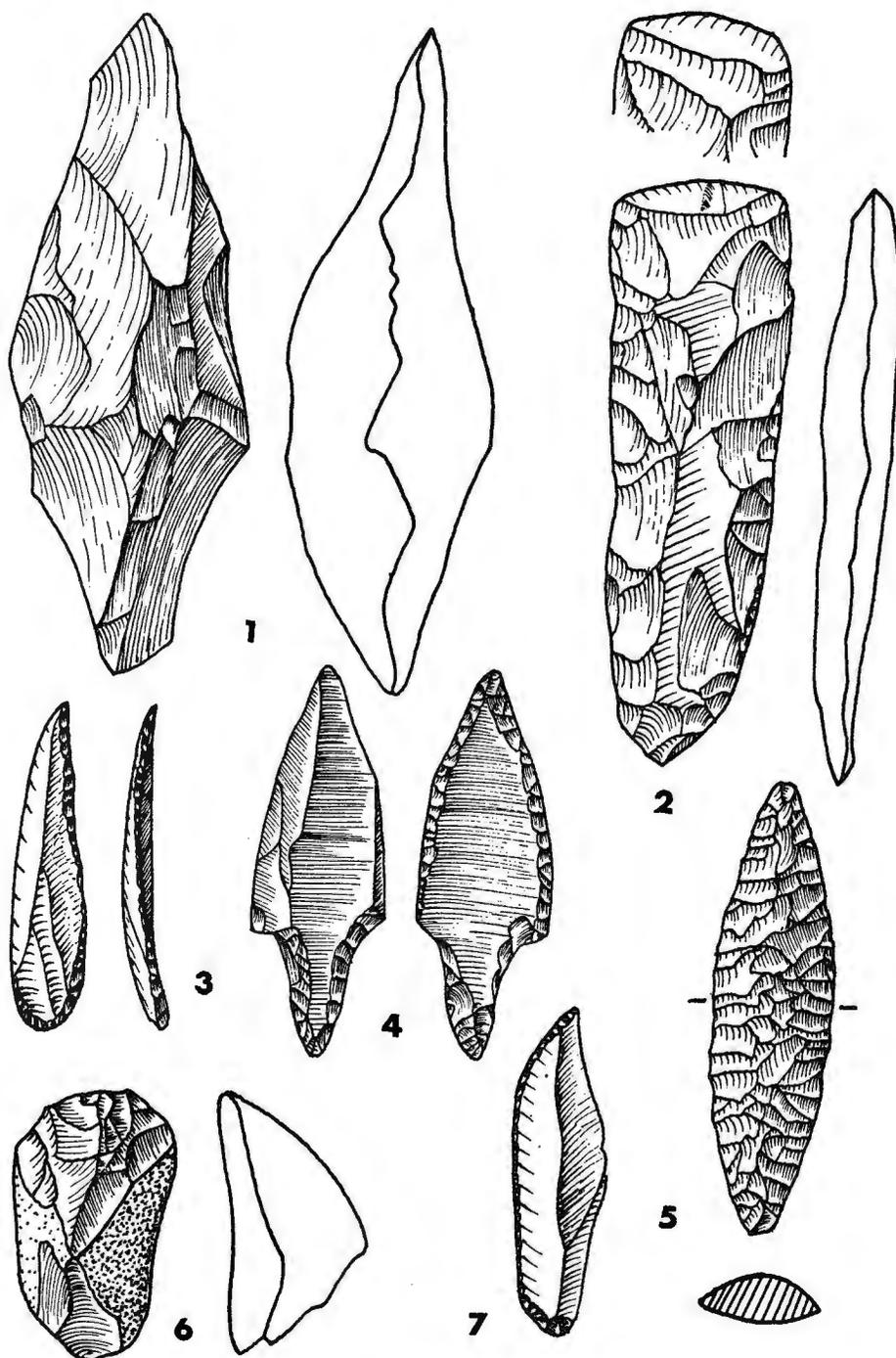


Fig. 6. 1 pick; 2 axe; 3 backed bladelet; 4 arrow head; 5 bifacial point; 6 steep scraper; 7 backed bladelet. 1, 2, 4, 5 layer 7; 3, 6 layer 8; 7 layer 8a. 1: 1.

