

Rock engravings on western Mount Carmel, Israel

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Introduction

Mount Carmel is a limestone formation running NNW-SSE, slightly diverging from the nearby Mediterranean shoreline so that its northern tip is near the shore and its southern tip is further inland. Rock scarps and cliffs are abundant along river courses and on the outskirts of the mountainous block. Numerous caves are situated in these cliffs, most of which were inhabited in various prehistoric and historic periods.

Since the early 50's rock engravings have been known to exist in the western cliff of Mount Carmel. The first concentration was discovered in a small cavity near the entrance of the cave of Ovadya, in Tirat-Carmel (Olami 1954). In 1958 another concentration was discovered¹ close to the entrance of the cave of Tabun (Wreschner 1971, Ronen 1975). This locality contained one major concentration and two smaller ones along the base of the rock cliff facing the Mediterranean. For several years these two groups of engravings, at Ovadya and Tabun, were the only ones known.

In 1979, a new group of similar engravings was accidentally discovered on the east side of the entrance to the cave of Etsba, in Nahal Oren². This discovery initiated a systematic survey by the authors of the prehistoric caves in Mount Carmel with the aim of determining the precise distribution of the engravings. As a result a wealth of new engravings has been discovered: one group is at the cave of Ovadya, slightly higher than the one previously known³; then another group near the cave of Etsba, this time to the west of the entrance⁴; the latest discovery was made in the rock shelter of Skhul⁵. The engravings at Skhul were within the very area excavated by Garrod and McCown in the early 30's, an area that had since often been visited by many, including ourselves. Here once again is the confirmation that one finds what one is looking for.

The engravings are located on two different kinds of surface: the first and most common (5 of the 8 concentrations known) is reddish-brown and more or less glossy. The underlying rock being generally grey or white, means that the engravings stand out very clearly. This glossy surface was interpreted by Olami (1954 : 71) as indicating "prolonged frequentation". He did not specify whether this was by man or animal. Wreschner calls these surfaces "polished" (1971 : 217). These glossy brown areas cover several square meters, but very small and isolated surfaces also exist. Their patination is apparently due to their mineral content, but the origin of the gloss is unknown to us. These surfaces do not seem to be associated with any habitation or frequentation either human or animal, nor are the surfaces arbitrarily polished. Rock cavities in which the Hyrax are known to reside were carefully checked, and it was found that neither the gloss nor the reddishbrown color could be attributed to these animals.

The second type of location is in a narrow cavity, with the engravings being vertical. Here the stone is white and has a matt surface. Confined to these two types of surface, the engravings are found in a variety of localities: in caves, shelters, in the open (but near sites), on rocks of differing inclinations and facing in a range of directions from west to north. There are no engravings facing south or east.

¹ The first two groups were discovered by Y. Olami.

² Discovered by Y. Perk.

³ and ⁴ discovered by A. Ronen

⁵ By G. M. Barton.

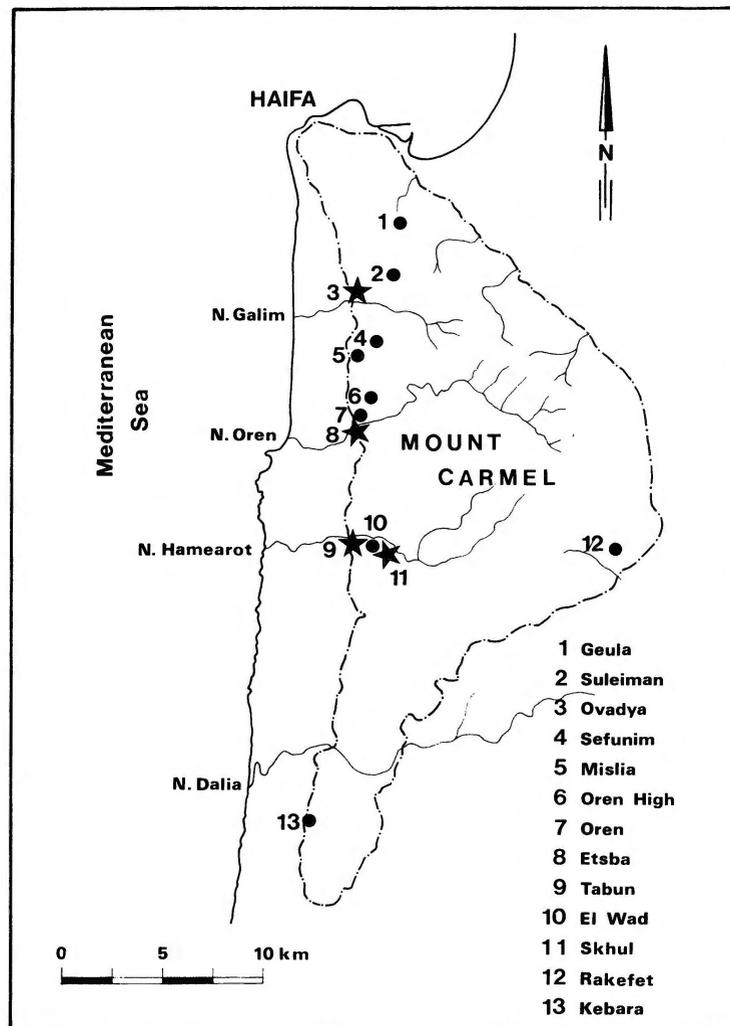


Fig. 1. Prehistoric caves of Mount Carmel. The engravings are located in caves 3, 8, 9 and 11.

We have searched all the cavities and suitable surfaces in, and adjacent to, the remainder of the prehistoric caves on Mount Carmel, and no further engravings have been found even where suitable surfaces exist, for example, reddish glossy areas at the Rakefet and Oren caves, and cavities near Sefunim and Kebara. In the light of our present knowledge we may conclude, therefore, that the engravings were made only in the northern half of the western cliff of Mount Carmel, at the outlet of three rivers: Nahal Hamearot, Nahal Oren and Nahal Galim (fig. 1). We shall now proceed to describe them in the same order.

