

NAHAL YARMUT: A LATE POTTERY NEOLITHIC SITE OF THE WADI RABAH CULTURE, SOUTH OF NAHAL SOREQ

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INTRODUCTION

In recent years, intensive archaeological excavations have been conducted at many Neolithic sites in Israel and many new sites have been explored in salvage excavations. These excavations have provided vital information on various aspects of the Neolithic communities in the southern Levant, such as cultural entities, site distribution and subsistence strategies, especially from the later phases of the Pottery Neolithic periods.

It is generally accepted that the 'normative' Wadi Rabah culture, as defined by Kaplan (1958b), is comparable to what Kenyon (1956) termed "Late Pottery Neolithic". Garfinkel eventually ascribed this culture to his Early Chalcolithic period (Garfinkel 1999:5–6), with later entities, such as the Qatifian (Goren 1990) and the Nazurian (Yannai, forthcoming) attributed to his Middle Chalcolithic. There are very few chronometric dates for this time period, so any conclusions concerning absolute dating must take into consideration both stratigraphy and the few dates available. Gopher and Gophna (1993:328) have suggested, on the basis of problematic data, that the Wadi Rabah culture covered most of the fifth millennium BCE. The Wadi Rabah sites and other related entities appear to be broadly distributed, from the Beq'a Valley in the north to the southern Negev in the south;¹ however, the 'normative' Wadi Rabah sites are concentrated in a core area between the Jezreel Valley and Nahal Soreq (Gopher and Gophna 1993:334). The 'normative' Wadi Rabah culture fulfills most of the criteria for the definition of an archaeological culture, and includes a collection of assemblages that display

clear repetitiveness in the various components of their material culture.

Recent discoveries indicate that Late Neolithic settlements were dispersed even as far south as the 'Uvda Valley in the southern Negev (Avner 1998). Following the sounding at the site of Nahal Yarmut, the geographical distribution of the 'normative' Wadi Rabah sites appears to have been even broader than previously believed.

The Wadi Rabah site of Nahal Yarmut is located on the southern fringe of the Yarmut Valley, c. 260 m above sea level, near where the valley turns northward, approximately one kilometer east of the road from Bet Shemesh to Bet Guvrin, close to the Ramat Bet Shemesh Junction (map ref. NIG 196/625, OIG 146/125; Figs. 1, 2). The site is situated on a small,

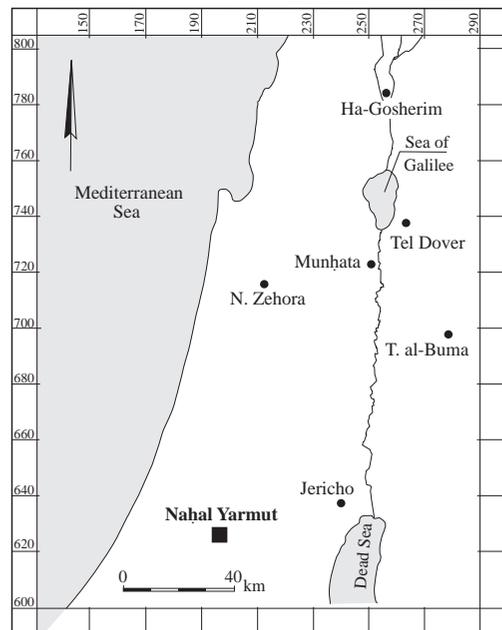


Fig. 1. Location map.

moderately sloping terrace facing north, adjacent to a number of natural springs that are still active today. It is bordered on the south by a series of mounds and on the north, by a large floodplain. In addition to this site, a cluster of Pre- and Pottery Neolithic sites was discovered in the Yarmut Valley and in the adjacent area, at short distances from each other (Bankirer et al., forthcoming).

The site was discovered by Yehuda Dagan during his survey of the Bet Shemesh map (Dagan 1991), in which he reported a prehistoric site containing Neolithic and Chalcolithic occupations over an area of 8 dunams. The site was re-examined within the scope of the Ramat Bet Shemesh Project and a few probes were conducted at that time (Dagan 1998:83; 2010: Site 107.1).

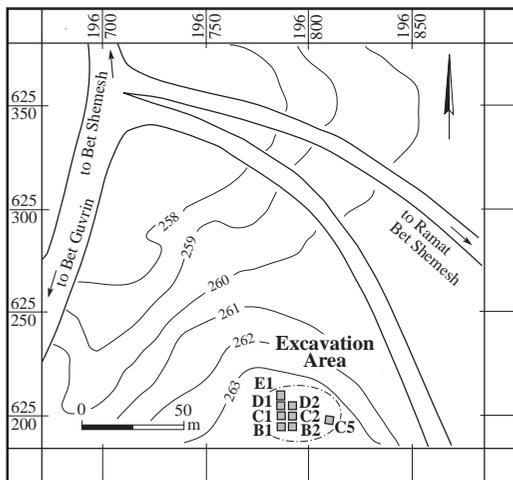


Fig. 2. Location map of the excavation areas.

THE EXCAVATION

Stratigraphy

In 1998, a salvage excavation was undertaken following construction works in the vicinity of the site.² The excavation was conducted using a grid of 5×5 m squares; all sediments were sieved with a 5 mm mesh. A total of seven squares were excavated following a number of probes made with heavy machinery to locate the borders of the site. Six squares were located on a north–south axis in the main area (Area A; Fig. 2), while the seventh square, C/5 (Area B), was situated approximately 10 m to the east of the main area.

A thick occupation layer was exposed c. 0.5 m below the surface. The archaeological remains reached a depth of 1.5 m and lay upon virgin soil. The archaeological layer was rich in pottery and flint artifacts, all attributed to the Late Pottery Neolithic period (Wadi Rabah phase). Although the site had a single occupation layer, five stratigraphic units were discerned (Fig. 3):

Unit 1.— The uppermost unit (8–10 cm) was characterized by compacted, light brown clay soil, rich in organic material—a result of modern agricultural activities—and containing minute quantities of ceramics and flint artifacts.

Unit 2.— This unit (c. 0.7 m) contained light gray sediments mixed with ashes and stones. The latest archaeological level was uncovered

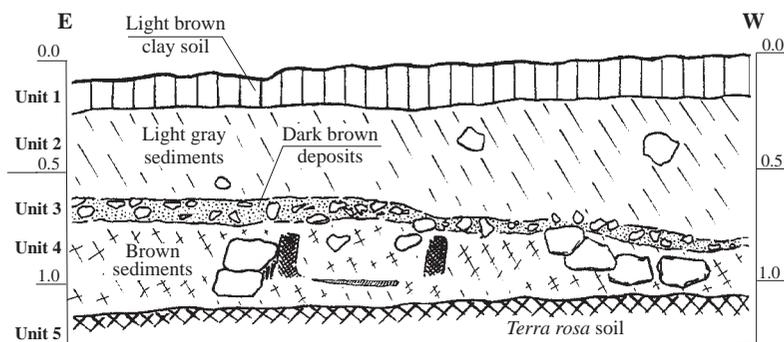


Fig. 3. Section in Sq C5 showing the five stratigraphic units.

in this unit, comprising several pits and various architectural features.

Unit 3.— This is a thin unit (c. 0.2 m), characterized by dark brown deposits mixed with burnt stones and poor in archaeological material. It is situated between the upper and lower occupation levels.

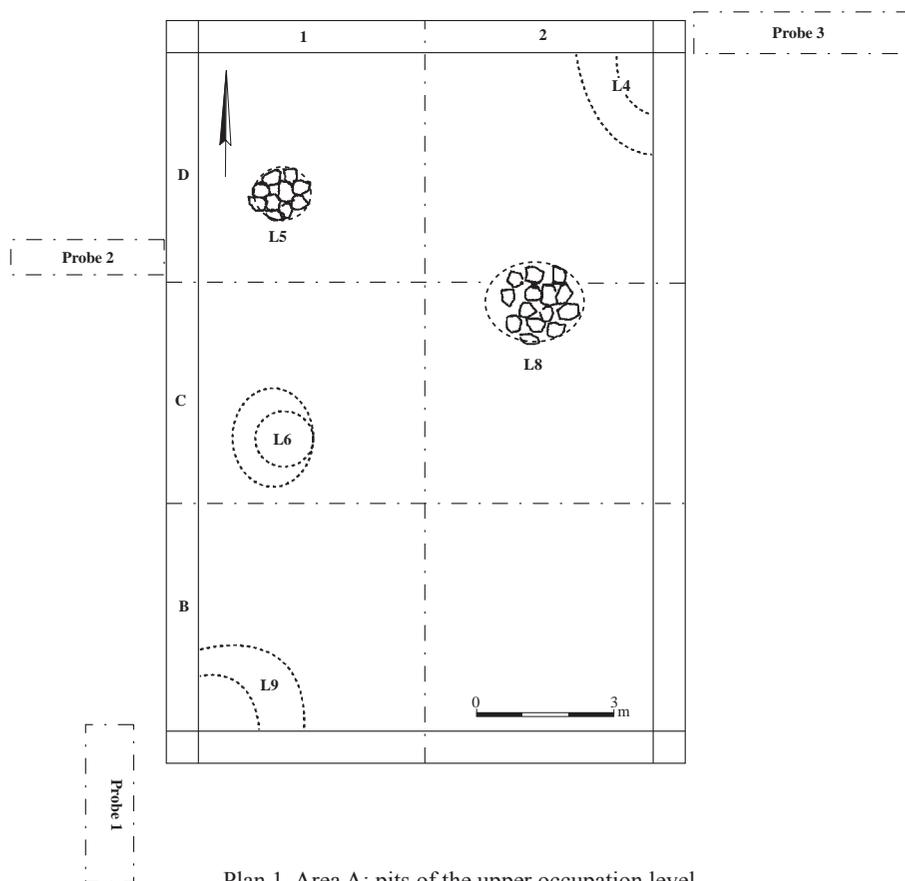
Unit 4.— This unit (c. 0.5 m) is the lower archaeological level, consisting of brown sediments mixed with mudbricks, clay lumps and large stones. Segments of walls and floors were exposed at the bottom of this unit accompanied by archaeological material.

Unit 5.— The virgin soil comprises compacted *terra rosa* containing small stones.

As there was no significant archaeological distinction between Units 2, 3 and 4, these three units were assigned to a single archaeological layer, attributed to the Wadi Rabah culture, which consisted of two levels.

Architecture

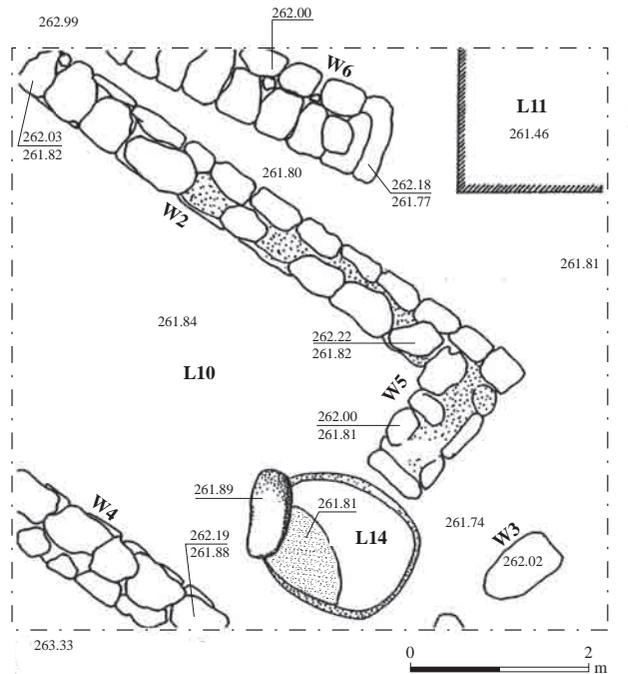
During the excavation, two architectural elements were recognized: pits and a structure. Five pits were uncovered in the upper level (Plan 1): two were shallow and oval, containing large quantities of pottery and flints, sealed by a layer of stones (L5, Sq D1; L8, Sq C2); the remaining three were circular in shape, containing dark, loose sediments with a high concentration of archaeological material (L6, Sq C1; L9, Sq B1; L4, Sq D2).



Plan 1. Area A: pits of the upper occupation level.

Due to the nature of the excavation, only a limited area was excavated to virgin soil. In Sq C5, a rectilinear structure was unearthed (L10; Plan 2; Fig. 4). The structure was built of two parallel walls: W2 in the north and W4 in the south. A third wall, W5, closed the structure

from the east, creating a large broadroom measuring a maximum of 2.4×4.2 m. The floor was composed of a mixture of compacted clay and burnt brick material. A grinding stone was found *in situ* on the floor near an installation (L14), probably a hearth. Near the northern



Plan 2. Area B: Structure L10 in Sq C5.



