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THE FLINT ASSEMBLAGE OF KARMELIYA, HAIFA

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This short report deals with the lithic assemblage recovered from a brief salvage excavation, which took place in 1993 on Alexander Yannai Street in Karmeliya, a southern quarter of Haifa (NIG 1976–9/7447–9; OIG 1476–9/2447–9; Fig. 1).¹ A total of thirteen 1×1 m squares were opened in the center of the site (Sonntag 1995).

The site, located on a steep slope facing the Mediterranean Sea, was first identified by Stekelis (1932) and later examined by Wreschner (1970). Olami (1960; 1975; 1976; 1984:25), who surveyed the site in the course of his prehistoric survey of Mount Carmel, described it as covering 250 dunams (25 hectares), in proximity to raw material sources.

Raw Material

The lithic artifacts of Karmeliya were manufactured from three types of flint. Two



Fig. 1. Location map.

types are of ordinary quality, one gray-brown in color, the other light beige with chalk inclusions. These two types could be of Cenomanian or Eocene origin. The third type is high-quality Eocene flint. The first two types originated in local outcrops, exposures of which can be seen in the vicinity of the site. The third type was probably brought to the site from Eocene outcrops, such as are known at Har Haruvim near Kibbutz Ha-Zore'a (Meyerhof 1960:23; Shimelmitz, Barkai and Gopher 2000:3).

The Lithic Assemblage

The finds were derived from surface collection and from the excavation of a 0.5–0.8 m thick layer of dark sediment covering the bedrock. A total of 4028 artifacts were retrieved, most of them waste material. Tools comprise 11% of the total count (Table 1). This industry is flake oriented, containing a high frequency of flakes and primary elements, while blades are almost absent. Among the flakes, 520 sustain a double patina and are probably products of Mousterian tradition.

The material collected on the surface is composed of patinated flakes and cores. The dorsal scars reveal that the flakes were knapped from radial cores, probably indicating a Mousterian knapping tradition. However, the typical Levallois elements usually noted when radial cores dominate the core assemblage are lacking here. The finds from the excavated layer, on the other hand, comprise 'fresh' artifacts of whitish-beige flint. This component is characterized by a different knapping technique, consisting of alternating soft and hard hammers.

Table 1. Debitage Frequencies		
Туре	Ν	%
Primary elements	930	36.92
Flakes	1587	63.00
Blades	2	0.08
CTEs	-	-
Total Debitage	2519	100.00
Chunks	718	92.65
Chips	57	7.35
Total Debris	775	100.00
Debitage	2519	62.54
Debris	775	19.24
Cores	290	7.20
Tools	444	11.02
Total	4028	100.00

Cores

Of the 290 cores recovered at the site, 207 are of light beige flint and most of them have one striking platform. The vast majority was used for flake removal and only a few display blade scars. The remaining 83 cores were knapped with a different technique and exhibit a double patina. Converging radial scars appear on one side and the other still bears cortex. This type of core is typical of the Mousterian industry and most were collected from the surface.

Tools

All of the tools are related to the 'fresher' flint component at the site (see above). The tool category comprises 444 artifacts and includes almost every tool type, with the exception of arrowheads and sickle blades (Table 2). Ad hoc tools dominate the assemblage, comprising 96.4% of the total count. The remaining 3.6% are bifacial tools, the only diagnostic type present that can be used to assign this assemblage to a definitive chrono-cultural horizon.

Ad Hoc Tools.— The ad hoc tools are all fashioned on flakes, most of them quite large with cortex covering 20–30% of the dorsal side. Endscrapers and sidescrapers are present in equal numbers, appearing in various sizes. The

Table 2. Tool Frequencies		
Туре	Ν	%
Bifacials	16	3.60
Scrapers	40	9.01
Burins	7	1.58
Awls and borers	41	9.23
Massive drills	3	0.68
Retouched flakes	179	40.32
Notches	146	32.88
Retouched blades	6	1.35
Varia	6	1.35
Total	444	100.00

working edges of the endscrapers cover only a small portion of the distal end. The blanks of the sidescrapers are larger and cortex covers over 50% of the dorsal face.

Three massive drills were fashioned on thick elongated flakes and one borer, on a core. Abrupt retouch on both sides created a pointed tip.

The six retouched blades in this assemblage are large and display irregular retouch on one or both edges.

Bifacials.— The bifacial tools are the most important tool category within the flint assemblage of Karmeliya, due to their potential chrono-cultural association. All specimens were found in a good state of preservation, with some traces of damage from usage on their working edges. However, no bifacial spalls, as would indicate repairing or resharpening, were detected within the debitage. Six of the sixteen bifacials are classified as axes (Fig. 2); the other ten, as adzes (Fig. 3).

Axes have an elliptical, convex-convex cross-section (Fig. 2). Cortex covers a part of their dorsal side, while the ventral side is well shaped by intensive bifacial retouch (Fig. 2:1, 3). Only one axe (Fig. 2:2) was well shaped by bifacial retouch on both sides. All working edges are semi-rounded, except one that has a straight working edge with a break.

Adzes, found in all the excavated squares, are made of light brown flint of local origin

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Fig. 2. Bifacial tools: axes.

and shaped by bifacial retouch. Eight have a trapezoidal cross-section, parallel sides and a wide working edge (Fig. 3). Three of these bear polish on both sides of the working edge (Fig. 3:1). The remaining two examples have a

triangular cross-section and parallel sides with minimum preparation. Unfortunately, these two artifacts are broken and missing the proximal end, precluding their classification as adzes or chisels.

3*



Fig. 3. Bifacial tools: adzes.

Discussion

The lithic assemblage from the small salvage excavation at Karmeliya is problematic due to the lack of diagnostic tool types other than bifacials. It is obvious that there was a prehistoric settlement in the immediate vicinity; however, it is difficult to determine whether the artifacts were recovered in their original position as it is apparent that some movement of artifacts took place already in antiquity due to the natural slope. This can be seen in the distribution of the Mousterian artifacts, as well as those of the later occupation.

The lithic industry of the later occupation is of an industrial rather than domestic nature. This is reflected in the high frequency of cores and their by-products, and also in the absence of

4*

certain tool types that are common in habitation sites. The presence of heavy borers and bifacial tools in various stages of manufacture reinforces this conclusion regarding the function of the Karmeliya site.

The high frequency of adzes in the bifacial category, especially those with pronounced

polish on their tips, could suggest a chronocultural assignment for the later component of the assemblage. These types are frequent in assemblages of the later stages of the Pottery Neolithic and the Chalcolithic periods (Gopher and Gophna 1993; Barkai 1996; pers. comm.).

Note

¹ The excavation (Permit No. A-1956) was conducted in January 1993 by Flavia Sonntag, on behalf of the Israel Antiquities Authority. The authors wish to express their special thanks to Leonid Zeiger, who prepared the drawings and plates. Natalia Zak prepared the map.

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