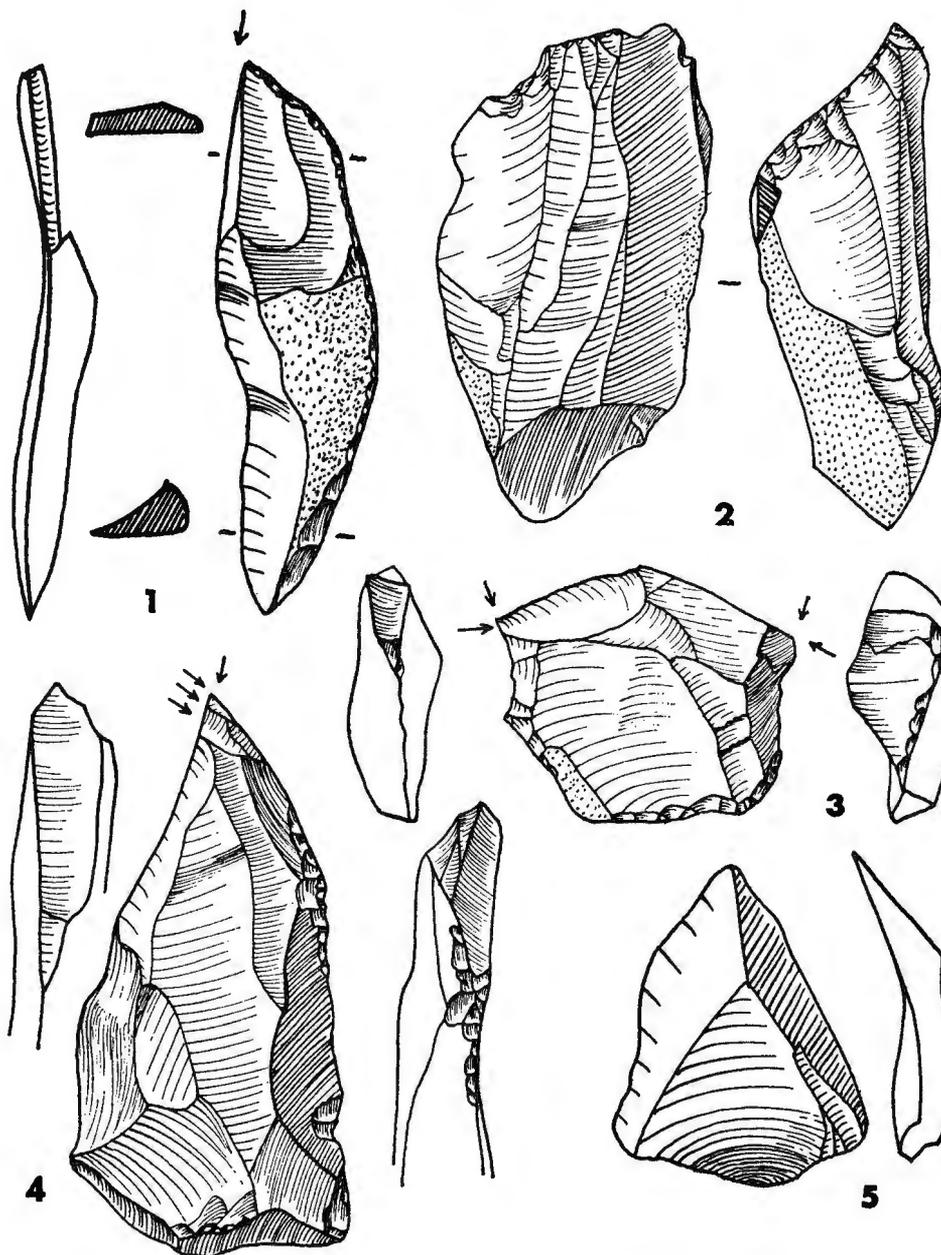


Fig. 7. 1 burin on troncature; 2 core; 3 double, transversal burin with opposed facets; 4 burin busqué; 5 Levallois point. 1-3 layer 8; 4, 5 layer 9. 1: 1.