Fig. 4. Structure L10, looking northwest.

wall (W2), another segment of a large wall was exposed (W6), apparently belonging to an additional structure located to the north. All the walls were constructed in the same technique: two rows of large fieldstones interspersed with brick material.

Rectangular-shaped structures have been reported from various Wadi Rabah sites, such as Munhata (Perrot 1993:1046–1051), ‘Ein el-Jarba (Kaplan 1969) and Nahal Zehora (Gopher and Orrelle 1990; 1991).

THE FINDS

THE FLINT ASSEMBLAGE

Although the excavation was limited to only a few squares, excavated to a depth of up to c. 2 m, a relatively large amount of flint artifacts was collected (N = 4606). Given the fact that all sediments were sieved and all flint items were collected, the large amount of debitage and debris is not surprising (89.5% of the assemblage). Apparently, the flints

were produced on-site, from locally acquired raw materials. The small size and exhausted appearance of the cores reflect their intensive exploitation. Tools represent 6.7% of the assemblage (Table 1). Most tool types appear in various percentages, with sickle blades predominating.

Although all the cores bear mainly negatives of flake removals in their last stages of exploitation and flakes dominate the debitage (Table 1), blades were chosen as the preferred blanks for the production of tools. This selection is well reflected in the relatively small amount of discarded blade blanks, compared to flakes and primary elements. The blade:flake ratio is almost 1:9.5.

Raw Material

Three different types of raw materials were identified among the tools and waste products. More than 70% of the tools were made of a light gray to gray flint of Mashash origin, which is present in the vicinity of the site (Barzilay 1998:86). The second most common flint is a fine-grained, light brown material, also of local origin, that was used for c. 10% of the artifacts. Both types of raw material were processed on-site, as evidenced by cores and waste products. The tabular and fan scrapers were prepared from fine-grained brown flint of Eocene origin. The source of this type of raw material is located far from the site and these tools were possibly imported, reflecting a small-scale exchange network involving flint tools (Rosen 1997). The local light brown and gray flints were used for the production of most tool classes, mainly sickle blades and borers. Apparently, the quality of these raw materials (suitable for the production of any type of tool) and their abundance encouraged their extensive use.

Cores

Cores of all types and stages are represented, from primary preparation to core exhaustion,

Table 1. The Flint Assemblage

	Type	N	%
Debitage	Primary Elements	428	16.40
	Flakes	1922	73.50
	Blades	153	5.80
	Bladelets	98	3.70
	CTEs	15	0.60
	Ridge blades	-	-
	Spalls	2	0.07
<i>Subtotal</i>		<i>2618</i>	<i>100.00</i>
Debris	Chunks	277	18.40
	Chips	1227	81.60
<i>Subtotal</i>		<i>1504</i>	<i>100.00</i>
Assemblage	Debitage	2618	56.80
	Debris	1504	32.70
	Cores	172	3.70
	Hammerstones	6	0.10
	Tools	306	6.70
<i>Total</i>		<i>4606</i>	<i>100.00</i>

and, together with the high frequencies of waste materials, indicate that knapping activities took place on-site. The knappers apparently used a wide variety of pebbles and cobbles readily available in the nearby streambed.

The degree of exploitation of the cores is well reflected in the number of removals from each one. Many of the cores show only a few flake removals. This fact can be explained by the availability of the raw material. The low number of cores that were rejuvenated is further reflected by the low number of core-trimming elements.

An early stage of reduction consisted of the removal of primary elements, probably in preparation for the knapping of the preferred blanks. An average of four removals of primary elements from each core was sufficient for cleaning the cortex in preparation for further exploitation. This small amount may be related to the small size of the original pebbles collected in the streambed.

Of the 172 cores retrieved, 39% (N = 67) are single-platform cores (Fig. 5:1–3) ranging in size from 2 to 12 cm. Cortex covers 25–50% of the total surface. It seems that most of the debitage surfaces display from three to five scars for flake and blade removal. Cores of two or more platforms (Figs. 5:4, 5; 6:1) are fewer, comprising 26% (N = 45), and are much more standardized than the previous group. This is reflected in the presence of opposed platforms used mostly for blade removal. As in single platform cores, cortex still covers c. 40% of the core surface. Amorphous cores (Fig. 6: 2, 3) are the same in number as those with two platforms, but most of them are exhausted due to intensive flake removal. There are also four discoidal cores and eleven cores on large flakes. All were used for flake removal.

Tools

An attempt has been made here to divide the tools into two categories, formal and expedient, or ad-hoc tools (Table 2). Sickle blades and perforators dominate the formal tools (32.7%

and 15.3% respectively). The relatively small number of ad-hoc tools, such as retouched flakes, truncations and notches/denticulates, is notable. Most of the tools were locally produced, with the exception of three tabular scrapers made on high-quality, dark brown flint that is unavailable in the vicinity of the site. The preferred blank was the blade, which was used for the production of almost half of the tools.

Formal Tools

Arrowheads.— Two transverse arrowheads were found, made on segments of a blade and a bladelet. The edges display semi-abrupt retouch, their tangs are pointed and the working edges are flat and wide. One of the arrowheads is elongated with a rectangular tang (2.3 cm long) and a broad tip, the other is trapezoidal in shape (Fig. 7:1). Transverse arrowheads began to appear in Late Pottery Neolithic assemblages (Gopher 1994; Khalaily 1999). An elongated form of this type is present in the Pottery Neolithic assemblages of Lod (Khalaily and Gopher 1999) and Ḥorbat Usha (Khalaily 2006).

Table 2. Flint Tool Frequencies

Group	Type	N	%
Formal	Arrowheads	3	1.0
	Sickle blades	98	32.7
	Backed blades	14	4.7
	Bifacials	16	5.3
	Tabular and fan scrapers	4	1.3
	Perforators	46	15.3
<i>Subtotal</i>		<i>181</i>	<i>59.0</i>
Expedient	Scrapers	30	10.0
	Burins	14	4.7
	Truncations	5	1.7
	Notches and denticulates	32	10.7
	Ret. flakes and blades	33	11.0
	Varia	5	1.7
<i>Subtotal</i>		<i>119</i>	<i>41.0</i>
	Formal	181	59.0
	Expedient	119	41.0
<i>Total</i>		<i>300</i>	<i>100.0</i>

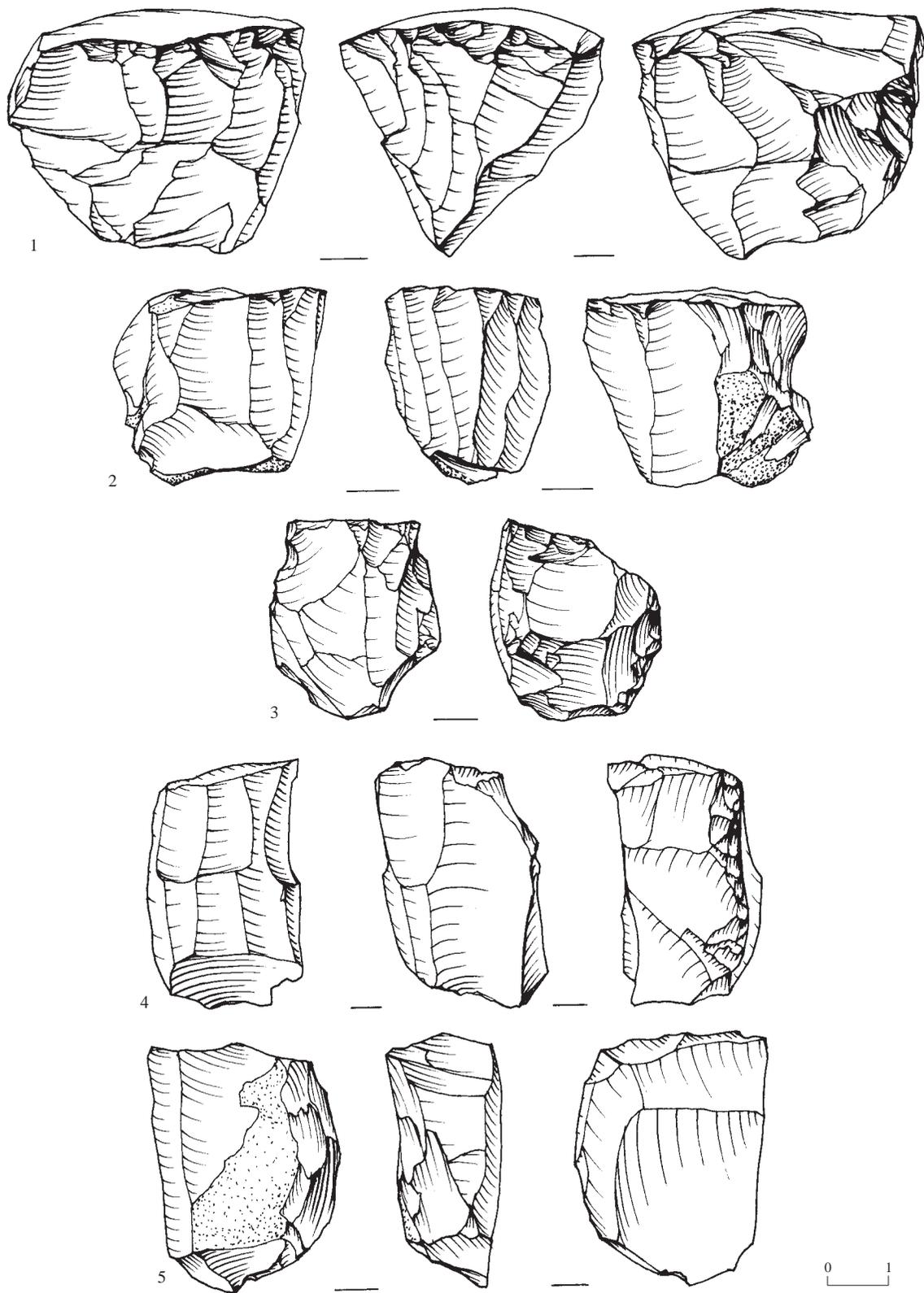


Fig. 5. Cores.

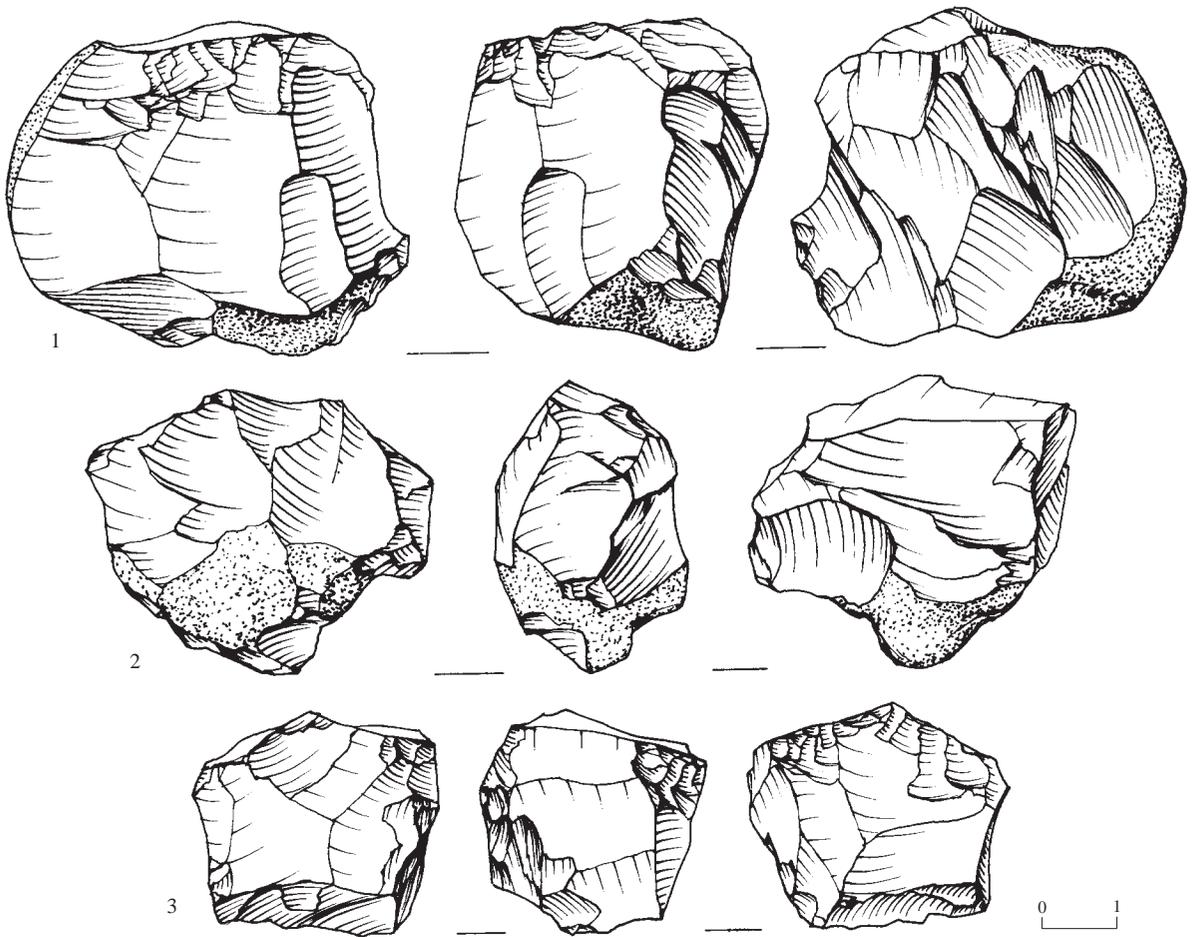


Fig. 6. Cores.

