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APPENDIX A

SHAʿAR EPHRAIM SOUTH: A LATE NATUFIAN CAMPSITE

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Introduction

The site of Shaʿar Ephraim South (UTM grid 1503/1877) was first surveyed in 1994 by A. Shavit (1994:7). The collected flint items include mainly bladelet cores which were randomly dispersed over a large area. A survey of the area revealed a dense flint concentration consisting of mainly microliths, bifacial tools and bladelet cores. The flints were scattered over an area of 500 m^2. along two terraces and a hill slope between two modern quarries. The scatter was divided into three sub-areas according to topographical conditions. No architectural features, stone tools or bedrock cupmarks were identified on the surface; collected finds were of flint items only.

Four 1 x 1 m. squares were excavated at different locations within the scatter in order to obtain a sample *in situ*.[1] All the excavated sediments were sieved through 2.5 mm. wire mesh. The test pits were excavated to a maximum depth of 70 cm. and revealed that the depositional sequence was natural. The excavated sediments were composed of soil mixed with pebbles and stones which were most likely a consequence of slope accumulation. In contrast to the dense flint concentration on the surface, there were very few finds in the excavated units; the density of finds decreased dramatically as bedrock was reached. The lithics were found in mint condition solely on the surface and the immediate impression was that the finds were eroded recently from the hilltop. Unfortunately, the hill top was badly damaged by modern activity and almost no archaeological material was recovered there. A preliminary observation suggests that this assemblage should be assigned to a late Epipaleolithic industry, but additional detailed analysis reveals that the prehistoric sequence was multi-phased.

THE LITHIC ASSEMBLAGE

Since this is not an homogenous *in situ* assemblage, the typological and technological analysis aims at identifying its different components. The lithic analysis was conducted according to late Pleistocene – early Holocene standards

[1] Prof. A. Gopher of Tel Aviv University advised the field work.

(see Goring-Morris 1987). This analysis, together with the study of the pattern of raw material exploitation, will place the assemblage in time and space. The assemblage includes 5,268 artefacts.

The most common raw material in the assemblage is small, brown–grey homogenous flint pebbles. The pebbles, found in abundance in the vicinity of the site, are about fist size and display a light patina. A completely different type of raw material, of high quality light brown flint from an unknown source, was used for the production of some specific tool types.

Cores

The 210 cores were classified according to their blank scars. Most of them are small, not exceeding 3 cm. and made of local grey high quality flint pebbles. Many of the cores are covered on one side with patinated cortex, while the other was used for blank removal. One phenomenon revealed by the assemblage is the complete exploitation of the cores during reduction. Twenty-nine bladelets and blade cores (Fig. 1:1) and 181 flake cores (Fig. 1:2–5) were recovered; most of them with more than one striking platform.

Debitage and Debri

Most of the assemblage was made up of debri and debitage pieces (4,308). Eight ridge blades, eleven core tablets, 32 core rejuvenation elements, five burin spalls, two plunging flakes, 1,008 flakes, 85 blades, 134 bladelets and 312 primary elements were classified. Debri items (2,704) included 1,302 chips and 1,402 chunks.

Tools (Table 1)

Altogether 750 tools were discovered from the survey. The assemblage is dominated by notched and denticulated pieces, retouched flakes and blades, and microliths.

Retouched flakes are the largest group of tools discovered and make up 32.4% (243) of the assemblage.

The second largest group in the assemblage are retouched blades (115). The majority (95%) of the retouched blades were discovered broken. The largest complete specimen is 5.8 cm. in length. The blades exhibit a clear selection of raw material: most are made from the local grey flint and bear large quantities of cortex, while only ca. 10% of the blades are made of the high quality brown flint (Fig. 2:6).

The assemblage consisted of 15.2% (114) notched and denticulated tools (Fig. 2:1–4): 73 notches and 41 denticulates.