Characteristics of the Mount Carmel Engravings

All the engravings have a spindle shape (fusiforme), larger and deeper in their center than at the tapering extremities. The section is always V-shaped. The depth varies up to a maximum of 10 mm, the length from about 1 to 120 cm in the longest engraving. Most of the engravings, however, do not exceed 20 cm in length. The width at the rim in the center is generally 5 mm and rarely reaches 10 mm. The engravings tend to be

straight and isolated lines, although some are curved. A small portion of the engravings converge into a V or Y; fewer yet form an X or a +.

The concentrations of engravings are each composed of several groups and sub-groups which stand out by their relative isolation within the composition and by a particular direction of their grooves. Some groups may have existed which, through the subsequent loss of isolation, are no more discernible. It seems however, that each sub-group was engraved at the same time, and that the aim was to separate it, and the sub-groups that followed, from one another. It is thus possible that only with time did the individual groups 'join' to form the concentration as we now see it. On the other hand, there is no conclusive evidence against the concentrations being one time, or short-time creations.

Beside the deep and marked engravings there are also finer ones, sometimes extremely so. They seem to result from a single scratch by some sharp instrument that was made by exercising little pressure on the surface of the rock. These grooves are consequently linear rather than spindle shaped. Like the more elaborate engravings, they may also appear singly or in groups. They are always mingled with the elaborate ones. In spite of their superficial nature, the fine grooves sometimes show careful and patterned placing. Anyway, in some cases they are so thin as to escape the camera lense, and some may even have escaped the naked eye.

The description of each major concentration follows.

Nahal Hamearot

The Cave of Engravings

Nahal Hamearot, site of the classical Mount Carmel caves, leaves the mountain to enter the coastal plain between two vertical cliffs. A group of three small cavities lies at the foot of the southern cliff, roughly 50 m. west of Tabun and about 100 m. west of El-Wad. None of these cavities has yielded any cultural remains, but in all three the sloping floor and sometimes the vertical wall are engraved, always on a reddishbrown surface. The floor of the northern cavity has the largest concentration in the entire Mt. Carmel area. The two southern cavities each have fine grooves which will not be described here.

The major concentration is a complex scene with several groups. It is dominated by a 120 cm. long curved groove, directed roughly E-W with the concave side northward. In the eastern extremity two additional lines are added to form a sort of trident; in the center of this curved groove a line crosses obliquely, then bends westwards and runs almost parallel to the major groove. The spaces delimited by this curved groove and its tributaries are filled with smaller engravings.

Apart from the major theme the concentration is made up of three distinct zones: 1. A horizontal (N-S) strip with a dense web of grooves, both horizontal (N-S) and vertical (upper part of Fig. 2, Fig. 3). 2. Below the above mentioned strip, on both sides of the long groove there are relatively short grooves, more sparsely engraved than the aforementioned strip. Most of these grooves are vertical (E-W) or oblique, with only rare horizontal grooves. 3. Above the dense strip of zone 1 there is another zone of small engravings (not shown in Fig. 2), consisting of sparsely engraved and isolated sub-groups.

The major concentration under consideration here has its eastern, southern and western borders intact. Along these borders the engravings were not destroyed. To the north, however, the surface of the rock underwent severe erosion, especially that farthest from the cliff. It became badly damaged by small depressions and cavities. Only a few small patches of glossy brown surface are left to indicate that once the entire area of the rock was patinated. Several faint traces of former grooves can be seen, and the clearest are shown in broken lines in Fig. 2. It is clear then that an important part of the original scene is missing. We believe that the area engraved was twice as large as that which is now preserved. Even so, the central theme of this engraving is quite remarkable for its resemblance to the constellation of Aquarius (Fig. 5).



Fig. 2. The major concentration in the cave of engravings near Tabun, Nahal Hamearot.



Fig. 3. Cave of Engravings, the major concentration viewed from west (scale 1 m.).

