

## CHALCOLITHIC AND EARLY BRONZE AGE IB FLINT ASSEMBLAGES FROM BEQO‘A

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A total of 5128 flint artifacts was collected from the excavation areas at Beqo‘a (Table 1). Approximately 70% of the flint artifacts were retrieved from the Chalcolithic layer (Stratum III); the remainder were from the Early Bronze Age IB (Strata II and I). As there is great similarity between the lithic artifacts from Strata II and I, their lithic finds are treated as a single characteristic assemblage of EB IB. It should be noted that the soil from all loci was comprehensively sieved using a 1×1 mesh.

### *Raw Material*

The site is located on the western fringes of the Judean Shephelah, west of the Ayyalon Valley, on a low hill bordering the coastal plain. This region is rich in flint outcrops of the Eocene period that are common in the chalky bedrock, as well as in the nearby wadis that transverse the area from east to west. These Eocene outcrops consist of high quality, dark brown, fine-grained flint.

Another source of flint for lithics is Senonian flint from the Meshash Formation, found within a c. 1.5 km radius of Beqo‘a. This raw material is of medium quality, and is gray to brown with white inclusions. Some of the items from the Beqo‘a assemblage were produced from a better quality flint than most of the Meshash Formation, including several items manufactured on gray translucent flint.

Another flint type is also of a quality suitable for shaping tools. This dark brown, fine-grained Eocene flint has been found at Early Bronze Age sites. The raw material is restricted to Canaanite blade technology, and most of the Canaanite blades are shaped from it.

### THE CHALCOLITHIC ASSEMBLAGE

The Chalcolithic flint assemblage consists of 3594 items (Table 1), most of which are waste products. Debitage, mostly flakes ( $n = 1645$ ), constitutes two-thirds of the assemblage. The fact that chips and chunks are present in reasonable frequencies suggests that the knapping activities were conducted on-site. The high degree of exploitation of the cores is reflected by their small size and exhausted appearance, indicating a local manufacture.

Tools represent 6.5% ( $n = 234$ ) of the Chalcolithic assemblage, similar to tool frequencies found in other Chalcolithic sites

**Table 1. Flint Breakdown from Beqo‘a**

Type \ Period	Chalcolithic (Stratum III)		EB IB (Strata II–I)	
	No.	%	No.	%
Primary elements	319	14.2	143	13.4
Flakes	1645	73.3	814	76.4
Blades/bladelets	242	10.8	101	9.5
CTEs	39	1.7	8	0.8
<i>Subtotal debitage</i>	2245	100.0	1066	100.1
Chips	543	57.9	274	78.5
Chunks	395	42.1	75	21.5
<i>Subtotal debris</i>	938	100.0	349	100.0
Debitage	2245	62.5	1066	69.5
Debris	938	26.1	349	22.8
Cores	177	4.9	41	2.7
Tools	234	6.5	78	5.1
<i>Total</i>	3594	100.0	1534	100.1

**Table 2. Tool Frequencies from Beqo‘a**

Type	Period	Chalcolithic (Stratum III)		EB IB (Strata II–I)	
		No.	%	No.	%
Chalcolithic sickle and back blades	36	15.4	6	7.7	
Canaanean sickle and back blades	12	5.1	21	26.9	
Retouched blades	7	3.0	4	5.1	
Bifacial tools	17	7.3	1	1.3	
Tabular scrapers	4	1.7	1	1.3	
Scrapers	38	16.2	7	9.0	
Perforators	35	15.0	22	28.2	
Notches and denticulates	40	17.1	6	7.7	
Burins	12	5.1	4	5.1	
Retouched flakes	27	11.5	5	6.4	
Truncations	5	2.1	-	-	
Varia	1	0.4	1	1.3	
<i>Total</i>	234	99.9	78	100.0	

of the central region, such as Khirbat el-‘Alya (east) (7.3%)<sup>1</sup> and Gat Guvrin (8.4%; Hermon 2003). The tool inventory from Beqo‘a (Table 2) includes most of the types typical of Chalcolithic assemblages, wherein sickle blades are noticeably dominant in the formal tool types ( $n = 36$ ; 15.4 % of the tool assemblage). Other tool types also appear in various percentages.

### Cores

Numerous cores were collected ( $n = 177$ ; 4.9%; Table 1), many with a cortex covering 5–10% of their surfaces. Most of the cores were shaped from gray and beige flint. The most common method of core reduction is simple flake production from one striking platform (53%; Fig. 1:1, 2). Sometimes, an additional striking platform was prepared during maintenance, which produced small flakes. After two or three series of utilization, the core lost its volume and shape, and was discarded. A secondary reduction sequence was also noticed; this apparently aimed to create unidirectional blades (Fig. 1:3).