Sickle Blades.— Sickle blades are the dominant tool type (32.7% of the tools), among which two subtypes can be distinguished. The first is a short, rectangular sickle blade with abrupt or semi-abrupt retouch on the back and truncation on one or both ends. The working edge is shaped by deep regular denticulation (Fig. 7:2–10). The second subtype is similar to the first in shape, the fashioning of the back with abrupt retouch and the truncation on both dorsal and ventral sides (Fig. 8:1, 3–5); however, the working edges of this type are either plain (Fig. 8:3, 7) or finely denticulated (Fig. 8:1, 2, 4–6).

Most of the sickle blades in this assemblage were prepared on short blanks, while only four are on long blanks (Fig. 8:8)

The high degree of standardization of the sickle-blade production is suggested by several

observations: all items are backed; truncation and denticulation appear consistently; and their measurements show a low standard deviation. In order to evaluate their degree of standardization, the sickle blades were analyzed separately according to their raw material. The results indicate that all items, regardless of their raw material, are similar in size, all falling within one average and one standard deviation and presenting most of the defined attributes (backing, truncations and denticulated working edge).

Fourteen items have similar morphological attributes as sickle blades, but, nevertheless, display no gloss on their working edges (e.g., Fig. 8:9); therefore, they were grouped under the category of backed blades.

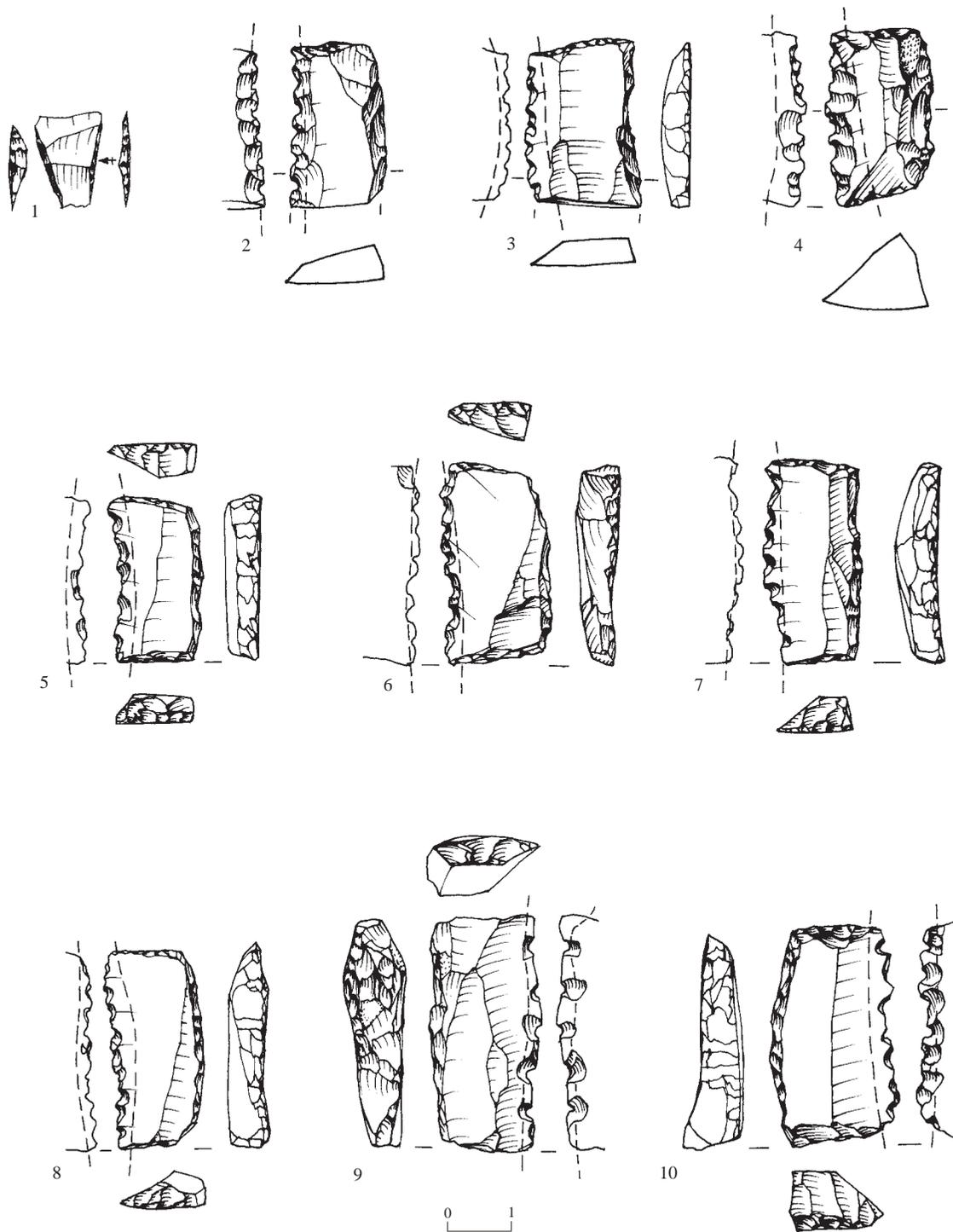


Fig. 7. Arrowhead (1) and coarse, denticulated sickle blades (2-10).

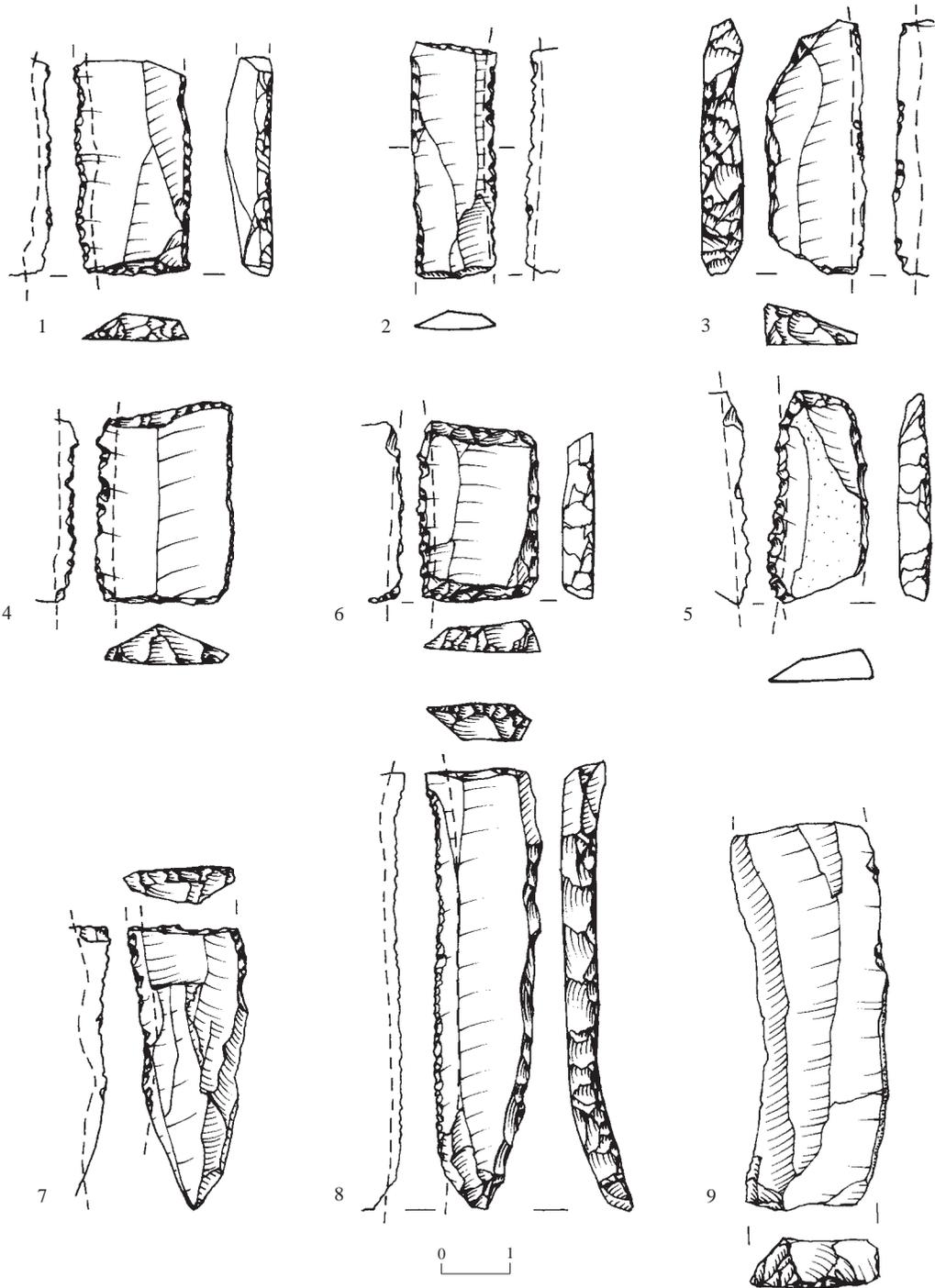


Fig. 8. Plain and finely denticulated sickle blades (1–8) and backed blade (9).

Bifacial Tools.— These tools were shaped by bifacial flaking (Barkai 2000:13). This category of 16 items includes axes, adzes and chisels. The main difference between the types is the shape of the item and its cross-section: chisels have a narrow, elongated rectangular body and a narrow working edge, adzes have a trapezoidal body, a plano-convex cross-section and a wide working edge, while axes have an elongated body, a biconvex cross-section and a distinct working edge. These variations may represent different functions and hafting methods, although neither is known. The majority of the bifacials (N = 14) are axes (Figs. 9; 10:1, 2); only one broken adze was recovered (Fig. 10:3) and a fragment of a chisel.

Tabular and Fan Scrapers.— Tabular scrapers and fan scrapers appeared for the first time in the sixth millennium, but are much more frequent in Chalcolithic and Early Bronze Age assemblages (Rosen 1989). They are usually fashioned on thin, broad, cortical flakes. Scraping retouch covers most of their perimeter.

Three tabular scrapers and one fan scraper were collected. Two fragments of tabular scrapers were reconstructed as elliptical in shape, the third example is a large, complete item (Fig. 11:1). The bulb of percussion was removed by ventral invasive retouch. No striation marks, occasionally found on Early Bronze Age tabular scrapers (Rosen 1997), were noted on these items. The fan scraper was made on a thin twisted flake of local flint (Fig. 11:2) and semi-steep retouch fashioned its edges.

Perforators.— In this assemblage, perforators are classified under formal tools, as they are much more standardized than the expedient tools. They were manufactured on a wide variety of raw materials and elements, such as flakes, blades, chunks and even core fragments. All display points that vary in form from short and slightly modified to long and steeply retouched along their lateral sides. In general, the perforators are subdivided into three main

types: awls (Fig. 12:1, 2), borers (Fig. 12:3–6) and one massive drill, made on a large flake shaped by flaking all over the dorsal face and the sides (Fig. 12:7). Both edges of the drill bear abrupt retouch that continues to cover the pointed end.