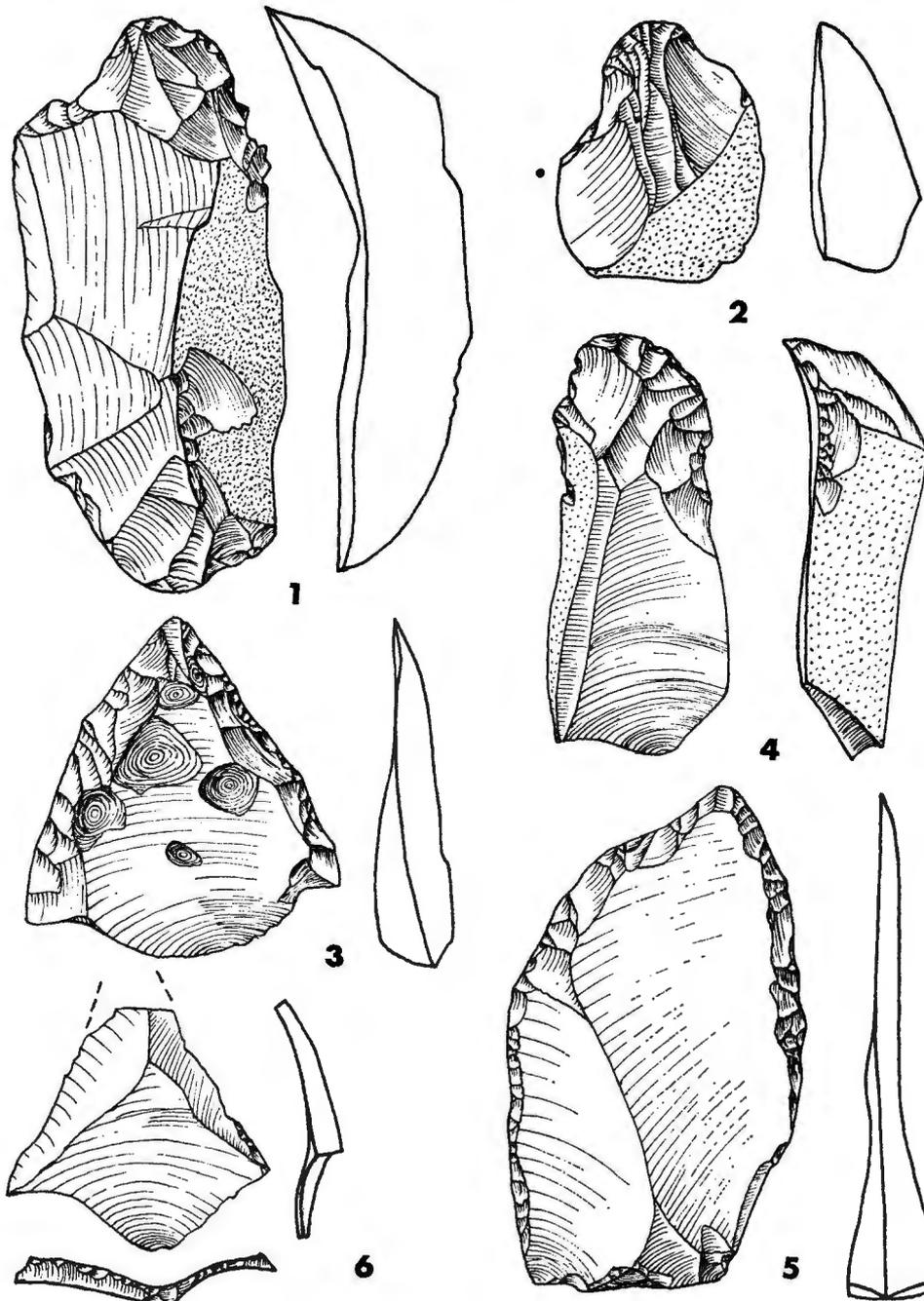


Fig. 8. 1 steep scraper, double; 2 nosed scraper; 3 Mousterian point; 4 steep scraper; 5 convergent racloir; 6 Levallois point. 1, 2 layer 10; 3-5 layer 12; 6 layer 13. 1: 1.