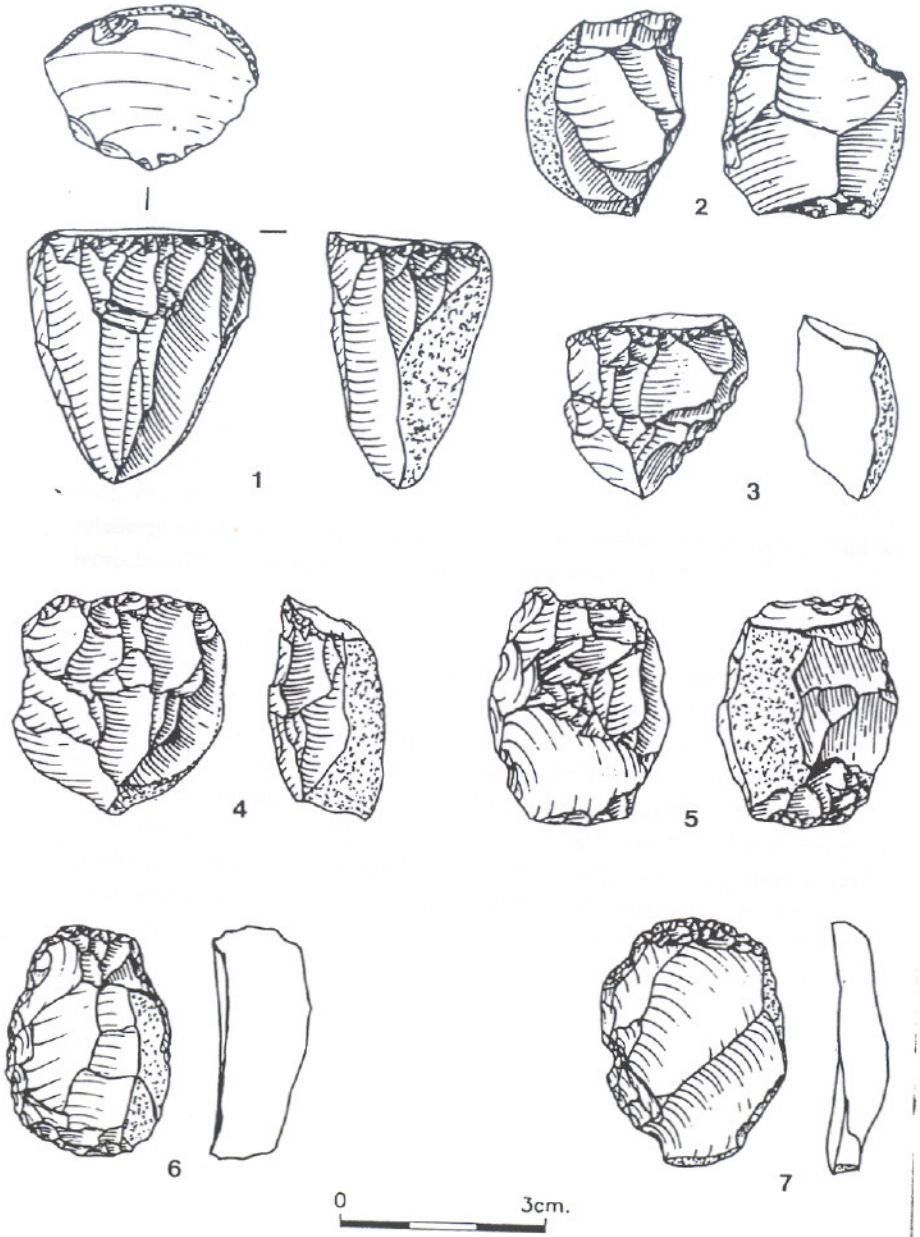

Fig. 1. Cores (1–5) and endscrapers (6–7).