A total of 74 (41.8%) of the cores possess multiple platforms oriented in various directions. These cores display flake scars, while the remaining cores ( $n = 103$ ; 58.2%) have flake and blade scars from two opposed platforms. The number of scars on the flaking surface of the cores varies from 9 to 13, with most bearing 10 scars, reflecting the high degree of exploitation of each core.

### Tools

A total of 234 tools was recovered from Stratum III (Table 2), most of them shaped on local raw material. Chalcolithic sickle blades are one of the most frequent types, comprising 15.4% ( $n = 36$ ) of the tools (Fig. 2). Also in high frequencies are scrapers ( $n = 38$ ; 16.2% of the tool assemblage), perforators ( $n = 35$ ; 15.0% of the tool assemblage) and notches and denticulates ( $n = 40$ ; 17.1% of the tool assemblage). Although Canaanean sickle blades were also found in this stratum, these are interpreted as intrusive and therefore, will be discussed below (*The Early Bronze Age Assemblage*).

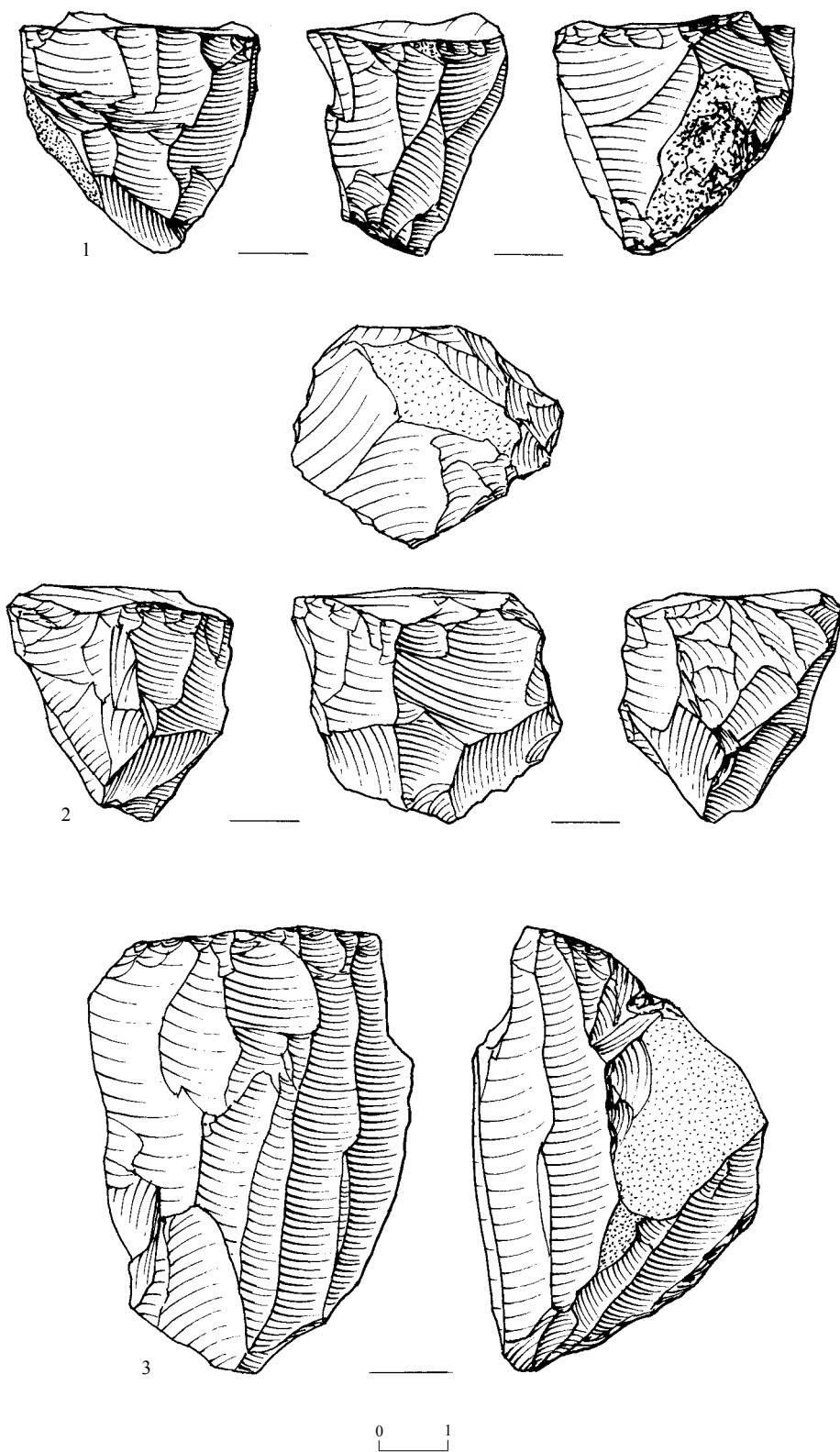


Fig. 1. Chalcolithic cores: flake (1, 2) and blade (3) cores.