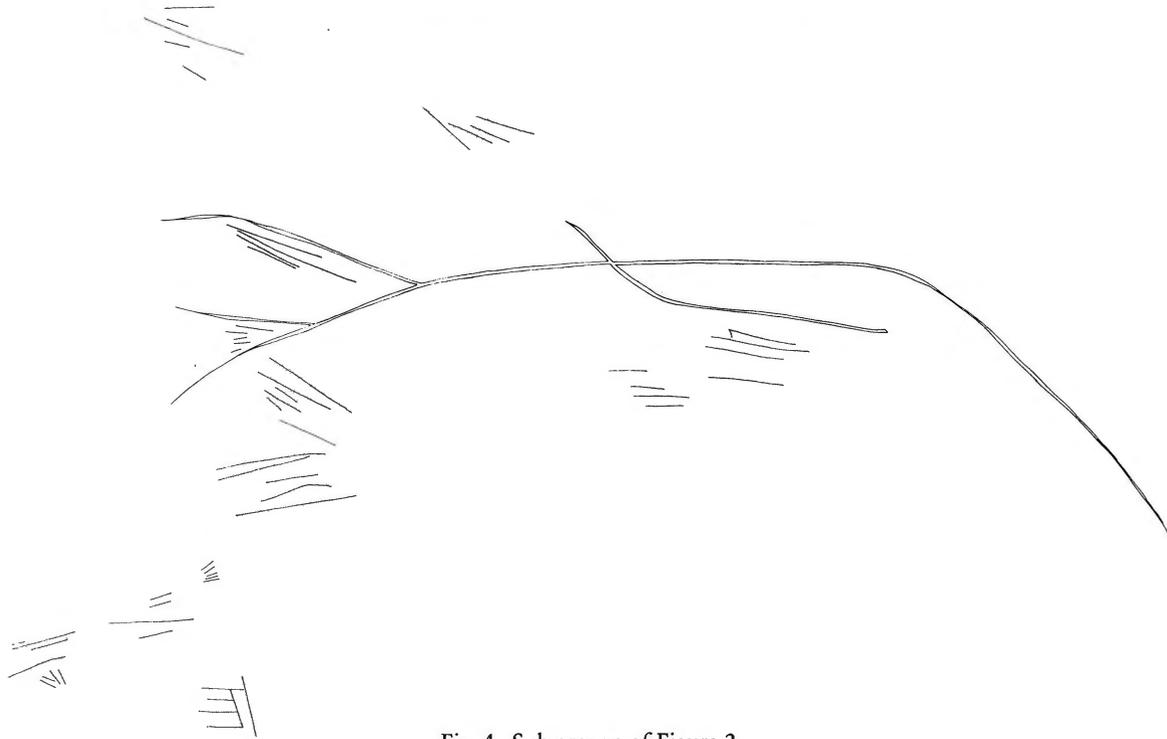


Fig. 4. Sub-groups of Figure 2.

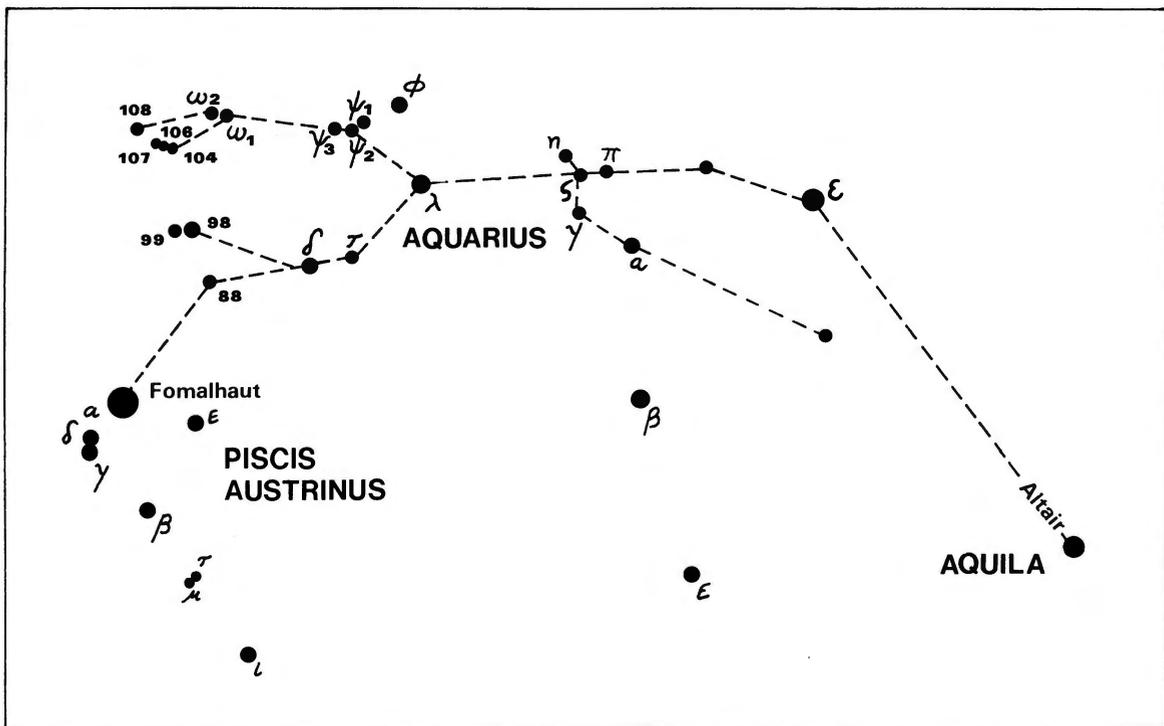


Fig. 5. The constellation of Aquarius (from Gall and Inglis Popular Star Atlas, Map 4).

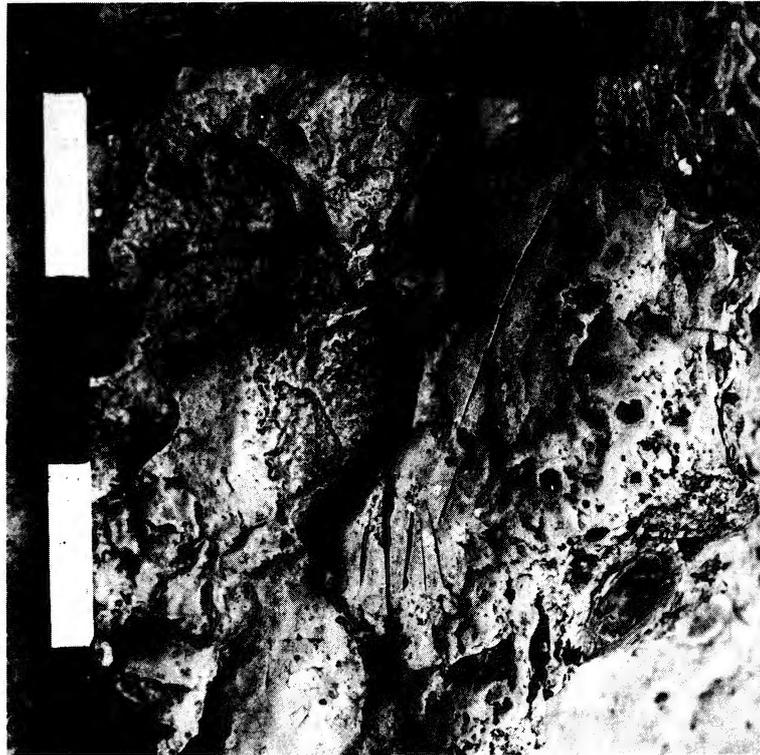


Fig. 6. Cave of Engravings, a sub-group of 5 grooves (scale: each division 10 cm).