Expedient Tools

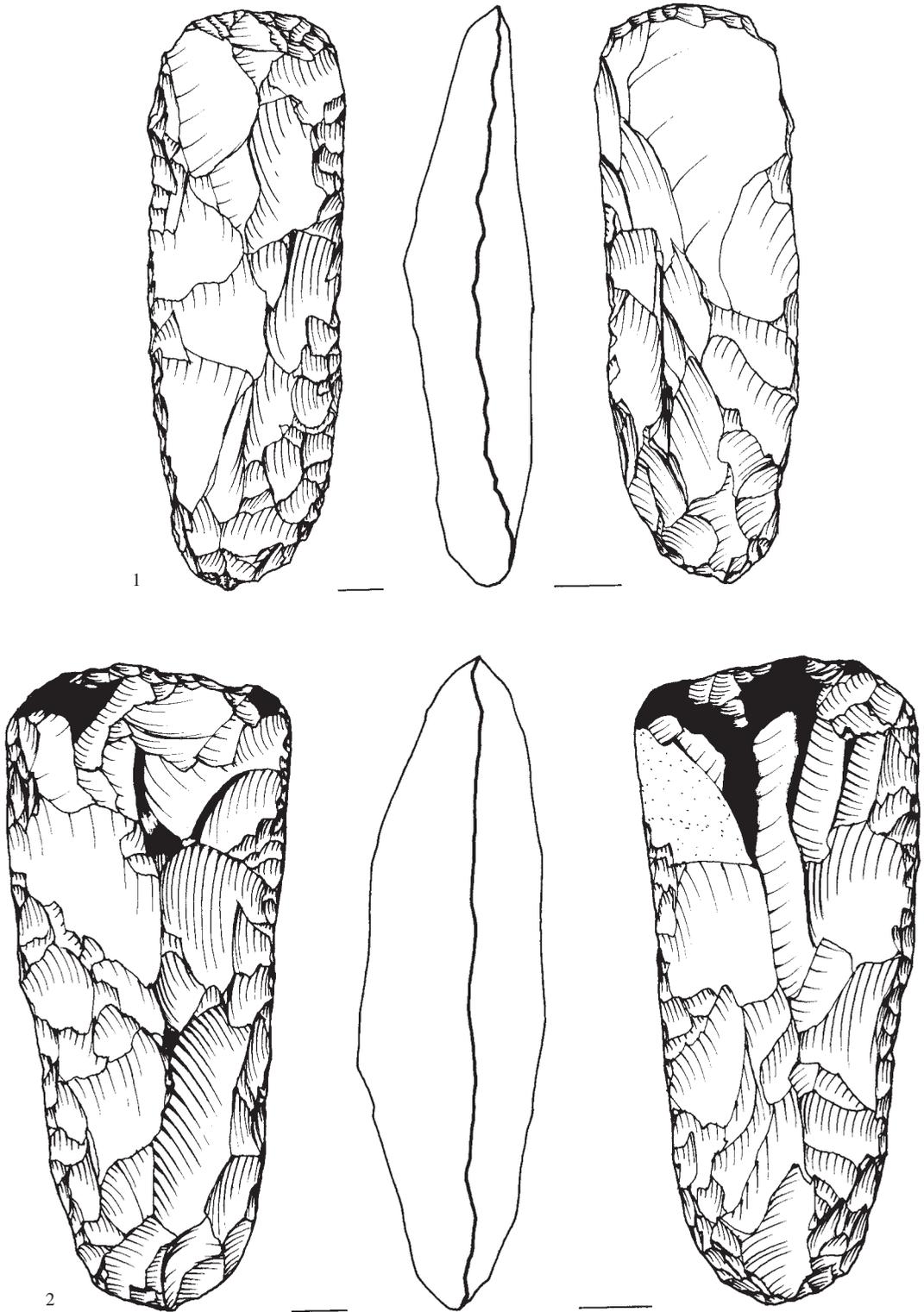
Scrapers.— These tools are present in low frequencies (10%), with equal numbers of endscrapers and sidescrapers. Most of the endscrapers are simple, the working edge located on the distal end of the artifact (Fig. 13:1). The shaping retouch is sometimes pronounced, even steeply pronounced.

The sidescrapers (e.g., Fig. 13:2) differ from the endscrapers mainly in the location of the retouch along one or both lateral sides. In addition, all the sidescrapers were fashioned on large elements, such as flakes, chunks or core fragments.

Burins.— Burins are usually present in high numbers in Late Pottery Neolithic tool kits (Barkai 1996:36), while in the present assemblage they comprise only 4.7% of the tools (N = 14; Fig. 13:3–5). Two items were made on blades, the rest on flakes or retouched flakes. Burins on breaks are frequent (N = 5), although other types appear as well. There is one example of a double burin with a burin on a break on one side and a transverse burin on the other (Fig. 13:5). The small number of burins suggests that their production is best described as ad hoc.

Notches and Denticulates.— Notches and denticulates are common tool types in most Neolithic assemblages. This group includes 22 notches and 10 denticulates, most of them fashioned on flakes, chunks or core fragments. The notches and denticulates are small and shallow (less than 1.1 cm) and appear on a restricted area of the flake.

Retouched Flakes and Blades.— This group, comprising 10 retouched blades and 13



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Fig. 9. Axes.

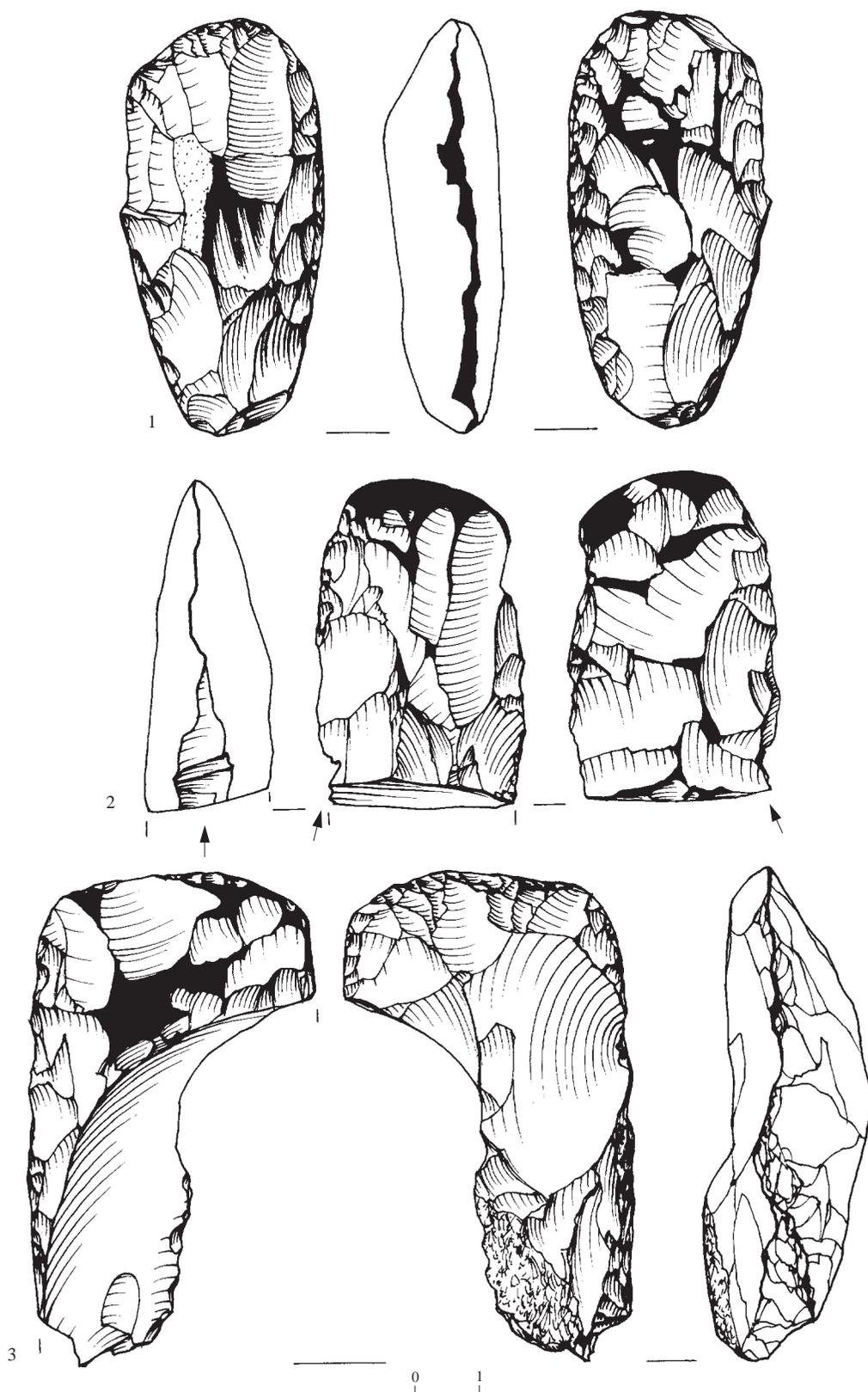


Fig. 10. Axes (1, 2) and adze (3).

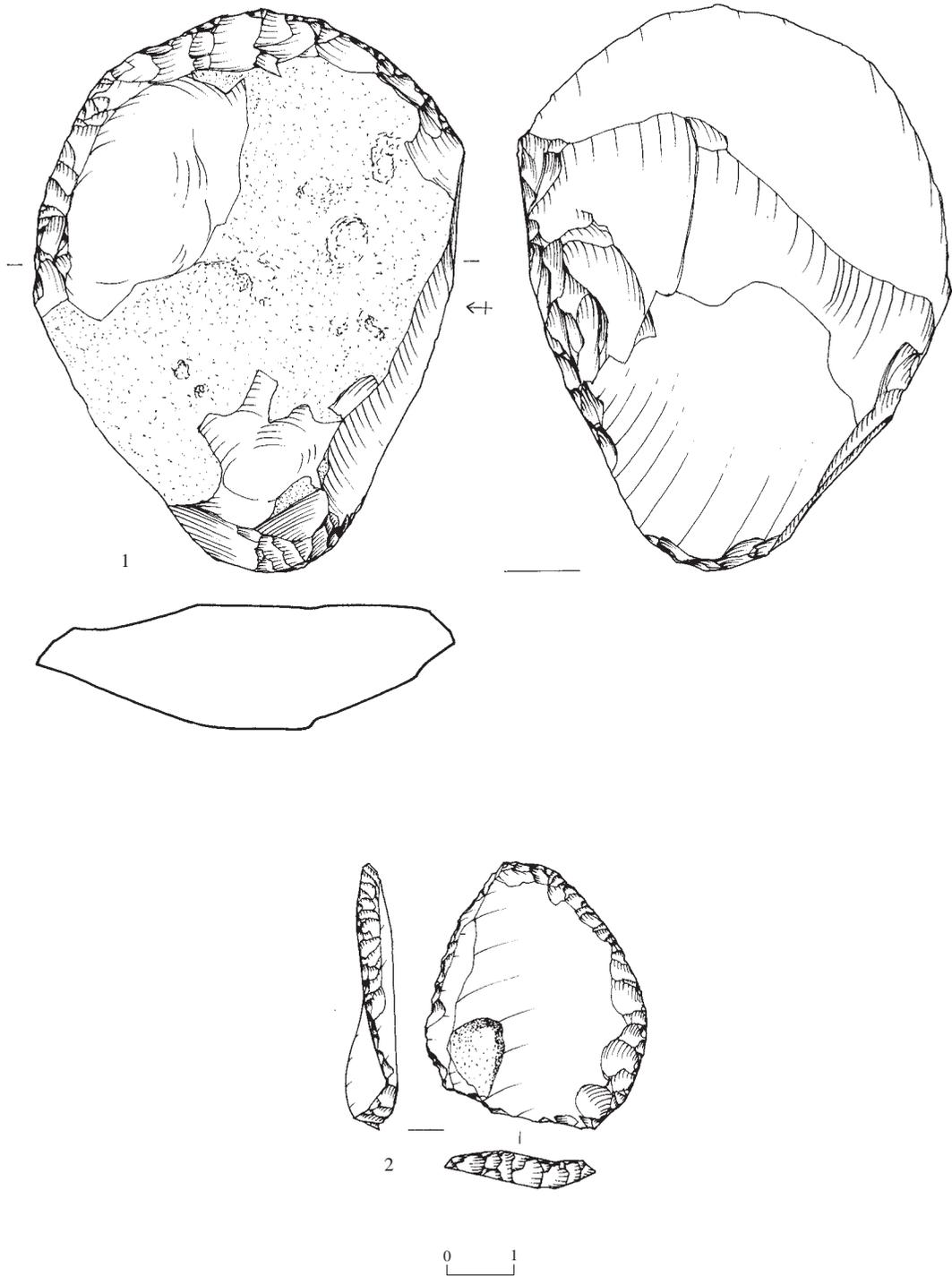


Fig. 11. Tabular scraper (1) and fan scraper (2).