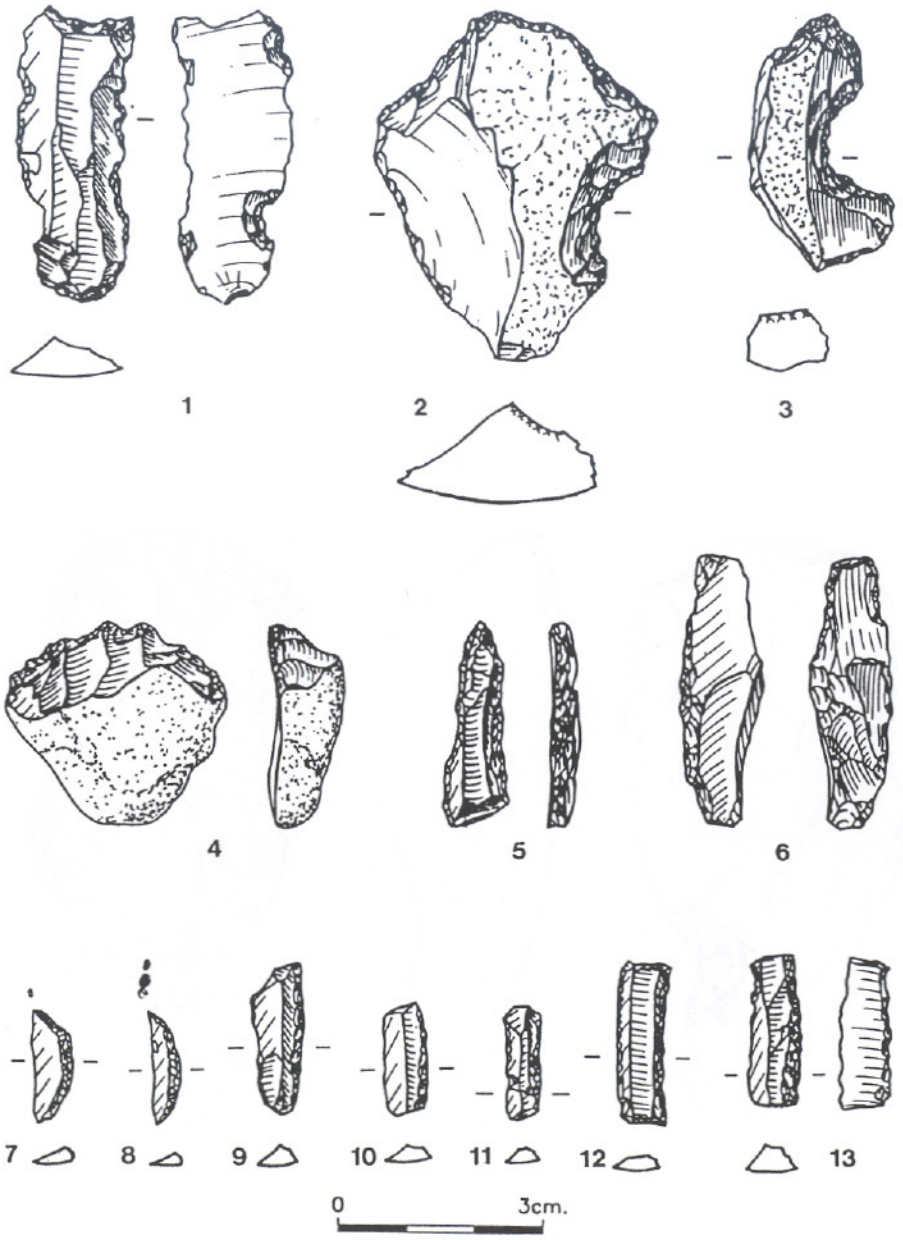

Fig. 2. Notches and denticulates (1–4), borer (5), retouched blade (6), and microliths (7–13).

Endscrapers made up 4% (30) of the tools found. The most common type (19) is endscraper on flake (Fig. 1:6–7). Other types include endscraper on blade (2); carinated (4); thumbnail (1); double (1); and micro-endscrapers (3).

Only 10 burins were discovered: four on a break or natural surface; four truncated; and two transversal burins.

Six truncated items, five awls made on flakes, and one borer on a blade (Fig. 2:5) were also part of the assemblage.

Typologicaly indistinguishable items (81) were also discovered. These are mainly broken and exceed 1.5 cm. in size.

Microliths

All the microliths (109, 14.5% of the assemblage) are made from the grey local raw material. This group consists of mostly finely-retouched bladelets (52) (Fig. 2:11); backed bladelets (29) (Fig. 2:9–10, 13); retouched and truncated bladelets (16); one rectangle (Fig. 2:12); and seven lunates (Fig. 2:7–8). The lunates are relatively small with a mean length of 15 mm. Five of them are backed by unipolar retouch while the remaining two show a bipolar retouched back.

Bifacials

These tools (6) are exceptional in terms of size and raw material. Three of them are tranchet axes bearing a transversal edge blow (Fig. 3:1) made of very fine brown-grey flint and thoroughly worked. Two other items are very coarse, amorphous bifacials made of middle quality grey flint (defined as heavy-duty tools). One bifacial is unique (Fig. 3:2). Made on a transversal large flake (8.5 x 4 x 3 cm.), this tool is surprisingly similar to the herminette which was defined at Mureybet on the Middle Euphrates (Cauvin and Stordeur 1978:29–42), as an adze-like tool, made on a transversal flake with almost unretouched ventral side and a stepped working edge. This item is made from a low quality grey flint. It is probable that the production of such large blank would require a large nodule, in contrast to the local small ones.

Varia

Unclassified, shaped flint tools made up 3.8% (29) of the assemblage.