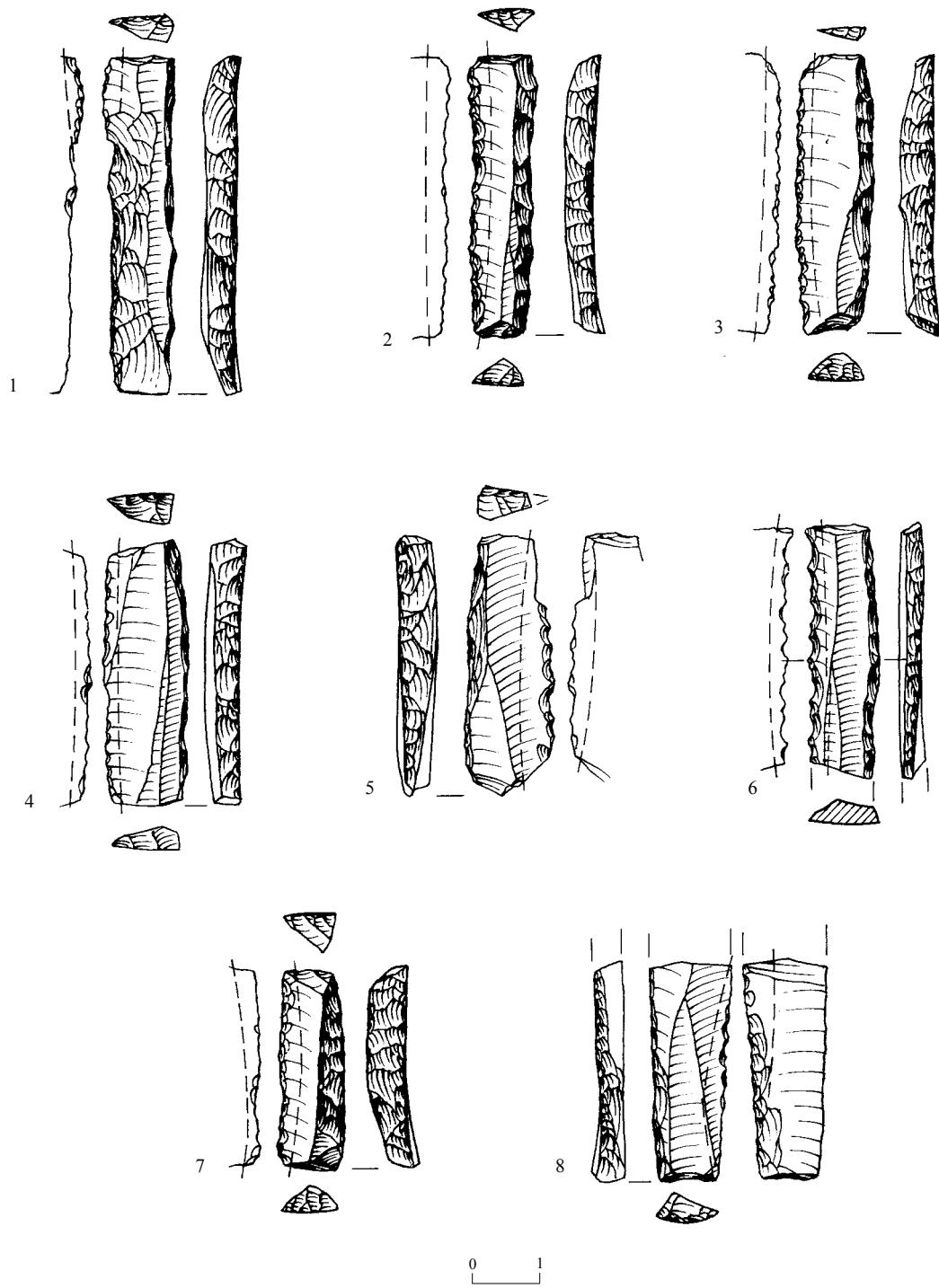


Fig. 2. Chalcolithic sickle blades.