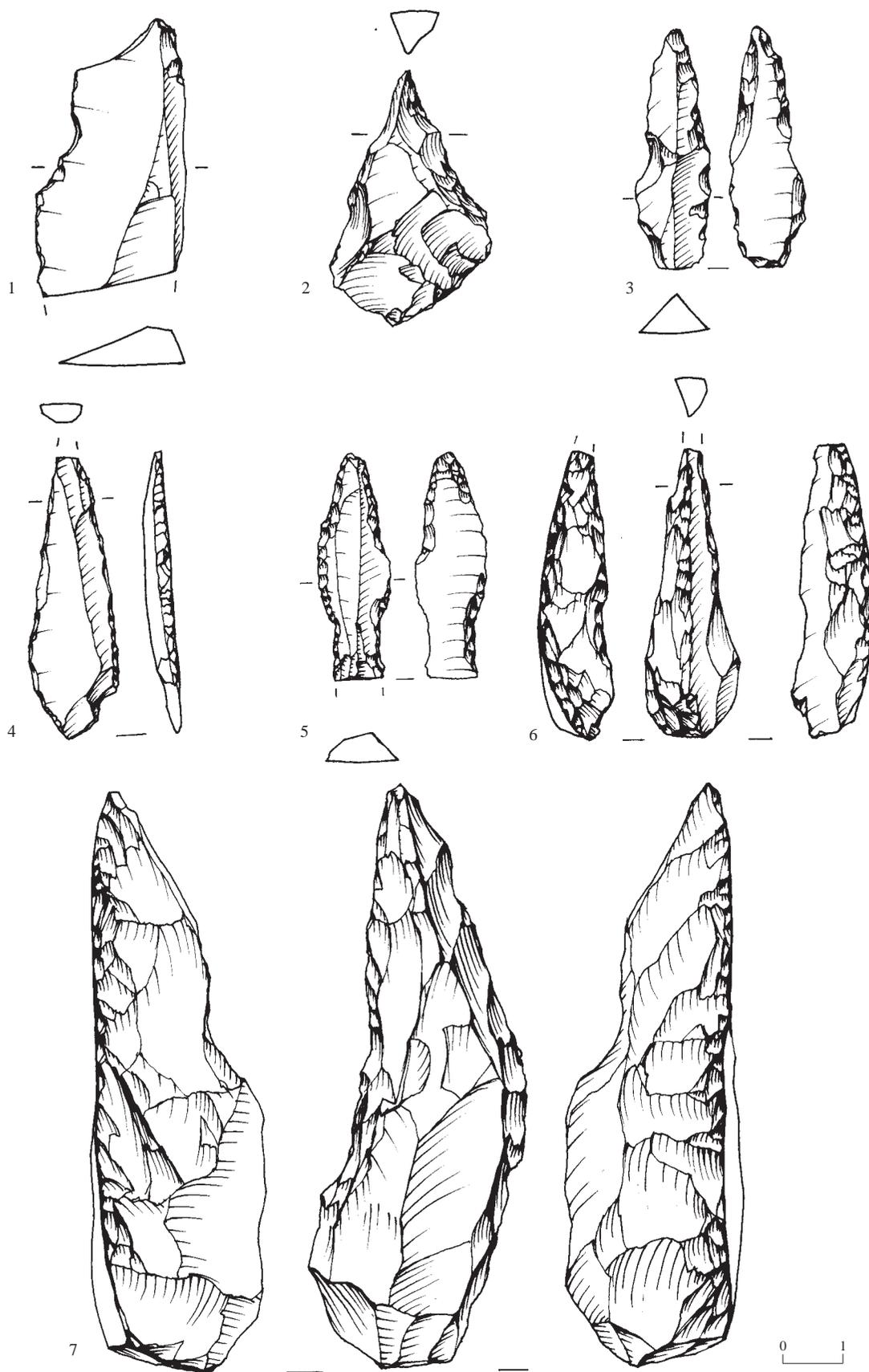


Fig. 12. Awls (1, 2), borers (3-6) and massive drill (7).

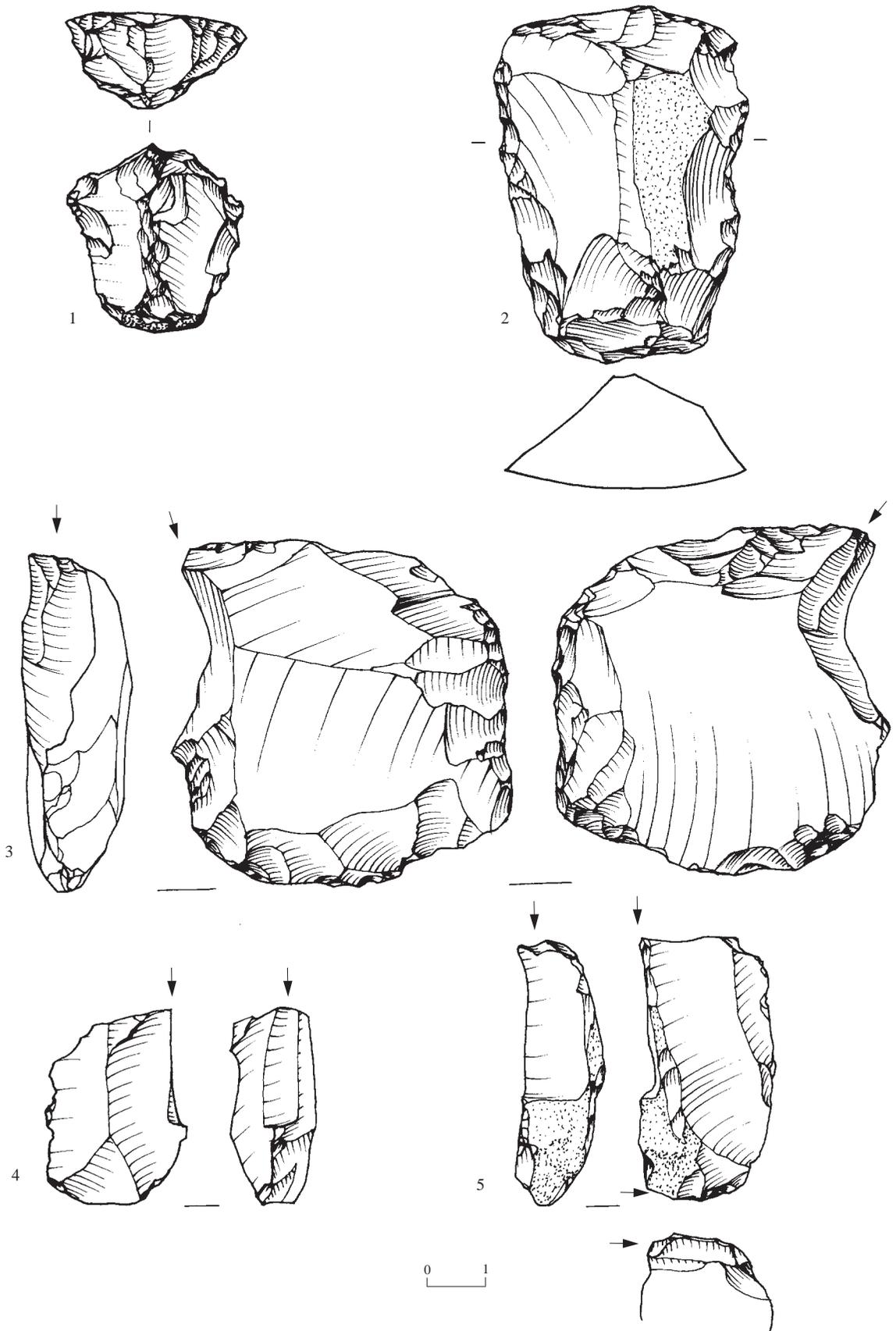


Fig. 13. Scrapers (1, 2) and burins (3-5).

retouched flakes, is not common in the tool assemblage of Nahal Yarmut, representing only 11% of all the tools. Mostly fine retouch appears along part or all of the lateral sides of the blades. Retouched flakes, however, exhibit limited irregular retouch on only one lateral margin.

THE POTTERY

Most of the Late Neolithic ceramic assemblage was retrieved from the ashy occupation level of Unit 2 overlying Structure 10 (Sq C5). Although the lack of inter-site variability indicates that there is no significant difference between the upper and lower levels of the Neolithic layer, there is greater density and variability of the sherds in the upper level. No complete vessels were recovered, nor were any restorable (Table 3). The typological selection presented here is derived from rims and other diagnostic parts of vessels.

The pottery assemblage from Nahal Yarmut is relatively rich, considering the limited size of the excavation, and contains all the basic types and decorative motifs known from the Wadi Rabah repertoire (Tables 3, 4). Most of the pottery is handmade, although there is evidence for the use of a slow wheel during the manufacturing process of specific vessel parts, such as jar necks, as well as certain types of bowls.

Table 3. Sherd Count

	Rims	Bases	Handles	Decorated Sherds	Body Sherds	Total
N	460	70	64	360	1813	2766
%	16.6	2.5	2.3	13.0	65.6	100.0

Table 4. Pottery Type Frequencies

Type	Rims	Bases	Total	%
Bowls	205	28	233	44.4
Basins	14	4	18	3.0
Jars	238	38	276	52.0
Pedestals	3	—	3	0.6
<i>Total</i>	<i>460</i>	<i>70</i>	<i>530</i>	<i>100.0</i>

The vast majority of the vessels were manufactured from light-colored clay, ranging from beige to light gray. The surface was treated before firing, and the temper includes small- to medium-sized, dark gray, chalky grits. The Dark-Face Burnished Ware vessels were well fired, slipped and burnished in black or red, and the fabric was not tempered with any visible grits. It is possible to classify the main vessel types into two groups: open vessels, which include bowls, basins and pedestals, and closed vessels, which include all types of jars (Table 4). It is noteworthy that the frequency of the closed vessels is higher than that of the open vessels, representing c. 52% of the total identified vessels (Table 4).

Open Vessels

Bowls.— The open vessels are dominated by bowls, which comprise c. 82% of the total open vessels at the site. They appear in a variety of shapes and sizes and bear different forms of decoration. Based on shape and size, the bowls are divided into five subtypes.

1) V-Shaped Bowls: This is the most common type (c. 46% of the bowls)—all with straight walls and a rim diameter of almost twice the base diameter (Fig. 14:1–6)—and occurs in two sizes: small bowls (diam. less than 0.15 m; Fig. 14:1–3) and large bowls (diam. up to 0.3 m; e.g., Fig. 14:4–6). Red and black slip, or a combination of both, is the most common decoration on V-shaped bowls, frequently on both the exterior and interior. A red-painted band also decorates the inner and outer rim.

2) Hemispherical Bowls: This type (c. 43% of the bowls) has rounded walls with simple, inverted, pointed or slightly rounded rims (Fig. 14:7–9). These bowls are usually shallow, with a diameter greater than their depth, and decorated with red slip and dense burnish. Two small bowls have black slip on both the exterior and interior and burnish on the outer surface only (Fig. 14:7).

3) Bowls with Carinated Walls and Flaring Rims: This type occurs in a low frequency (c. 3% of the bowls), all of the bowls belonging to the Dark-Face Burnished Ware family

(Braidwood and Braidwood 1960; Anati et al. 1973). These bowls (Fig. 14:10–15) are usually small, shallow vessels, well fired with no visible inclusions. The walls are thin and sharply carinated, and the rims are pointed and slightly flared. The bases are rounded with a concavity at the juncture with the body walls. They are decorated with red and black slip on the exterior

and interior, and many display burnishing. Some of the bowls bear incised and puncture decoration, as well as slip and burnish.

Two variants of this type were encountered: small bowls with the carination located at the juncture between the base and the lower wall (Fig. 14:10, 12–15) and bowls with a carination at mid-wall (Fig. 14:15).

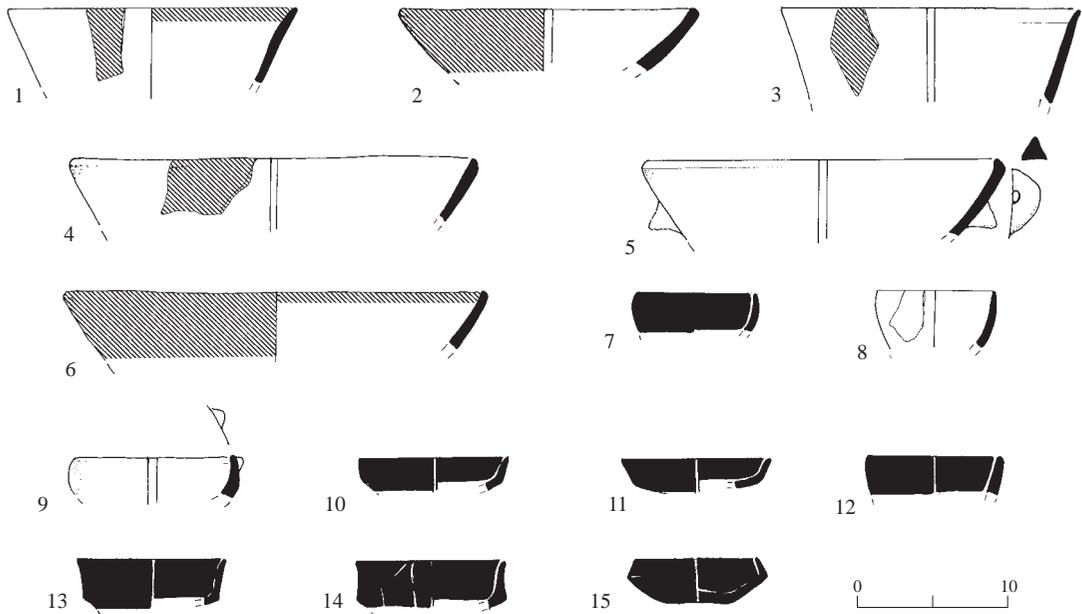


Fig. 14. Bowls.