TECHNOLOGY

The lithic industry is dominated by flakes (with a ratio of 3:1). A preference for blades for tool shaping is reflected by the appearance of tools on flakes and blades in equal numbers. The core reduction sequence began with the breakage of the

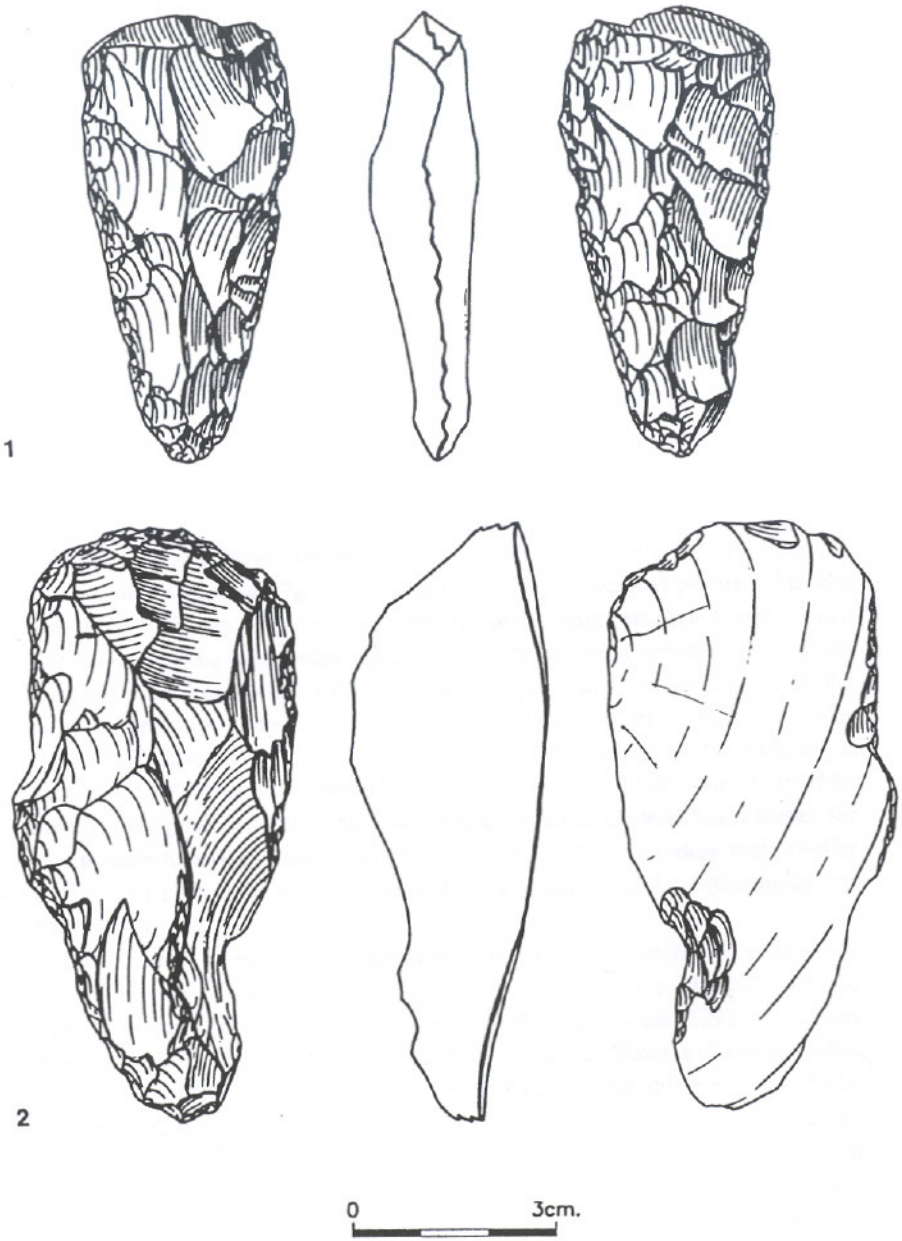

Fig. 3. A tranchet axe (1) and herminette (2).

TABLE 1. TOOLS TYPOLOGY

Type	*No.*	*Frequency %*
Endscraper	30	4
Burin	10	1.3
Notched and denticulated	114	15.2
Awl-borer	6	0.8
Truncated	6	0.8
Retouched flake	243	32.4
Retouched blade	115	15.3
Retouched artefact	82	10.9
Microliths	109	14.5
Bifacial	6	0.8
Varia	29	3.8
Totals	750	100

nodule or by removing one end of it by flaking and using the natural surface as a striking platform without any preparations. The next stage was 'peeling' the cortex from the front of the core, leaving the back cortexed. The volume of many cores was exploited in a strategy that left only the back part of the core unused. No standardisation was identified in the location of the striking platforms. It is worth noting here that the small dimensions of the local pebbles did not allow for the production of long blanks.

Two major *chaine operatoire* trajectories can be identified: one line was designed for the production of microliths and the other for large bifacial tools. The two strategies are different in the technique used for their performance and the raw material utilised. The microlithic *chaine operatoire* requires a delicate, meticulous reduction of a number of blanks from a few high quality flint cores, while the bifacial line uses the production of a single item from the nodule or the production of large blanks from large cores. These two techniques accompanied the regular flake production.