It is worth noting that several sub-groups within the major concentration are of 5, 4 or 6 strokes – in that order of frequency. In some cases the sub-groups are well isolated and clearly discernible by a distinct orientation and size of the engravings (Fig. 4, upper right and upper left corners; Fig. 6). Groups of 5 or 4 may also appear amidst the more densely engraved areas, but here their independent existence is uncertain.

The Cave of Skhul

The cave of engravings near Tabun was discovered 30 years after the beginning of Garrod's excavations in that cave. It took 50 years to notice the engravings in Skhul.

The cave of Skhul is actually a rock shelter with a small cave. The engravings in Skhul are difficult to notice: they are located inside two neighbouring niches to the right (west) of the small cave (Fig. 7, 8). The western niche is larger and permits a man to stand upright (here is the human figure on the right of Pl. XLIX:1 in Garrod 1937). The other niche is small and hardly accessible. It was more easily accessible before the excavations lowered the surface by ca. 2.0 m. (Garrod 1937, Pl. L). Both cavities are of grayish-white limestone.

Only the grooves in the larger cavity (western) will be described here. They are engraved on a near vertical wall and are all vertical or slightly oblique (Fig. 9). This concentration consists of two sub-groups, each of which comprises a long groove and several short ones. The long grooves of both sub-groups are roughly parallel to each other. The shorter incisions differ: in the upper group they spread out downward in a fan shape, while in the lower group they are more nearly parallel to each other and to the long groove.

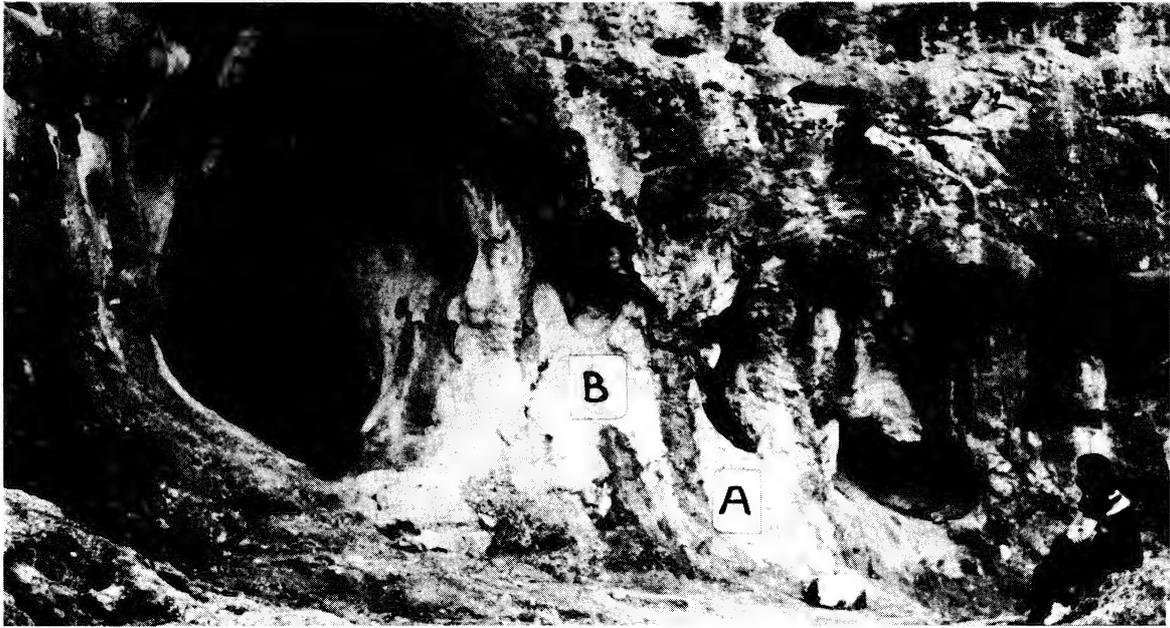


Fig. 7. The rockshelter of Skhul and the small cave (left). Engravings are found in cavities A and B.



Fig. 8. Copying the engravings in cavity A at Skhul.



Fig. 9. Engravings at Skhul, Nahal Hamearot. Facing west.

Nahal Oren

Nahal Oren is the second major river where engravings exist on Mount Carmel. They are located on both sides of the entrance of the cave of Etsba, high up on the south bank of the valley.

Etsba West

The western concentration at Etsba consists of a small group of engravings on a near vertical back-wall of a niche, engraved in white limestone, a similar situation to that described above in Skhul. But in Etsba the visible scene is only a part of the existing one, since the niche and its engravings are covered by a calcareous crust 5–20 mm. thick. When discovered (March 1979) the visible engravings were on a rock surface of ca. 20 x 15 cm. which was free of crust (Fig. 10). We have removed a part of the crust and exposed the lowest part of



Fig. 10. Cave of Etsba, west of entrance. The engravings face north and are covered by travertine (March 1979; compare to Fig. 11 for situation in March 1980).

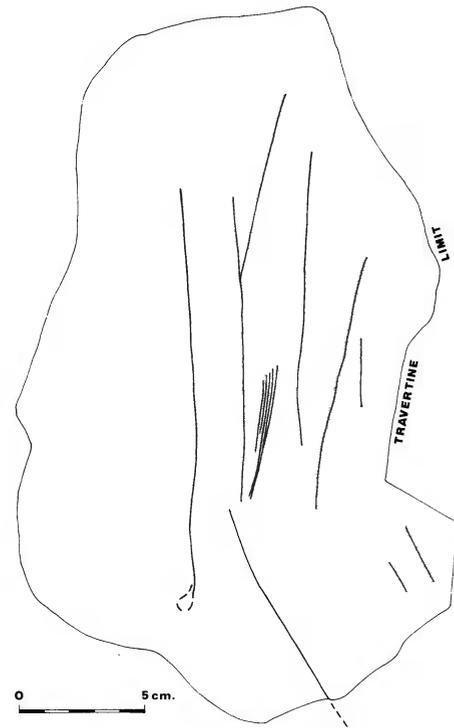


Fig. 11. Engravings at Etsba, west of the entrance. Nahal Oren. Facing north.

the left groove (Fig. 11). The crust removed had a superb negative of the groove on its lower surface with a symmetrical triangular section. In March 1980 we removed more of the crust for the purpose of dating, and the lower grooves as seen in Fig. 11 became exposed.