### *Sickle Blades*

The Chalcolithic sickle blades ( $n = 36$ ; 15.4% of the tool assemblage) usually comprise bi-truncated backed blades with one working edge modified by fine denticulation (Fig. 2). The majority display visible gloss on their working edges; only four items lack sickle gloss. The blades have a triangular cross-section and are narrow blanks, typical of Chalcolithic sickle blades known from southern Chalcolithic sites. The mean width of the sickle blades from Beqo'a does not exceed 12 mm; this is very similar to the width of the sickle blades from Abu Maṭar and Bir Ṣafadi (Hermon 2003: Table 9), Gerar (Gilead, Hershman and Marder 1995) and Khirbat el-‘Alyā (east) (Hermon 2003: Table 20). This reflects a central and southern Chalcolithic tradition of utilizing narrow blanks.

Chalcolithic sickle blades that were found in Early Bronze Age contexts ( $n = 6$ ) display the same traits as those found in the Chalcolithic strata, and therefore, they probably originated from the lower Chalcolithic occupation.

### *Bifacial Tools*

Seventeen bifacial tools were recovered, all of which were fragments. Seven are fragments of chisels (not illustrated), five of adzes (Fig. 3:1, 2), three of axes (Fig. 3:3) and two are designated as varia since their shape does not allow for classification into one of the known bifacial types. All of them were intensively shaped by bifacial flaking, leaving a minimal amount of cortex on their dorsal side. One of the axe fragments is part of a working edge, rounded in shape and well-polished (Fig. 3:3).

### *Tabular Scrapers*

Four fragments of tabular scrapers were found; two were shaped on typical thin tabular flint (Fig. 4:1), while the others were shaped on thick artifacts (Fig. 4:2, 3). Two of the tabular scrapers are broken on their distal end and along both edges (Fig. 4:1, 2), and partial fine retouch appears on their left edge. The remaining two tabular scrapers probably originally had a

circular form, with parallel abrupt retouching on their distal end and their right edge (Fig. 4:3). Tabular scrapers in southern sites are found in larger proportions (Rosen 1997:74) than the proportions found at Beqo'a.

### *Perforators*

Perforators are one of the most prominent types of formal tools in the tool assemblage, comprising 15% ( $n = 35$ ) of the tool assemblage. Over 60% are drills ( $n = 21$ ; Fig. 5:1–3); the remainder are awls (Fig. 5:4, 5). These tools were mostly shaped on large flake blanks that display little cortex. Most of the drills are massive, and their tips prominently protrude from their bodies.

### *Other Tools*

The ad hoc tools include scrapers ( $n = 38$ ; 16.2% of the tools), notches and denticulates ( $n = 40$ ; 17.1% of the tools) and retouched flakes ( $n = 27$ ; 11.5% of the tools). Retouched blades ( $n = 7$ ; 3.0% of the tools) and burins ( $n = 12$ ; 5.1 % of the tools) are present in low frequencies. Most of the ad hoc tools are flake tools shaped from available raw material.

## THE EARLY BRONZE AGE ASSEMBLAGE

Over 1500 flint artifacts were collected from Strata II–I ( $n = 1534$ ; Table 1). The excavator attributed these two upper strata to the same period (EB IB; Golani, Storchan and Eirikh-Rose, this volume). Due to their similarity, the lithic assemblages of both strata are described here as one assemblage.

The EB I flint assemblage is characterized by a high frequency of flakes ( $n = 814$ ; 76.4%); blades are present in much smaller numbers ( $n = 101$ ; 9.5%). The Canaanite blades are prominent ( $n = 21$ ; 1.3%; Table 2), with only six Chalcolithic sickle blades recovered (0.4%). The low frequency of blades is also reflected in the cores, where the majority consists of flake cores, and none reflect Canaanite blade production.

The most characteristic element of this Early Bronze Age flint assemblage is the sharp rise of