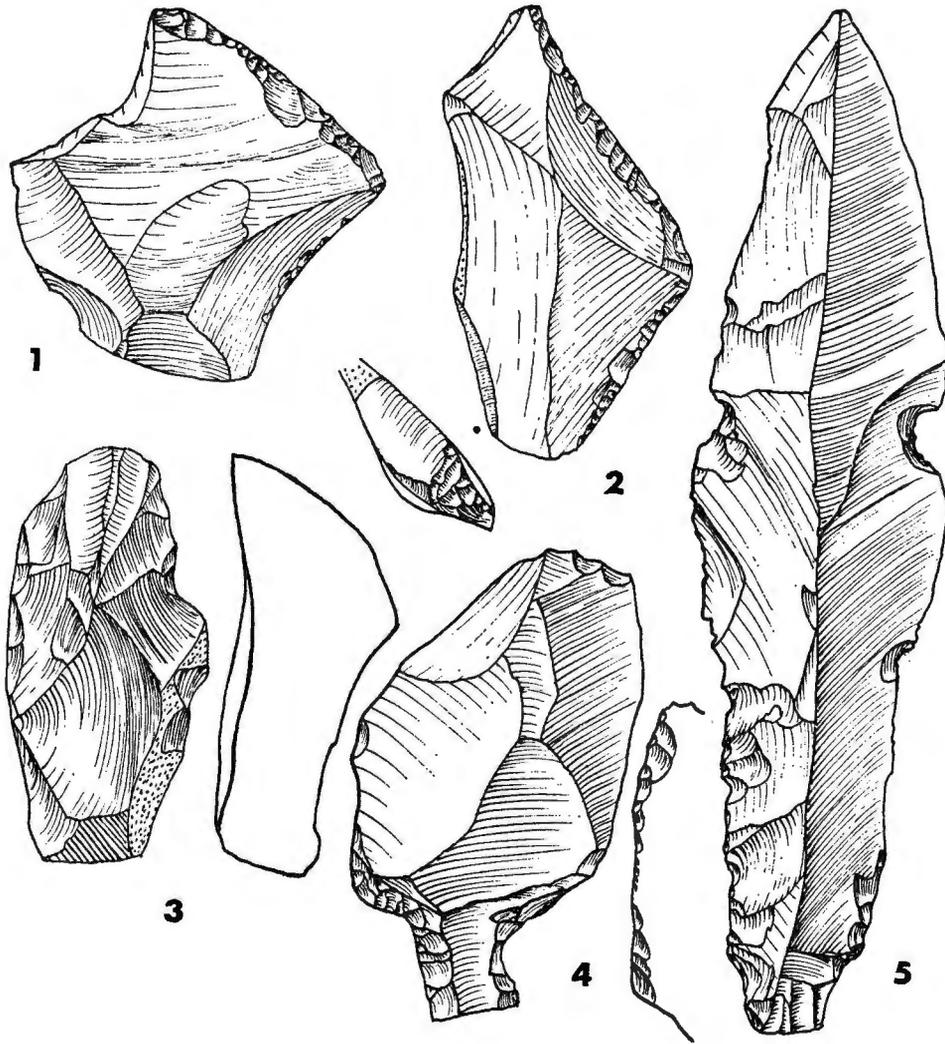


Fig. 9. 1 transversal racloir; 2 racloir déjeté; 3 shouldered scraper; 4 „Aterian“ tool; 5 dagger.
1, 2 layer 13; 3, 4 layer III; 5 layer IV. 1: 1.