Etsba East

The eastern concentration at Etsba is engraved on a strip of brown glossy rock surface which stretches SE-NW and slopes steeply westward, toward the cave entrance. The part preserved is 70 x 40 cm. but formerly the scene was some twice as long, as may be judged from remnants of grooves which are discernible ca. 50 cm. eastward and also somewhat to the north of the present scene. The part preserved is closest to the cliff and thus must have been better protected from weathering than the other parts. Small patches of brown glossy surface still exist on the weathered parts.



Fig. 12. Cave of Etsba-east, detail showing the combination of deep and fine engravings. View from north.

The concentration at Etsba east generally resembles those formerly described, but at the same time it is characterised by the following original traits:

1. A larger quantity of fine scratches than elsewhere, many barely visible. They are in groups, and some do not exceed 10 mm in length. At first we thought that these fine grooves may constitute some act of preparation toward the more elaborate engravings, since numerous fine scratches accompany an elaborate groove. But careful checking showed that there exist well defined and isolated sub-groups made solely of fine scratches. Were these done for their own sake? Was there some purpose in engraving or scratching the rock even though no clear mark was left?

2. Another particularity of the Etsba-east concentration is the frequent association of a major, deep groove with several thinner ones. Usually the finer ones are shorter than the major, and appear near an extremity of the major groove (Fig. 12).

3. The engravings of Etsba-east are on the whole more weathered than elsewhere. Sometimes the edges are rounded and irregular; sometimes it is difficult to distinguish an engraving from a natural fissure. In some cases it seems as if a coat of brown glossy patina has developed after the engraving and almost caused its disappearance. Elsewhere, the lack of differentiation in the degree of preservation of the engravings is the rule. It may be that the said impression given by the Etsba-east concentration is a false one, due perhaps to a differential response to weathering.

The Etsba-east concentration is complex, with three major groups and numerous sub-groups (Fig. 13, 14). The first group covers the upper half of Fig. 14. It consists of numerous engravings directed E-W, with but a few N-S (vertical) grooves. The association already mentioned of a large groove accompanied by several minor ones is most apparent in this first group (Fig. 12).

The second group occupies the lower half of Fig. 14. This group seems to be delimited by two pairs of deep grooves, each forming a right angle. In this second group the dominant direction is N-S, the opposite of the former group. The area is also more sparsely engraved in the second than in the first group.

The third group in the concentration of Etsba-east is in the lower right part of Fig. 14. Here again the E-W direction dominates as in the first group. The third group is delimited on its western border (lower in Fig. 14) by an impressive major groove. One end of this groove was broken and approximately 2 cm. are missing, by analogy to the other extremity. Perhaps there was another groove delimiting the third group to the north, at right angle to the one just described; but it is impossible to tell if this badly weathered fissure is of natural or artificial origin.



Fig. 13. Cave of Etsba, east of entrance. General view from north.

The concentration of Etsba-east clearly shows an organised pattern where the dominating direction of grooves changes three times and each zone or group is well individualised, without penetrating into the other (although there is a merging border between the first and second groups described above). This observation adds to the impression that the concentration was made within a short time; or else each section must have been engraved with a careful respect towards the already existing grooves.

Each of the three main groups within the Etsba-east concentration is further subdivided. We shall not describe these sub-groups here; every observer can make out his own. It is worth pointing out, though, that the two upper (south-eastern) subgroups in Fig. 14 consist of 7 and 6 major grooves, respectively.