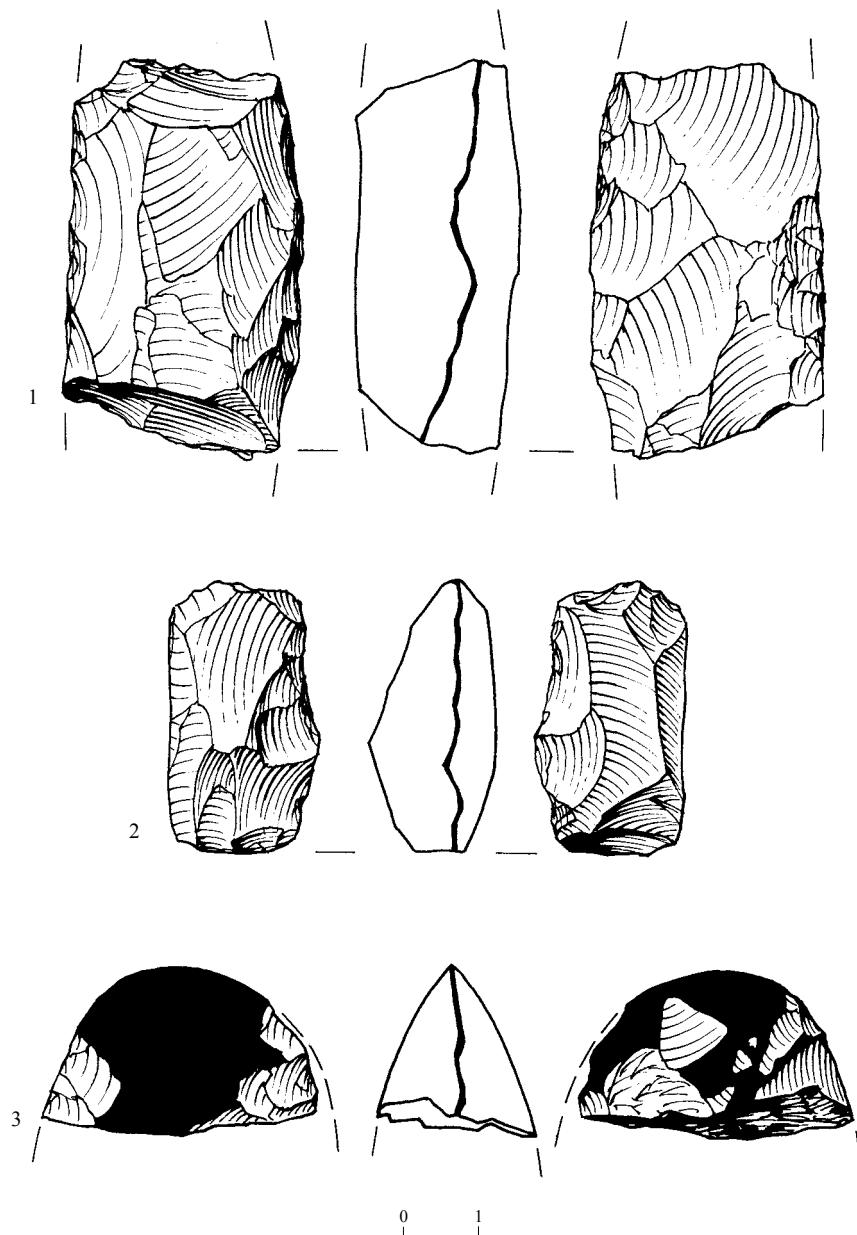


Fig. 3. Chalcolithic bifacial tools: adzes (1, 2) and an axe (3).

Canaanean blades and Canaanean sickle blades in comparison to the Chalcolithic assemblage. These items dominate the blade and formal tool categories, and they comprise 26.9% of all the tools ( $n = 21$ ; Table 2). Since Canaanean cores and waste were not encountered, it is concluded that these items were produced off-site, and were

imported as final products. In contrast, the ad hoc tools—except for perforators—are poorly represented, reflecting a high degree of mixture.

A total of 78 tools were recovered from the EB I strata: 21 Canaanean retouched blades and sickle blades, 22 perforators, 7 scrapers and one tabular scraper. The remainder comprise