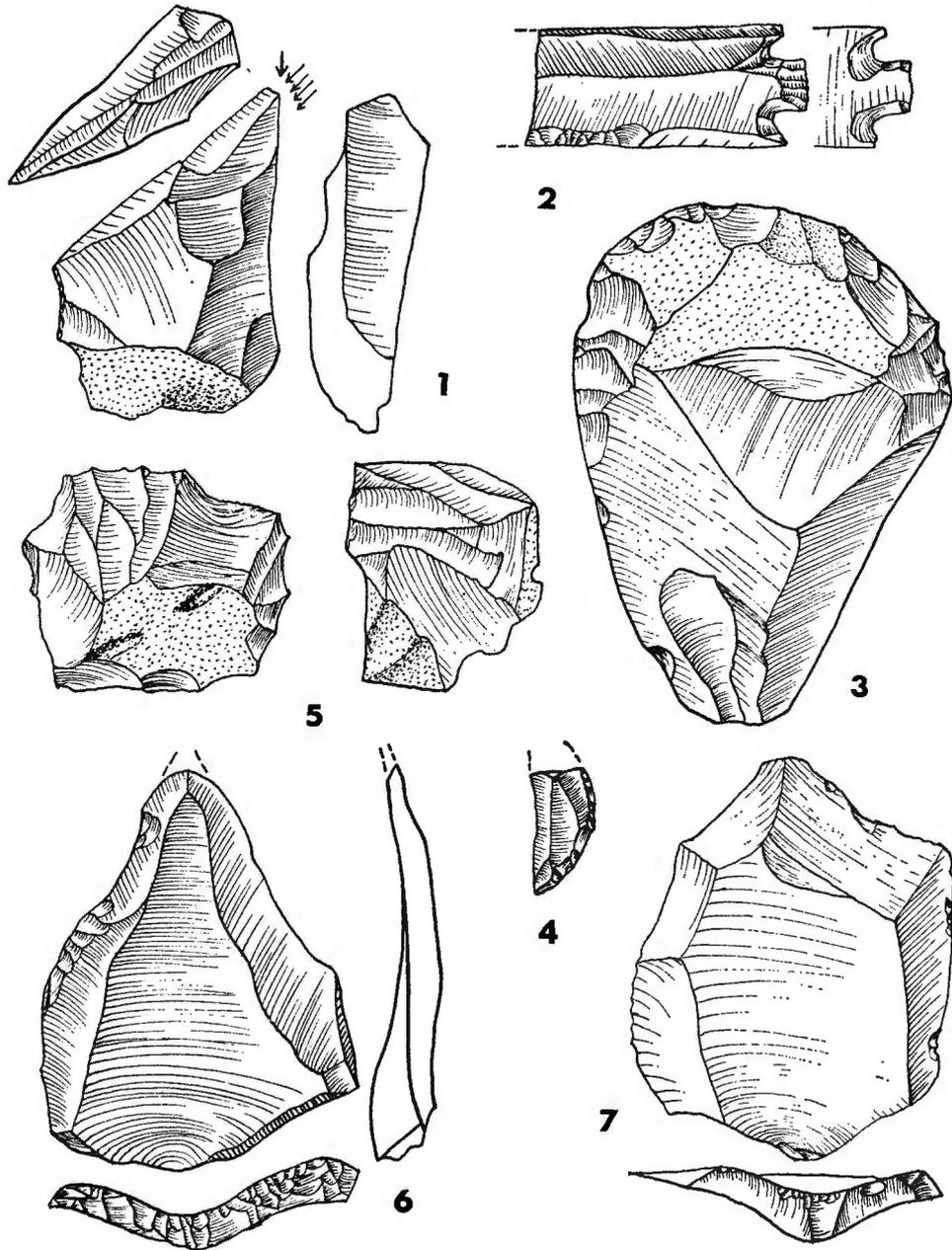


Fig. 10. 1 burin with opposed facets; 2 arrow head; 3 grattoir; 4 crescent; 5 core; 6 retouched Levallois point; 7 Levallois flake. 1-4 layer IV; 5 layer V; 6, 7 layer VI. 1: 1.

- VI. Dark reddish brown clay (5YR 3/3), full of soft, finger-shaped, chalky concretions, 0.05 m average length. Stones of 0.03–0.04 m, mostly rounded; 0.40 m maximum thickness. Mousterian.
- VII. Reddish brown clay (5YR 5/4), very sticky, with chalky concretions at the upper part, passing gradually into breccia in the lower part. Maximum thickness 0.50 m. Mousterian.
- VIII. A thin, yellowish-brown layer, 0.005 to 0.03 m which is the result of decomposition of bedrock, caused by the many small roots in it.
Bedrock, non deteriorated.

Description and finds

Layer I covered the whole area and sloped gently to the south-west. It was even, except for an elongated shallow depression along the C meter-line, caused by water drip and apparently served as a passeway for the cave dwellers.