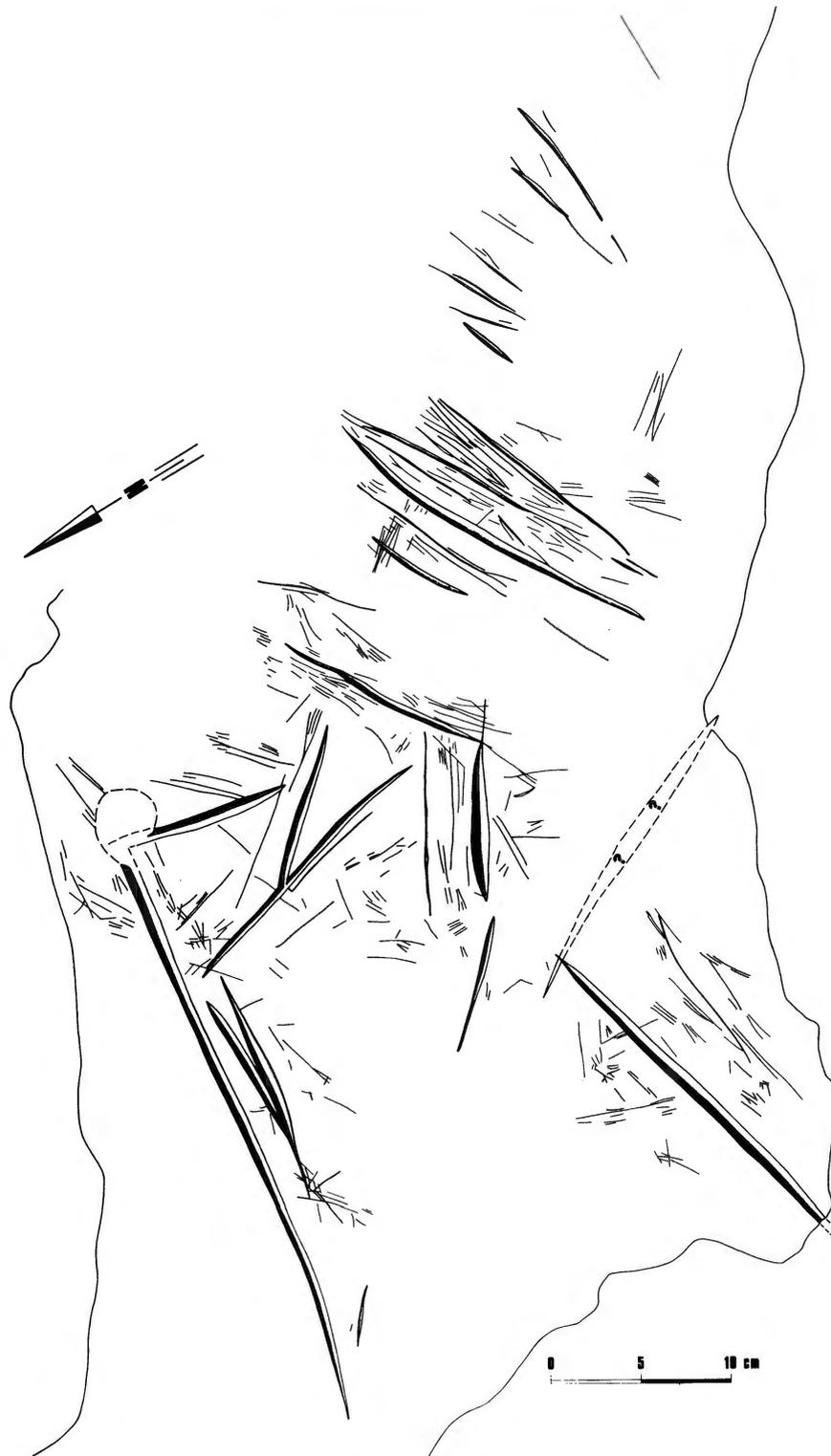


Fig. 14. Engravings at Etsba, east of the entrance, Nahal Oren.

Nahal Galim

The third location of engravings is near the cave of Ovadya in Tirat Carmel, on the north bank of Nahal Galim (the other engravings were always on the south bank). Ovadya is a name given to a number of caves located in a prominent limestone butt.

The lower concentration

The earliest concentration of engravings to be found in Mt. Carmel is located about half way up the cliff, in the entrance to a small cave (Olami 1954). This entrance is a hole measuring only 1,0 x 0,8 m. It is in the entrance that the engravings were made, on the floor and walls and — most important — on the ceiling too. Here the engraver would have had to lie on his back in order to press upwards; this convinced us that the engravings did not result from simple utilitarian tasks such as cutting or sharpening, for example. A part of the engravings on the entrance floor has been badly damaged in recent years.

We reproduce the drawing of parts of the entrance composition made by Olami (1954: 73, Fig. 15). The space on the right is divided by two oblique strokes into three strips. In the upper strip there are two groups of five engravings, each composed of four short lines and one longer. In the central strip four vertical lines are connected by one horizontal line. In the lowest strip there is a group of six engravings, varying in length, and two isolated single lines. The upper left section shows a complex group of roughly parallel engravings which is crossed at the center by a single groove, clearly the latest to have been engraved in this group. A cross is shown in the lower left section. The overall picture is the same as for the previously described concentrations — similar patterns, similar division into sub-groups, similar technique and size of grooves.

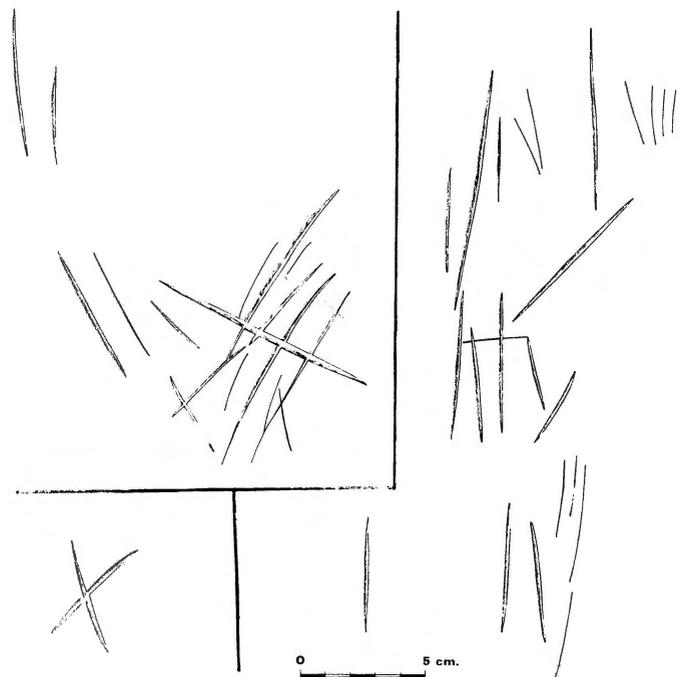


Fig. 15. Engravings at the lower cave of Ovadya, Nahal Galim (after Olami 1954).

The higher concentration

Higher up in the same butt, a ruined cave was discovered by Olami with Middle Palaeolithic implements embedded in the floor (cave D in Olami 1954). We have found now a few implements of Neolithic-Chalcolithic age in the same locality. On the same level as this cave, but on the south-western edge of the cliff, we have discovered a new group of engravings (Fig. 16, 17). It is situated on a ledge of rock patinated brown in front of a very small cavity. This location is reminiscent of Nahal Hamearot, where small, uninhabited cavities near inhabited caves were used for engravings. The higher concentration in Ovadya is a small one, very well preserved, unweathered and all the lines are complete — hence no parts are missing from the preserved scene. There is no indication that this concentration was larger, but, being located on the edge of the cliff, it is possible that parts may have collapsed.