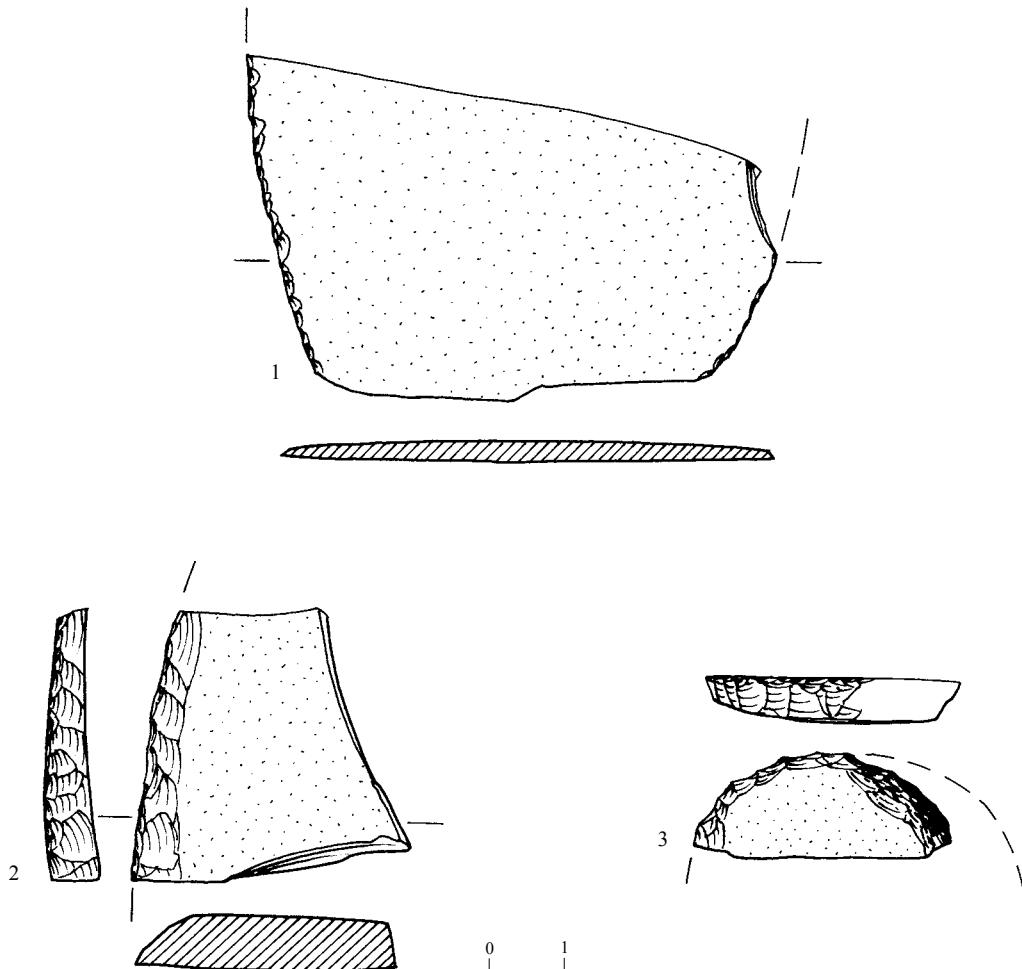


Fig. 4. Chalcolithic tabular scrapers: a thin fan scraper (1) and thick tabular scrapers (2, 3).

ad hoc tools found in smaller quantities. Worth noting is the presence of Chalcolithic tools in almost every tool category. The amount of Chalcolithic sickle blades in the Early Bronze Age assemblage of tools is 7.7% ( $n = 6$ ).

#### *Canaanean Retouched Blades and Sickle Blades*

A total of 21 Canaanean retouched blades and sickle blades were found (26.9% of the tool assemblage); all were shaped on flint ranging from light to dark brown that originated from an Eocene source. It seems that these tools were intensively used, and some of them were even recycled, which is evident from their state of

preservation—the majority is broken and their working edges were reshaped.

Canaanean sickle blades usually have long blanks with a trapezoidal cross-section (Fig. 6). Half of the blades from the EB I Beqo'a assemblage have one active working edge that exhibits prominent sickle gloss, while the other edge displays fine or semi-abrupt retouch. The other half of the assemblage, however, has two working edges, but the gloss can be seen only on one of the working edges.

The Canaanean blade blanks are divided into two groups. The first, larger group (Fig. 6:1–5), includes blanks narrower and thinner than the usual size (average width 1.8 cm,