No.	Basket	Type	Description
1	1023	V-Shaped	Light brown clay, dark core, red slip
2	1006	V-Shaped	Buff clay, small dark grits, red slip
3	1034	V-Shaped	Buff clay, no grits, red slip
4	1014	V-Shaped	Light brown clay, very fine gray grits, red slip
5	1051	V-Shaped	Light brown clay, gray core, lug handle(s)
6	1021	V-Shaped	Light gray clay, fine gray grits, red slip on int. and ext.
7	1026	Hemispherical	Gray clay, dark burnished slip
8	1040	Hemispherical	Light brown clay, no grits, red slip
9	1025	Hemispherical	Light brown clay, no grits, knob handle
10	1019	Carinated	Fine gray clay, dark burnished slip
11	1025	Carinated	Fine gray clay, dark burnished slip
12	1052	Carinated	Fine gray clay, dark burnished slip
13	1026	Carinated	Fine gray clay, dark burnished slip
14	1027	Carinated	Fine gray clay, dark burnished slip
15	1043	Carinated	Fine gray clay, dark burnished slip

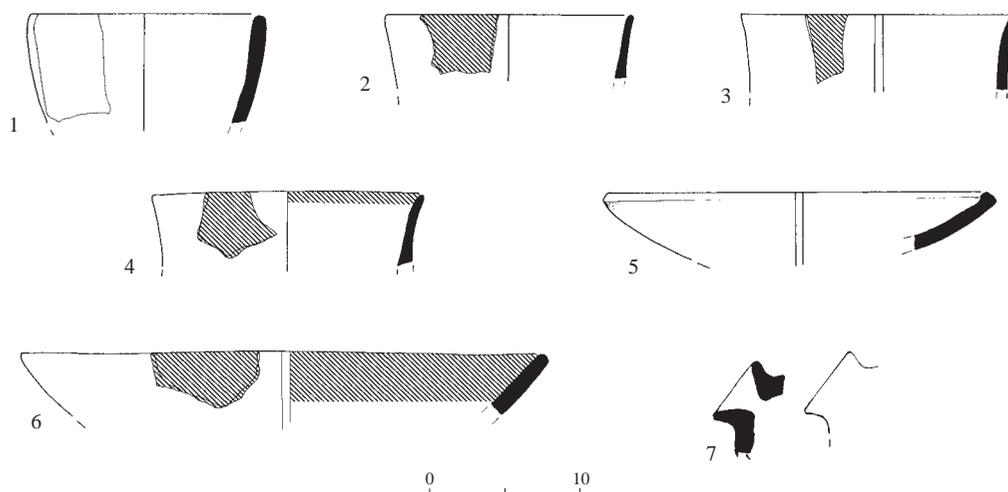


Fig. 15. Bowls.

No.	Basket	Type	Description
1	1031	Deep bowl	Light brown clay, small grits
2	1039	Deep bowl	Light brown clay, no grits, red slip
3	1035	Deep bowl	Light brown clay, no grits, red slip
4	1023	Deep bowl	Light gray clay, red slip, incised decoration
5	1021.1	Platter	Buff clay, small gray grits, red slip
6	1014.1	Platter	Light brown clay, fine gray grits, red slip
7	1025.1	Spout	Light brown clay, no grits

4) Deep Straight-Walled Bowls: This type (c. 3% of the bowls) consists mainly of medium-sized bowls (Fig. 15:1–4). They have straight walls, a sharpened rim and simple, flat bases. All the bowls of this type are decorated with red or black slip and heavy burnish.

5) Platters: Platters, which appear in small numbers (c. 1%), are shallow vessels with thick walls and squared rims (Fig. 15:5, 6). They were produced from coarse ware, with dark-colored, small- to medium-sized grits. The bodies were handmade, while the rims were wheel-made. Many of them are decorated with burnished red slip on both the outer and inner surfaces.

Basins.— Only four basins were found, all handmade of coarse ware with thick walls and thick, pronounced rims. Three open basins have

thick everted rims with diameters between 19 and 26 cm (Fig. 16:1–3), while the fourth (Fig. 16:4) is a large, deep vessel (diam. c. 0.25 m) with a wide mouth and a squared rim.

Pedestal Vessels.— Three pedestal fragments were retrieved, all of them belonging to the lower part of the vessel. They are hollow and cylindrical in shape. Two of the fragments (Fig. 16:5, 7) are small, narrow stands with thumb decoration on the rim of the base. These stands often have ‘rounded windows’ (Garfinkel 1999:123). The third pedestal (Fig. 16:6) is massive, roughly constructed and shallow, with a thick, squared rim that widens toward the base.

Closed Vessels

Closed vessels comprise holemouth jars, necked jars and pithoi. The vast majority of the

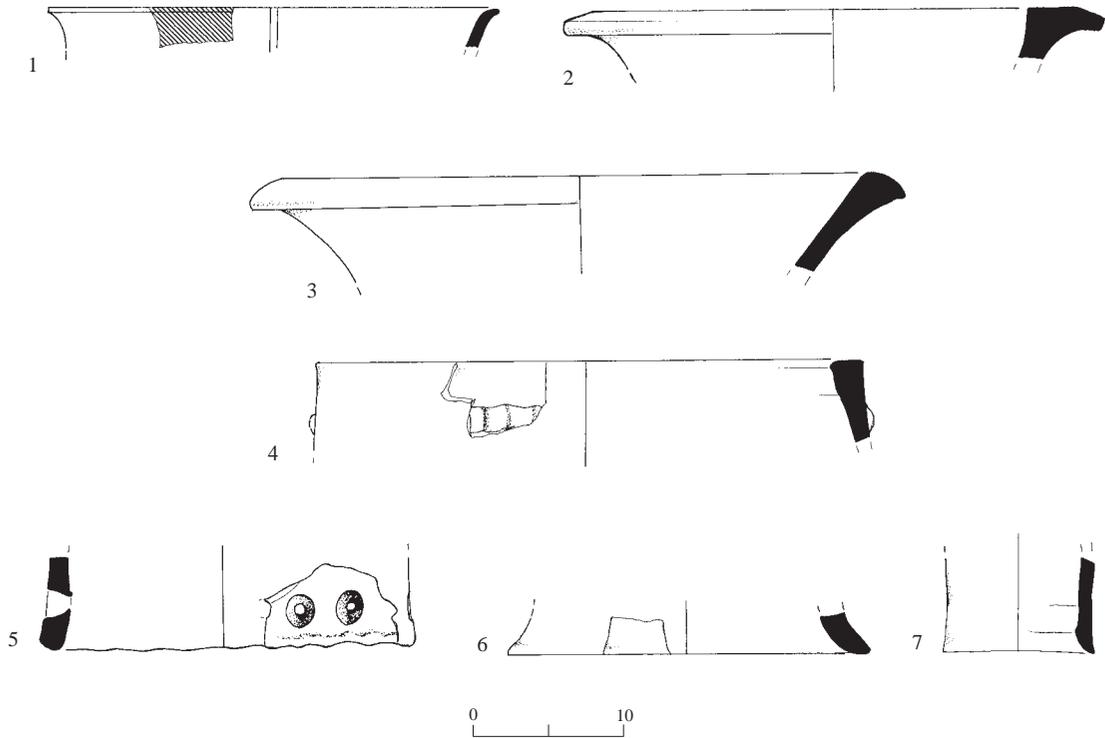


Fig. 16. Basins and pedestals.

No.	Basket	Type	Description
1	1026	Basin	Light brown clay, no grits, red slip
2	1021	Basin	Buff clay, small to medium gray grits
3	1027	Basin	Light brown clay, small dark grits
4	1045	Basin	Light gray clay, small grits, red slip, plastic decoration
5	1025	Pedestal	Light gray clay, small white and gray grits
6	1033	Pedestal	Light brown clay, small dark grits
7	1010	Pedestal	Light brown clay, dark core, thumb decoration

jars contain small- to medium-sized gray grits, while the pithoi occasionally contain large inclusions. Approximately 1% of the jars had no visible inclusions. The fabric has a brown core and many of the jars were smoothed and treated with a beige wash. Some also bear red slip, mainly near the rim.

Holemouth Jars.— This is the most common jar type, representing c. 54% (N = 128) of all the closed vessels. Among the holemouth jars, it is possible to discern two major variants: those

with a more closed opening and those with a wider opening. The first variant is usually small, with a flat base and a rim diameter less than 0.15 m. The rims are simple and rounded or raised and pointed (Fig. 17:1–3, 10–13). Some of these vessels display red slip on the upper part of the vessel and a small band on the inner rim. The second variant, which is very common in the Wadi Rabah assemblages, is characterized by cut rims and an opening wider than the base diameter (Fig. 17:4–8, 14–16). Most of these vessels were treated with a beige

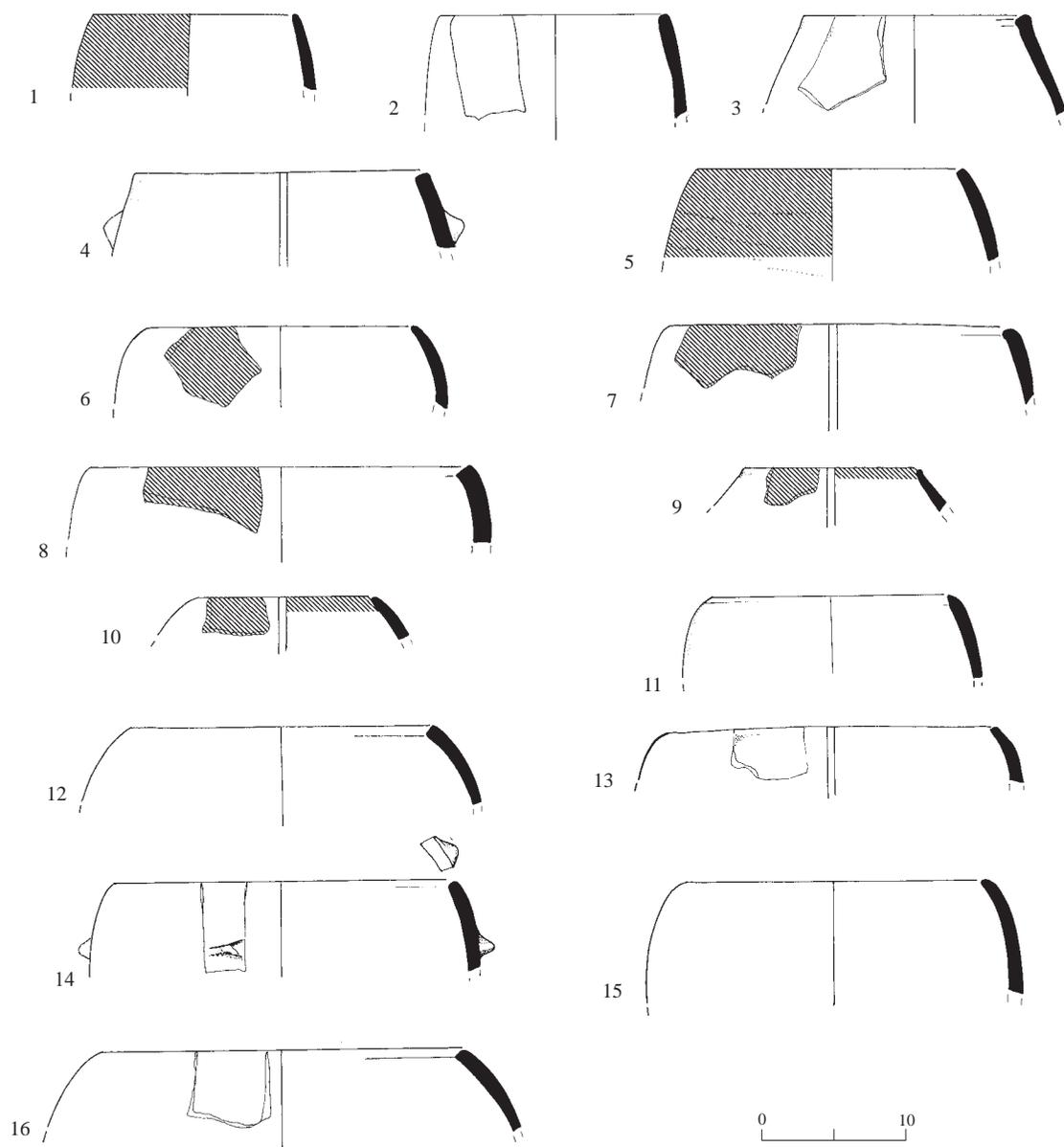


Fig. 17. Holemouth jars.