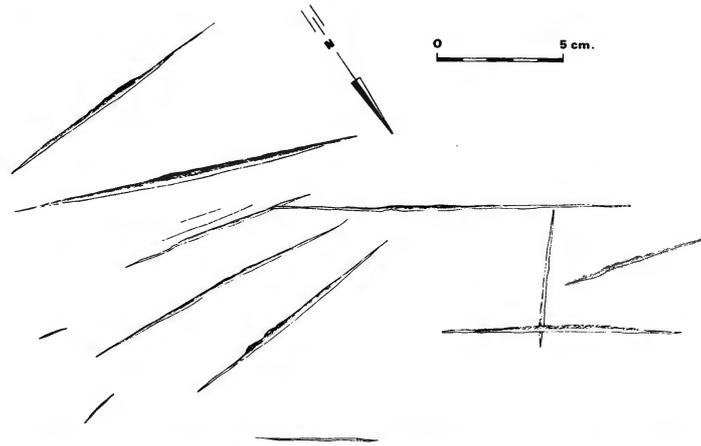


Fig. 16. Engravings at the upper cave of Ovadya, Nahal Galim.

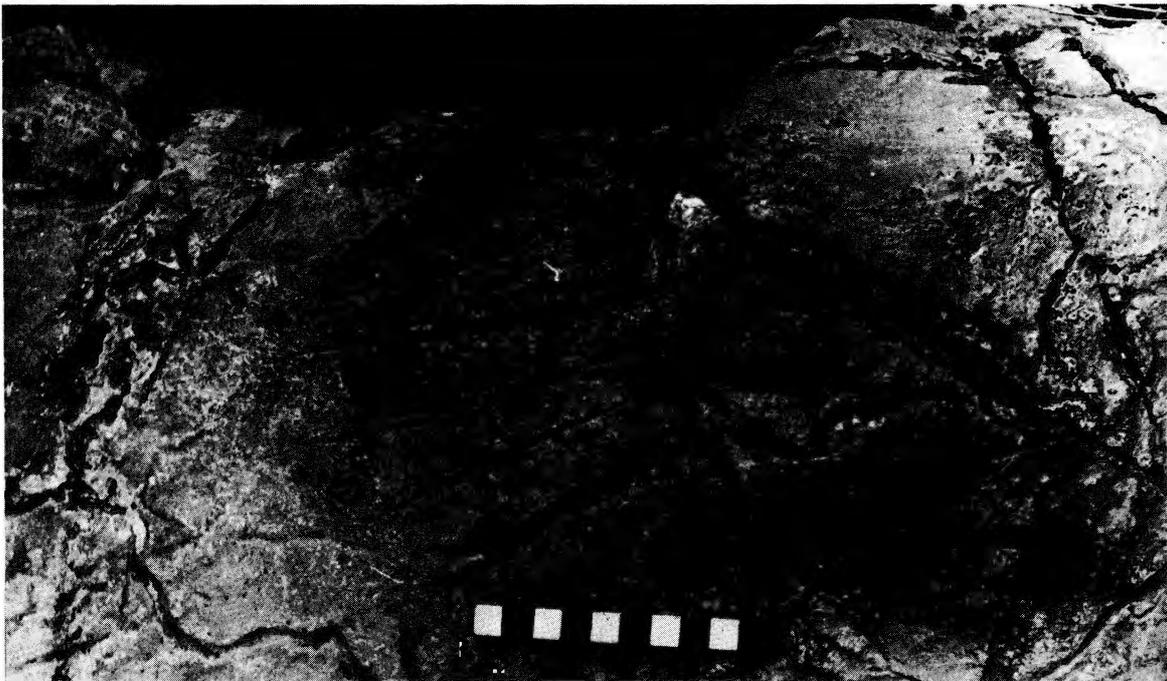


Fig. 17. Cave of Ovadya, upper concentration. View from south-east.

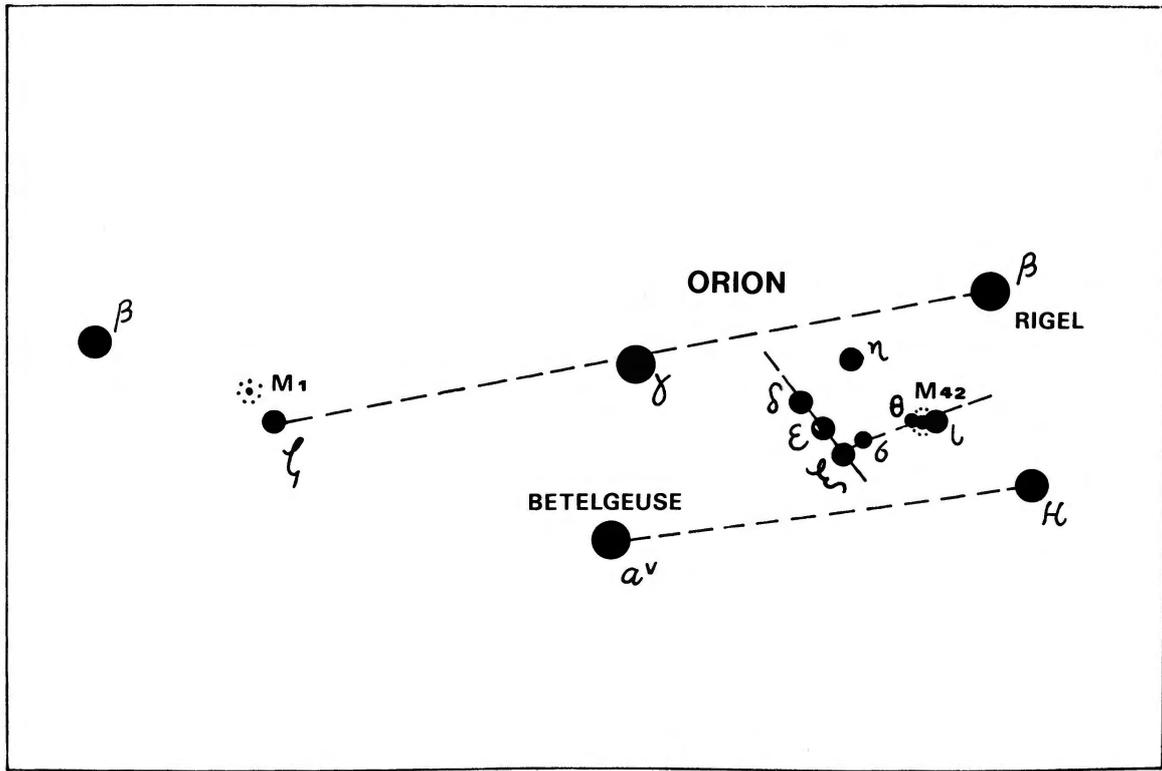


Fig. 18. The constellation of Orion (from Gall and Inglis Popular Star Atlas, Maps 5/6).