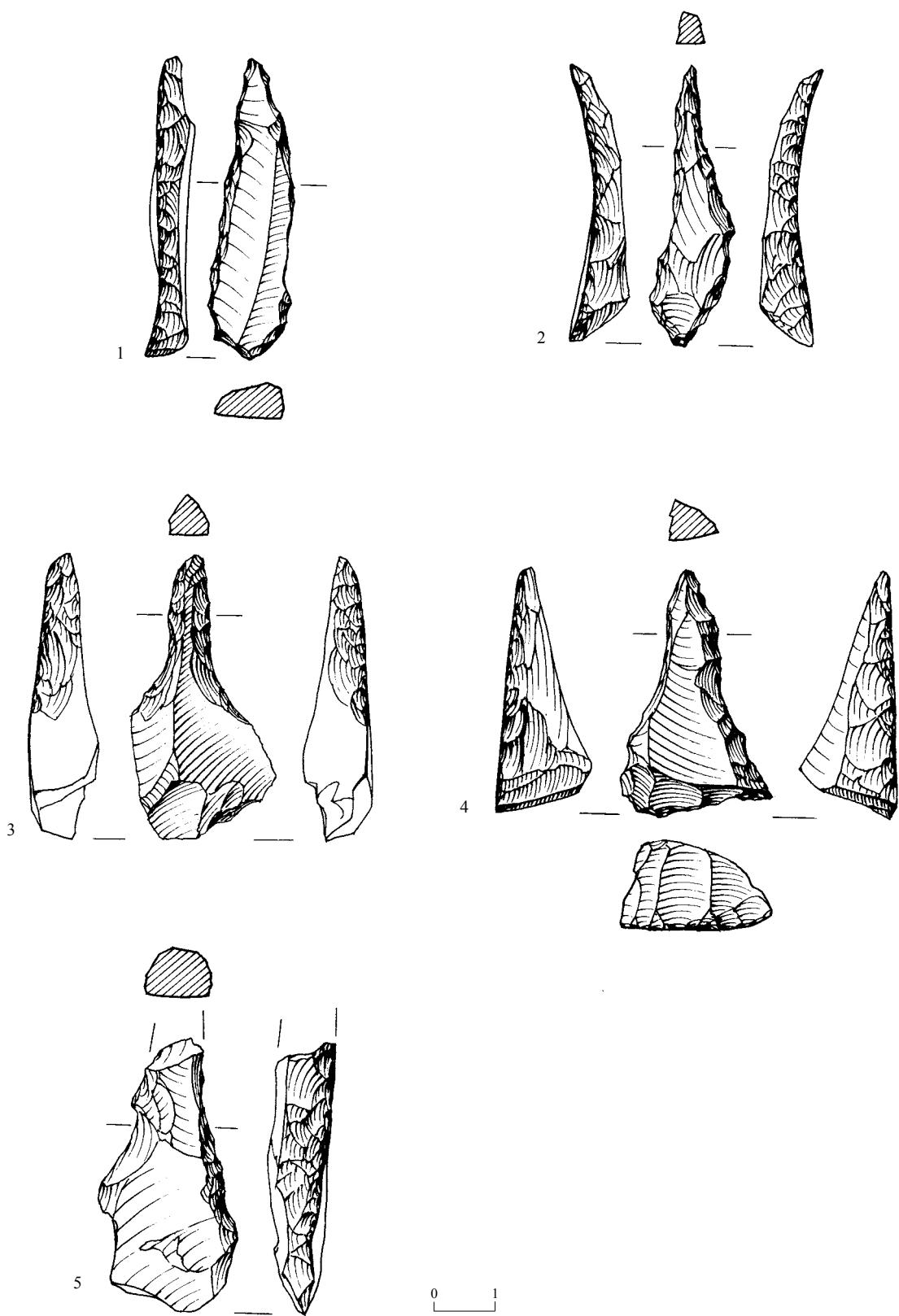


Fig. 5. Chalcolithic perforators: drills (1–3) and awls (4, 5).