No.	Basket	Description
1	1028	Light gray clay, dark core, red slip
2	1031	Light brown clay, dark core, washed surface
3	1052	Light brown clay, brown core, small dark grits
4	1037	Light brown clay, small dark grits, knob handle
5	1031	Light brown clay, small gray grits, red slip
6	1052	Brown clay, dark core, red slip
7	1050	Light brown clay, fine gray grits
8	1020	Light gray clay, small gray grits, red slip

No.	Basket	Description
9	1052.1	Light brown clay, dark core, red slip
10	1021	Brown clay, brown core, red slip
11	1035	Brown clay, small and medium dark grits
12	1023.1	Light brown clay, small dark grits
13	1053	Brown clay, small and medium dark grits
14	1000	Buff clay, fine gray grits
15	1023.2	Brown clay, small and medium dark grits
16	1027	Brown clay, small and medium dark grits

wash, with no trace of decoration, although one bears an incised pattern (Fig. 17:5).

Necked Jars.— The necked jars are divided into three subtypes: jars with bow rims, jars with high straight necks and jars with flaring rims. All these jar types share several common production techniques: the bodies of the vessels were manufactured first, the neck was manufactured separately and then attached to the body. In addition, the entire vessel was treated with wash before firing (see Goren 1991:53–54). The base is generally flat or concave, and one example has a disc base.

1) Bow-Rim Jars: This jar type is one of the hallmarks of the Wadi Rabah assemblages (Gopher and Gophna 1993:337). Among the 48 bow rims (20% of the jars), a large number of variations were discerned (Fig. 18:1–5). Although no complete vessels were recovered, and most of the identified sherds are neck fragments, it seems that these jars were small- to medium-sized and many bear burnished black or red slip (Fig. 18:3, 4). On some examples, the slip covers the interior of the neck (Fig. 18:5). Some vessels also have incised decorations on their shoulders (Kenyon and Holland 1982: Fig. 27:1–14).

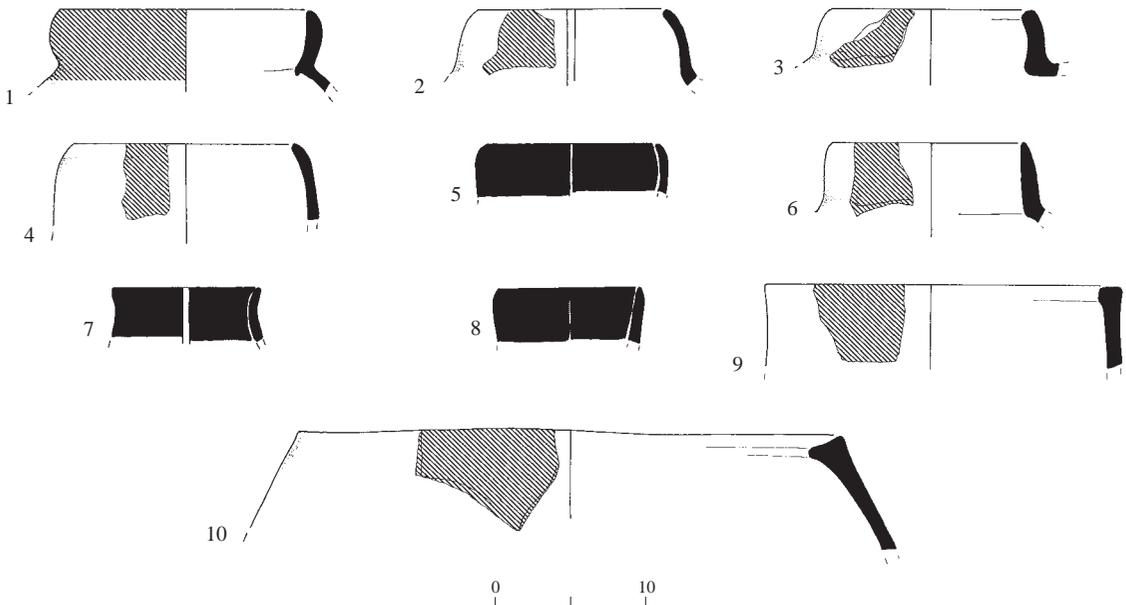


Fig. 18. Jars and pithoi.

No.	Basket	Type	Description
1	1021	Bow-rim jar	Dark gray clay, small gray grits, dark red slip
2	10	Bow-rim jar	Brown clay, small dark grits, red slip
3	1027	Bow-rim jar	Light brown clay, small grits, red slip
4	1035	Bow-rim jar	Brown clay, small dark grits, red slip
5	1014	Bow-rim jar	Fine gray clay, dark burnished slip
6	1023	Straight-rim jar	Light brown clay, small dark grits, red slip
7	1024	Flared-rim jar	Fine gray clay, dark burnished slip
8	1036	Flared-rim jar	Fine gray clay, dark burnished slip
9	1023	Pithos	Brown clay, small and medium gray grits, red slip
10	1023	Pithos	Brown clay, small and medium gray grits, red slip

2) Jars with a High Straight Neck: These jars (Fig. 18:6) usually have a globular body, a flat base and a high straight neck and rim and loop handles attached to the upper shoulder, or from the shoulder to mid-body. The handles are flat in section with splayed attachments (Gopher and Gophna 1993:332; Gopher 1995). Although rims of this type appear in low quantities (N=6; 2.5 %), it is suggested that they were the most prominent type among the necked jars of the Wadi Rabah assemblages due to the relatively large number of typical loop handles.

Both the inner and outer surfaces of the neck were smoothed and later decorated with several incised patterns. The relatively wide openings of these jars (c. 0.1 m) allowed the potter to decorate the interior surface.

3) Flared-Rim Jars: Only fifteen rim fragments represent this type, four with a high neck and a slightly everted rim, seven with a short neck and a sharply flaring rim, while the remaining four have no necks. The upper body curves slightly, with a rounded, somewhat everted rim (Fig. 18:7). Three of these rims were treated

with thick red slips on the exterior surface and a narrow band on the inner rim. Three others bear burnished red slips on both surfaces (Fig. 18:7, 8). The variants of the flared-rim jars continue to exist in the following Chalcolithic assemblages (Goren 1991).

Pithoi.— Most of the 16 pithoi rims (Fig. 18:9 10) resemble those of the large open holemouth jars. The walls are curved and the rims are thick and triangular in section, ending in a pointed lip. Some of the rims are slightly everted, some vertical and others are slightly inverted. Most of the pithoi rims bear red slip that sometimes continues onto the shoulders.

Handles

Of the 72 handles collected, 38 (53%) are flat strap handles splayed at the point of attachment (Fig. 19:1, 2), one of the hallmarks of Wadi Rabah pottery. Handles of this type were attached to the bodies of small- to medium-sized jars.

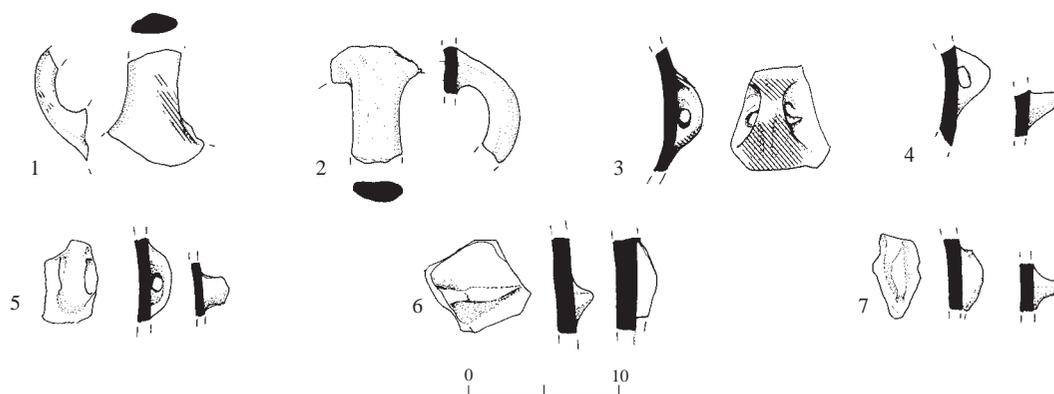


Fig. 19. Handles.

No.	Basket	Type	Description
1	1053	Loop handle	Light brown clay, light brown core, small gray grits, red paint
2	1025	Loop handle	Pale clay and core, small gray grits, red paint
3	1034	Lug handle	Pale clay and core, no grits, red paint
4	1010	Lug handle	Light brown clay and core, no grits, red paint
5	1028	Lug handle	Light brown clay, dark core, no grits
6	1023	Knob handle	Light brown clay and core, small dark grits, red paint
7	1021	Knob handle	Light brown clay and core, no grits, red paint

The majority of the 30 lug handles (c. 41%) were attached vertically to the bodies of small- to medium-sized, closed vessels (Fig. 19:3–5). They appear in a variety of sizes, ranging from 1.4 cm to 8 cm in length. Three examples are elongated, horizontal lug handles (Fig. 19:5), while five have thumb impressions on both sides and are not perforated. Most of the lug handles are decorated with red paint or thumb impressions.

Knob handles are less frequent (15%), comprising small rounded knobs with pointed ends (Fig. 19:6, 7). Two wide, semi-rounded

knob handles were applied to the interior of a basin.

Decoration

The Wadi Rabah vessels display a rich variety of decorative motifs, as has been discussed in detail elsewhere (e.g., Garfinkel 1999:142–146; Milevski et al., forthcoming). Apart from the surface treatments, the vessels were decorated with a diversity of plastic, incised, combed, thumb-impressed and punctured patterns, and combinations thereof (Fig. 20). These elements have become another of the hallmarks of this

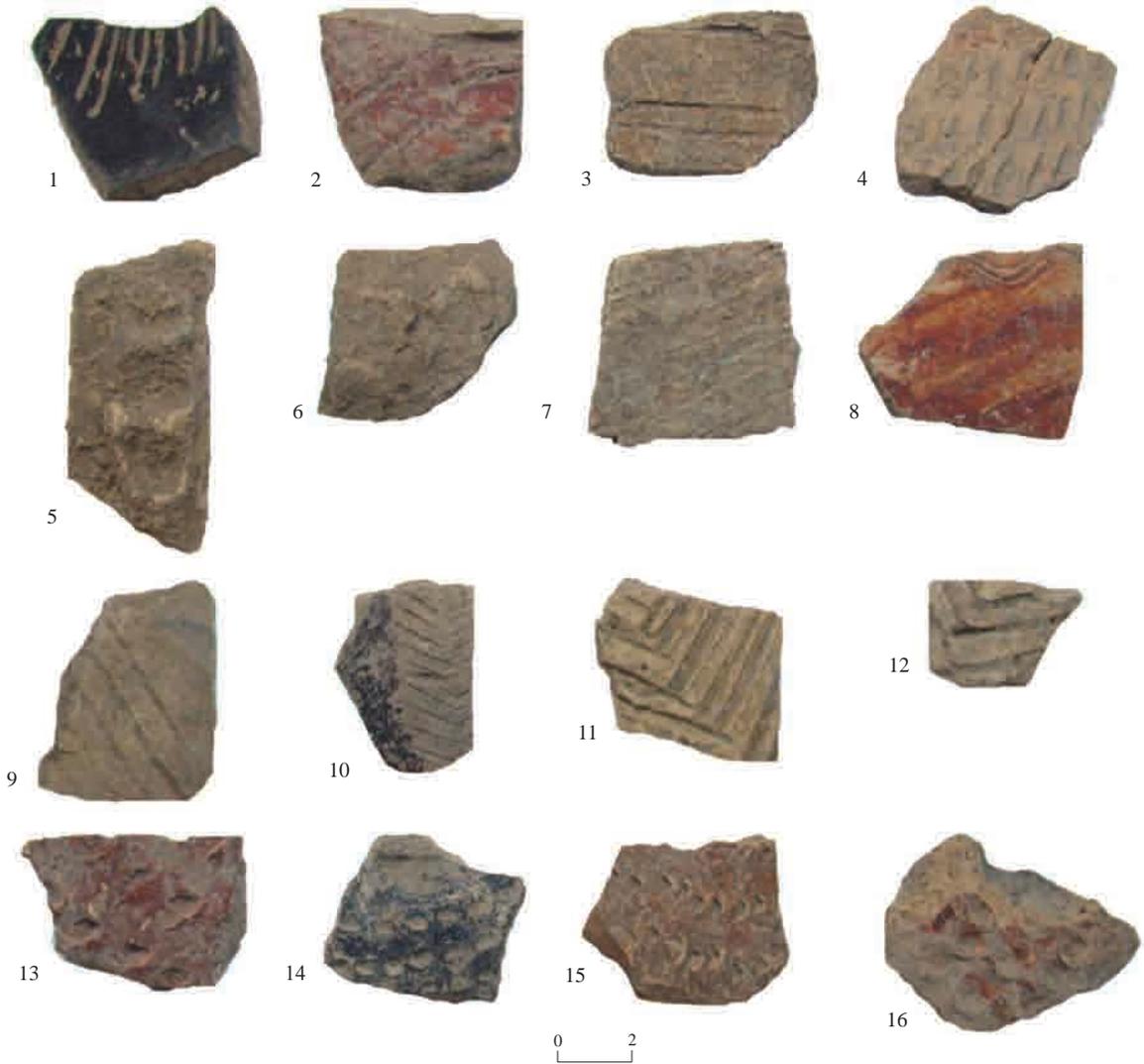


Fig. 20. Decorated sherds.

culture (Gopher and Gophna 1993:332; Sadeh 1994:360; Khalaily and Kamaisky 2002:58).