Layer II was disturbed: it contains pottery of different ages and flint tools. It was preceded by an erosion which partly removed layer III and cut through layer IV near C meter-line. Layer II thus lies on III in the east, on IV in the west, and on V in the center of the excavated area (fig. 4).

Layer III exists only in the eastern and western parts of the area excavated. It is thickening westwards. Finds occurred mainly in the western part, protected by fallen rocks. Here many small fragments of pottery of primitive aspect were found: yellowish or greenish, with very coarse grain, badly preserved. The flint tools include racloirs, steep scrapers (fig. 9; 3, 4), burins and a few microlithes.

Layer IV is the richest in stones of all the layers on the terrace. It disappears on the eastern limit of the excavation (B meter-line). On the north it reached till the 54 meter-line. The layer yielded no pottery, but two flint axes and a dagger (fig. 9; 5), among other tools (fig. 10; 1-3), relate it to the Neolithic. A fragment of a crescent (fig. 10; 4) was found at the base. A hearth, 0.07 m thick was at the bottom of this layer in squares D–E 51. Near the hearth layed a grinding stone made of a round, flat limestone slab, with a shallow depression in the center of each side.

Layer V existed from near the 53 meter-line southwards. North of the 52 meter-line it was thick and layed upon bedrock. South of the 52 meter-line, where the lower layers were preserved, layer V became thinner. Like layer IV, it disappears on the east limit of the excavation. In squares D51–52 there was an elliptical hearth, 1.10×0.70 m, partly dug into layer VI. The hearth, 0.20 m maximum thickness, was encircled and completely filled with stones, most of which were reddened and cracked by heat. The ash contained many small fragments of red ochre, particularly at the bottom and the edges of the hearth. The southernmost stone bordering the hearth ($0.25 \times 0.22 \times 0.10$ m) was carefully posed on its narrow side; its upper edge bears coarse retouch on both faces. It seems as if it served as an anvil.

Only very few bone and flint chips were found in the hearth, the C14 measurement of which is under processing. The few finds (grattoirs and burins) in layer V, as a whole, do not permit any determination (fig. 10; 5).

Layer V contains a few small stones only, except for a dense stone concentration in

a natural depression of bedrock, at D53. The concentration comes mainly from the rock overhang, partly from stones derived from the above mentioned hearth.

Layer VI exists only in a small niche of 6 m² south of the drip line (52 meter-line) where it was abruptly cut by erosion (fig. 5). The layer is full of chalky concretions, in marked contrast to the overlying one. The few stones it contains are weathered, and bone fragments are in a poor state of preservation. It yielded Levallois points (fig. 10 ; 6), racloirs and flakes, mostly with faceted platforms (fig. 10 ; 7).

Layer VII was preserved like the former, in the niche only. Likewise, it has chalky concretions at the upper part, but the lower part turned gradually into a more or less hard breccia. Several flat limestone slabs up to 0.20 m long occurred in the lower part. The layer yielded only a few artifacts, similar to those of layer VI.

The brecciation of the base of layer VII took place, apparently, before the erosion of this layer, since dripping water has partly dug under it and created a space which has later been filled in by layer VI (fig. 5).

Layers VII, VI and V, successively (from south to north) lay on a thin decomposition of bedrock (layer VIII).

S u m m a r y

Cultural layers from the Mousterian to Neolithic were found on the terrace. The later periods existing in the cave are scarcely represented here in layers I–II, only as traces of passage. The Neolithic is better differentiated here than inside the cave, to a pre-pottery and a pottery stage (layers IV and III). These two layers show the only rock-fall phase in the terrace section; most probably, equivalent to that of layer 7 in the cave. It seems, thus, that the collapse of the cave-ceiling, resulting in the several huge blocks on the terrace, belong to this same phase of rock-fall.

The terrace section reveals the existence of two erosional phases: the first, after cave.

The terrace section reveals the existence of two erosional phases: the first, after layer VII; the second, at the end of the Mousterian occupation of layer VI. Furthermore, it might be concluded that water-drip line during the Mousterian period was, in the excavated part of the terrace, essentially the same as today.

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