The method of tool shaping is different for each line. It is clear that these two technological concepts are the result of two different attitudes toward raw materials and the desired tool. Within the assemblage it is clear that the two techniques are not part of a single archaeological entity, though the use of different methods for the production of delicate and massive tools by the same inhabitants is familiar (see Marder 1993:126–140, 145; Goring-Morris 1995:164). There was no sign of the use of microburin technique. It seems that the exploitation of blanks for tool manufacture was intensive, as 104 primary elements and 34 core debitage items were shaped into tools.

Discussion and Conclusions

The lithic assemblage from Shaʿar Ephraim is the sole evidence for prehistoric human activity in the area. Since it is assumed that the accumulation of the lithic material is a result of diverse (post-depositional) processes, a cautious approach is essential for understanding this assemblage. Prehistoric research in the Levant is familiar with sites damaged by nature or by human agents resulting in disturbed assemblages. This phenomenon is distinct in areas where intensive human activity took place during the Epipaleolithic and Neolithic periods, creating mixed assemblages which represent various past cultural entities (see Bar-Yosef, *et al.* 1974; Bar-Yosef and Goren 1980:11–14). This issue is further complicated when dealing with small, temporary occupations where there is a possibility of later human disturbance in addition to the natural processes (Bar-Yosef 1981a:399; Bar-Yosef 1981b:556–557; Byrd 1989:186). In order to gain a better understanding of the composition of these mixed assemblages one has to employ the data accumulated in systematic studies of excavated *in situ* assemblages.

The relatively large microlithic component places the majority of the assemblage within the Epipaleolithic industries. The presence of a single geometric microlith (such as the rectangle in Fig. 2:12), in addition to pyramidal and prismatic bladelet cores (Fig. 1:1), may indicate a geometric Kebaran component (Bar-Yosef 1981a). The lunates are the most outstanding characteristic of the microliths group. Their length (15 mm.) and retouch (abruptly backed) point to a later placement in the Natufian sequence (Bar-Yosef 1981a:398–399; Goring-Morris 1987:23; Bellfer Cohen 1991:169; Valla 1995:173). This assertion is reinforced by the existence of exhausted small cores (Bar-Yosef 1983:17; Bar-Yosef and Belfer Cohen 1989:468), the intensive production of small flakes and selection of bladelets\short blades for tool manufacture (Bar-Yosef 1991:86; Valla 1995:173), heavy-duty tools (Belfer Cohen 1991:169), and the large number of notches and denticulates (Goring-Morris 1987:294).

The Natufian items are made exclusively of local raw material. The adze-like herminette with parallels in Mureybet is assigned there to the later Natufian and early Neolithic layers (Cauvin and Stordeur 1978:29–42). Valla (1995:182) claims that this type is typical to the final Natufian, while Bar-Yosef and Belfer Cohen (1989:481) contend that this unique adze exhibits regional differences of PPNA cultures. The three tranchet axes, sometimes called 'Tahunian', are generally considered typical of the Sultanian culture, the main culture of the PPNA, even though they continue to appear during the PPNB (Bar-Yosef and Belfer Cohen 1989:481). In the absence of other *fossil directeurs* of the PPN, these axes can only hint at some kind of early Neolithic presence.

About 10% of the retouched blades and a small number of the blade blanks are made of a non-local very fine brown-grey flint similar to the raw material used for the manufacture of the tranchet axes. These blades are longer and wider than the dominant type of blades in this assemblage made from local flint (Fig. 2:6). According to raw material similarities and typological criteria, these blades should be assigned to the later part of the exploitation of this area, most likely contemporary to the use of the tranchet axes.

In conclusion, the lithic data of Shaʿar Ephraim South represents a multi-phased assemblage. There seems to be both early geometric Kebaran and later Neolithic components, but the majority of the assemblage belongs to a late Natufian industry.

This assemblage reflects the intensive exploitation of the western margin of the Samarian hills during the terminal Pleistocene – early Holocene. An opportunistic use of the landscape, rather than a continuous occupation seems evident. The original occurrences were probably task-specific and contained specific tool kits. This is supported by the absence of facilities, graves, and heavy equipment, and is based on previous site definitions (see for example Goring-Morris and Bar-Yosef 1987:112; Ronen and Lechevallier 1991:154–159).

The area under discussion, unfortunately, has been neglected by prehistoric research. This short note may reveal the potential of such a region for a more comprehensive understanding of prehistoric human activity.

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