GROUNDSTONE ITEMS

Ten fragments of groundstone tools were recovered. The unusually small quantity of such tools can be explained either by the limited excavation area or the existence of an economic subsistence strategy based mainly on herding rather than agriculture. The groundstone tools include two grinding slabs, two stone bowls and one pedestal, two handstones and three fragments of stone discs. Most are made of limestone except for one, which is of basalt.

A relatively large grinding slab was found on the floor near a hearth (L14) inside Structure 10; it was probably fired at high temperatures (see Plan 2). It was manufactured on a thin, elongated limestone slab (c. 0.35 × 0.19 m) with a plano-convex section (Fig. 21:3), broad in the middle and narrowing toward the ends. Signs of abrasion are visible over the working area. Another example is a small fragment of a grinding slab.

One stone vessel (Fig. 21:1) has thick straight walls (c. 2 cm thick), a rounded rim and probably a very thick base. The interior space

is shallow and conical in shape, wide near the mouth and narrow at the bottom. Another vessel (not illustrated) is larger and globular in shape. The wall curves slightly inward and tapers toward the rim, with signs of polishing on its interior surface.

The single pedestal vessel in this groundstone assemblage has a solid pedestal with a shallow open bowl on top (Rowan 1998:157). This vessel type is usually manufactured of basalt; however, this example is of hard limestone (Fig. 21:2). Such high, solid pedestal vessels are known from several Late Neolithic sites, such as Kabri (Prausnitz 1970: Fig. 60) and Abu Zureiq (Anati et al. 1973:32).

The two handstones are small and rounded with one working surface. One of the tools was flaked all over to facilitate handling. The three fragments of stone discs made of soft limestone are thick rounded items, up to 6 cm in diameter, with a perforation in the center (Fig. 21:4). Similar items have been described as spindle whorls or tokens (Orrelle 1993:126).

BONE TOOLS

Three complete pointed awls (Fig. 22:1–3) and three fragments were recovered, most made of

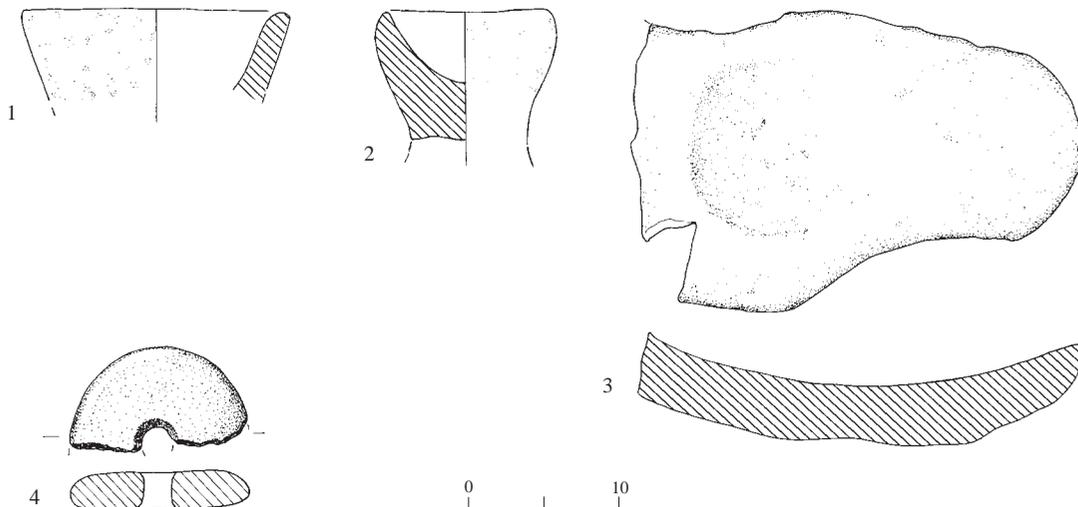


Fig. 21. Groundstone objects.

metapodials, and all bearing polish originating in the manufacturing process or resulting from use. The tips of these artifacts were heat-treated and show striations perpendicular to the longitudinal axis of the tool, as if they had been used to pierce some material with a rotating movement.

Four spatulas were made from rib-shaft fragments of small ungulates, probably *capra ibex*. They were also heat-treated and highly polished (Fig. 22:4, 5), certainly resulting from domestic activities. Further studies are necessary to understand the actual use of these artifacts.

BEADS

A small collection of eight beads was retrieved within the fill of Sq C5. The descriptive terminology follows that of Beck (1928). All

the beads are made of hard limestone and comprise three cylinder discs (Fig. 22:6, 7), two with biconical perforations (Fig. 22:8), two short barrel discs and one rounded and pierced from the top (Fig. 22:9).

DISCUSSION

The limited scale of the excavation did not permit any conclusions as to the size of the site or its economic subsistence strategies. However, this excavation did provide valuable data concerning the presence of a Late Neolithic 'normative' Wadi Rabah settlement in this region. Until today, no Wadi Rabah sites have been reported south of Naḥal Soreq (Orrelle 1993:6). The discovery of such a settlement along Naḥal Yarmut enables us to revise the distribution of the Wadi Rabah culture in the south.

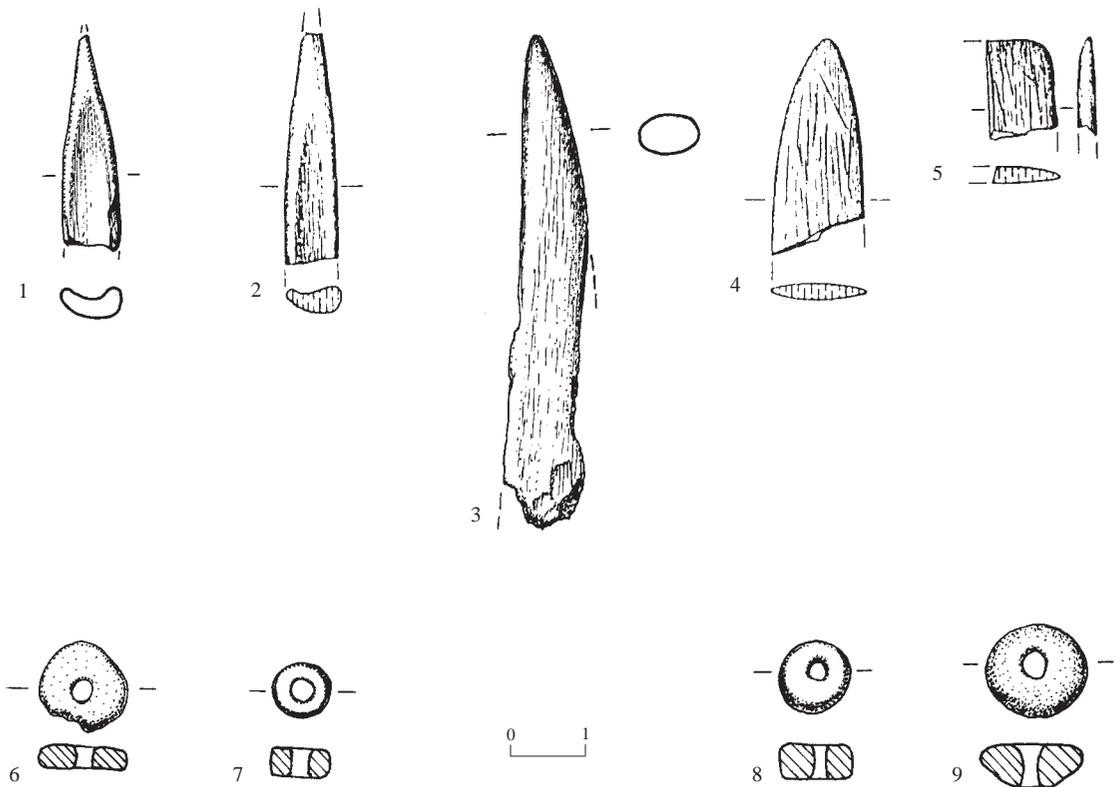


Fig. 22. Bone tools (1-5) and beads (6-9).

Prior to this excavation, Pottery Neolithic material had been detected in findspots during the regional survey of the Ramat Bet Shemesh region (Bankirer et al., forthcoming) and the discovery of this settlement indicates that the region was well populated during the Late Neolithic period. The discovery of further Late Neolithic sites along Naḥal Yarmut is probably to be expected in the future.

Probes, dug prior to the excavation (see Plan 1), indicated that the site was not large, covering an area of only four dunams. Nonetheless, given the scale of the densely constructed architectural features in our small-scale exposures, it is clear that the site was not ephemeral.

Analysis of the flint assemblage has revealed data concerning the nature of the flint industry. The abundance of cores representing different knapping stages, as well as the high frequencies of waste material, indicate that knapping activities took place at the site using locally acquired raw material. Typologically, sickle blades dominate the tool assemblage, comprising 33% of the total tools. They are divided into two types, those with deeply denticulated working edges and others with fine denticulation. These two types are characteristic of Wadi Rabah assemblages, and have been dubbed respectively Types C and D (Gopher 1989a:95). They appear in differing

proportions at various sites (Gopher 1989b; Marder, Braun and Milevski 1995; Barkai 1996; Gophna and Shlomi 1997). However, the sickle blades presented here are distinct in that they were fashioned on short blanks. This is not due to a local preference, but rather to the poor quality of the raw material that was exploited.

The large selection of ceramics from the limited excavation suggests that the site was occupied for a long time within the Late Pottery Neolithic period. The pottery assemblage is domestic in nature and consists of a wide repertoire of types. Notable is the presence of several diagnostic forms that are hallmarks of the Wadi Rabah assemblages and appear frequently in assemblages of this culture. Among these diagnostic elements are the Dark-Face Burnished Ware, bow-rim jars and strap handles with widened attachments, as well as the decorative techniques, such as painted designs and incised patterns, which appear on most of the pottery forms. The main pottery types, as well as their relative frequencies, are similar to those at other Wadi Rabah sites.

In summary, the cultural material recovered from Naḥal Yarmut and the nature of the site (single occupation), are entirely consistent with the Wadi Rabah horizon within the Late Pottery Neolithic period. In the absence of radiocarbon dates, this horizon is attributed to the fifth millennium BCE.

NOTES

¹ Wadi Rabah assemblages and associated variants are distributed over a wide area from the 'Uvda Valley in the south up to the northern region of Israel. The northernmost cluster of Wadi Rabah sites includes Naḥal Bezet I (Gopher 1989b), Ha-Yonnim Terrace (Khalaily, Goren and Valla 1993), Ḥorbat 'Uza (Getzov 1993) and Ha-Gosherim (Getzov 1999). An additional cluster of sites is located in the vicinity of the Jezreel Valley: Ha-Zorea (Anati et al. 1973), 'Ein el-Jarba (Kaplan 1969), Tell Abu Zureiq (Garfinkel and Matskevich 2003), Tel Qiri (Baruch 1987) and

Naḥal Zehora I, II (Gopher and Orrelle 1990; 1991; Gopher et al. 1996; Barkai 1996). Assemblages of this cultural phase are also found along the Jordan Valley, at Tabaqat al-Buma in Wadi Zaqlab (Banning et al. 1989; Blackham 1997; Banning 1998), Abu Ḥamid (Lovell, Kafafi and Dollfus 1997), Munḥata (Perrot 1968; Garfinkel 1992a; 1992b) and most recently, Tel Dover (Milevski et al., forthcoming; Wolff 1998:764–765). Diagnostic types of this culture were also found at Lod (Kaplan 1977:58–60) and Teluliot Batashi (Kaplan 1958a:15).

² The excavation (Permit No. A-3158) was conducted by the author on behalf of the IAA in December 1998 with the assistance of Ofer Marder and Rina Bankirer. Also assisting were Avi Ganon (administration), Avraham Hajian (drafting), Leonid Zieger (flint

drawing) and A. Perski (pottery drawing). The author would like to thank Ianir Milevski, Eli Yannai and Yossi Garfinkel for their valuable comments. Many thanks are also due to Zvi Greenhut, Yehuda Dagan and Alla Nagorski, for their help.

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