The concentration shows two different themes. The eastern (left) consists of six lines of which the two externals converge eastward. The central groove is accompanied by two small grooves which are symmetrically positioned on both sides of its eastern end. The west group consists of the letter H lying on its side with a single, oblique groove in it.

The upper concentration in the Ovadya cave is unique in the Mount Carmel area for its simplicity and clarity of lines, and for the standardization of length and depth of all the major lines. The western part of this concentration bears a strong resemblance to the constellation of Orion (Fig. 18).

Date of the Mount Carmel Engravings

As yet, no independent dating could be secured for the Mount Carmel engravings. The caves in the proximity of which the engravings were made were all occupied during the Middle Palaeolithic and the Neolithic-Chalcolithic. The Upper and Epi-Palaeolithic phases are present in only some of the caves. Of course, it is not clear if people engraved exclusively near sites where they actually dwelt. In our present state of uncertainty we may guess that from all the periods in which the sites in question were inhabited, the engravings are likely to belong to the Natufian-Neolithic realm of art, where one finds somewhat similar grooves on stones or pebbles. This guess would place the engravings in the transition between Pleistocene and Holocene, 10th – 7th millenium BC. These figures coincide with the date estimated for similar engravings in the West Mediterranean basin (Pérez 1979).

Discussion

The Mount Carmel engravings appear in several concentrations, each divided into groups and sub-groups. The grooves add up in most cases to a simple pattern of lines of different orientations, lengths and thicknesses. Nowhere could any figure, human or animal, be distinguished. Groups of 5 lines, as well as groups of 4 or 6, appear repeatedly. In most cases these groups are made of divergent rather than parallel lines, resembling a human hand.

The concentrations include lines that were clearly engraved after others; but the length of time that it took to complete the scenes is unclear. It does not seem to be long, since nowhere is there a freshly engraved line dissecting a worn one. Rather, the cultural trait of rock engravings seems to have lasted a relatively short time.

Table 1: The location of engravings on Mt. Carmel

Cave	Period of habitation	Bank of Nahal	Mediterranean visible	Concentration facing
Engravings	Ach., MP, UP, EP, Neo-Chalco.	S	Yes	W
Skhul	Ach., MP, Neo-Chalco.	S	No	W
Etsba West	MP, EP, Neo-Chalco.	S	No	N
Etsba East	MP, EP, Neo-Chalco.	S	Yes	NW
Ovadya Lower	MP, Neo-Chalco.	N	Yes	W
Ovadya Upper	MP, Neo-Chalco.	N	Yes	W

What was the message coded in the engravings? The prevention of evil spirits from entering inhabited caves is a possible explanation (Mannino, cited in Perez 1979); in that case, the cave of Etsba would be protected from both sides of the entrance. Other reasons are also possible; counting of some events/phenomena, or engraving of "models" where perpetuation was judged important enough for the welfare of the group to justify the tedious job of carving it in rock. Could those models be maps of surrounding geographical features? Could they be associated with the winter and summer solstices? (H. Diamond, pers. comm.). Could they be a plan of the sky at specific moments? This hypothesis should be considered in view of the known beginning of navigation in the early Neolithic. The resemblance of two concentrations of engravings to important features in the sky was already noted (Figs. 5, 18). It may be added that the small groupings which surround the central figure near Tabun (Fig. 2) and in Ovadya (Fig. 16) may possibly indicate meteor shower paths. If the engraved lines of the fan-shaped or hand-like sub-groups are extended to a point at which they converge (Fig. 2, 16), a number of radiants appear, a radiant being the point from which meteor showers seem to originate⁶. Meteor showers are connected with the constellation of Aquarius and are known as the 'Aquarids'. Like Aquarius, Orion too is associated with meteor showers.

In a recent paper, data was gathered on rock engravings of the Western Mediterranean basin (Pérez 1979). In Spain, Italy, Sicily and Libya there are engravings similar in every respect to those described here. They are dated to the very end of the Pleistocene. The West Mediterranean engravings are sometimes accompanied by animal figures, a fact which is unparalleled on Mount Carmel. But in both the East and the West they are near inhabited caves, of similar appearance, seemingly of the same time and may indicate a circum-Mediterranean culture trait, the interpretation of which is far from clear.

⁶ This is, of course, an optical illusion caused by perspective. Meteor showers are not related to the constellation from which they seem to come, although they do originate from the same part of the sky.

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Note: Since going to press, a C-14 date of $3,890 \pm 60$ BP was obtained for the calcareous crust which covers the Etsba-west engravings (Pta 2784; J. C. Vogel, in letteris 27. 10. 80. It has meanwhile come to our attention that McCown did in fact notice the engravings at Skhul. He wrote: "Some of the recesses on the west shelter wall bear on their sides a series of smooth grooves of varying length, depth and direction. Some were above, others below the original level of the deposit. They do not seem to be cracks in the limestone, but whether they are of natural or of artificial origin is obscure". (McCown in Garrod 1937: 92). Skhul is the only case where engravings were covered by archaeological deposits. We assume that they were covered by layer A which contained various periods from Neolithic up to recent Arab; this therefore, is of no help in dating the engravings.