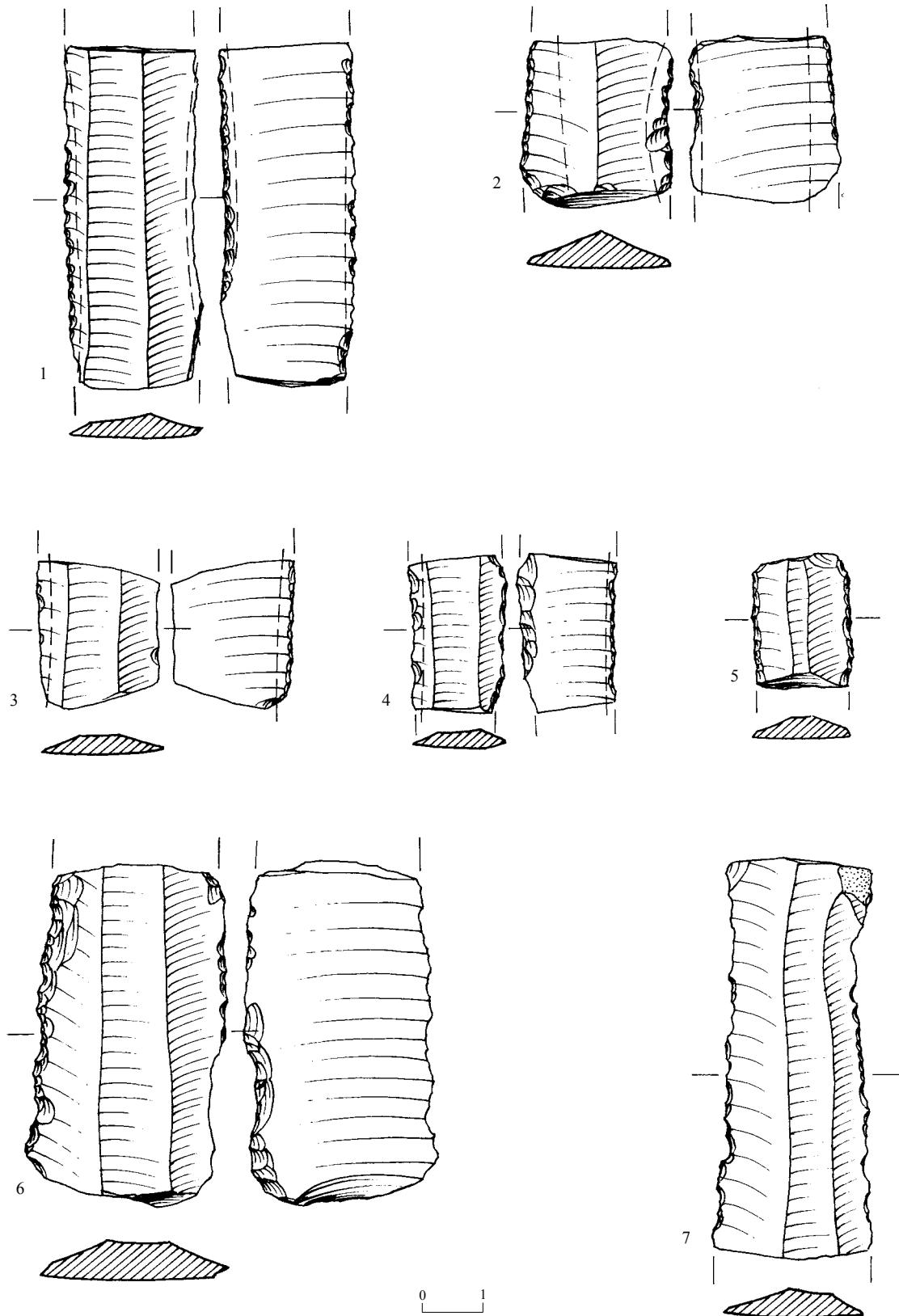


Fig. 6. Canaanite blade products: sickle blades (1–5) and retouched blades (6, 7).

0.4 cm depth). These blanks have a trapezoidal cross-section and two working edges. The second group consists of wide blanks (2.7 cm; Fig. 6:6, 7), wider than the usual blanks of the Early Bronze Age and a thicker trapezoidal or triangular cross-section. These items have one working edge and a pronounced sickle sheen.

The working edges of all the Canaanite sickle blades are frequently denticulated or nibbled on the dorsal side. Retouch on the ventral side is less frequent. None of the sickle blades retain their cortex.

#### *Perforators*

Perforators are the largest tool type in the Early Bronze Age tool assemblage ( $n = 22$ ; 28.2%), dominated by massive drills. The perforators from this assemblage have similar traits as those of the Chalcolithic perforators, so their Chalcolithic origin cannot be excluded.

#### *Tabular Scraper*

The only tabular scraper found in the Early Bronze assemblage was manufactured on a large, broad and thin flake of Eocene flint with a white cortex covering most of its dorsal surface. A semi-abrupt retouch is found along its lateral edge on the dorsal face. Close examination shows parallel incisions on the cortex. Heavy incrustation does not allow reconstruction of the incision pattern.

#### SUMMARY

The excavation at Beq'a brought to light two small flint assemblages, one from the

Chalcolithic period and the other from the Early Bronze Age.

The Stratum III Chalcolithic assemblage, combined from two successive excavations, is homogenous and typical of Late Chalcolithic Ghassulian assemblages. As the site is located within an environment of available raw materials, flint production was an integral part of the site's economy. The tool assemblage includes all common Chalcolithic types. Their state of preservation indicates that the knapping, shaping and maintenance of the formal tools took place at the site as part of the domestic household activities. The sickle blades are distinctive in their frequency and dimensions. The average width of the blanks fits well with the normative of Chalcolithic sickle blades from central and southern regions of the Southern Levant.

Chalcolithic flint material is well-known from sites in the vicinity, such as Khirbat el-'Alya (east) (Dagan 1998) and Lod (Kaplan 1977; Khalaily and Gopher 1999). Furthermore, it is also found in the Chalcolithic settlements along the coastal plain (Gophna and Portugali 1988), as well as in Chalcolithic burials in Ben Shemen (Perrot and Ladiray 1980), Qula (Milevski 2002) and Mazor (Lupu 2008).

Similarly, Canaanite blades and sickle blades were recovered from many Early Bronze Age sites. In fact, some of the main settlements from this period are in the vicinity of Beq'a, such as at Tel Yarmut (e.g., de Miroshchedji 1988; 1999), Eshta'ol (Golani 2008), Gezer (Dever 1986) and Lod (Gophna and Beit-Arieh 1997; Yannai and Marder 2000).

## NOTE

<sup>1</sup> This site was excavated by Dagan (1998). The flint tools were analyzed by Vladimir Zbenovich, whom I wish to thank for sharing the results.

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