

GROUNDSTONE TOOLS FROM KHIRBAT EL-‘UMDAN, BET SHEMESH

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INTRODUCTION

The excavation at the Chalcolithic site of Khirbat el-‘Umdan, Bet Shemesh, yielded a small assemblage of groundstone tools (see Be’eri, this volume). Most of the artifacts were classified according to Wright’s typological list (Wright 1992), with some modifications; the basalt vessels were classified according to Rowan’s typology (Rowan 1998). Identification of raw material and signs of use was based on naked-eye observations.

THE ASSEMBLAGE

The assemblage ($n = 33$) is typologically varied (Table 1; Appendix 1). Vessels comprise the lion’s share of the group, followed by grinding and pounding utensils, and other tools.

The assemblage is characterized by a diversity of raw materials (Table 2). The site is located on the limestone hills of the upper Shephelah, which served as an immediate source of limestone; flint was probably retrieved as pebbles from nearby wadis. These, however, are only about half of the assemblage. Other materials, such as basalt, sandstone and beachrock, outcrop at a distance from the site, but are just as common, both in terms

Table 1. Groundstone Artifacts

Type	N	%
Vessels	8	24.2
Hammerstones	5	15.2
Pestles	3	9.1
Grinding slabs	3	9.1
Handstones	3	9.1
Worked pebbles	2	6.1
Perforated items	2	6.1
Mortars	1	3.0
Varia	6	18.2
Total	33	100.0

Table 2. Raw Materials, by Number of Items and Weight

Raw Materials		N	%	Weight (g)	%
Local	Limestone	9	29.0	3014	35.0
	Flint	5	16.1	1146	13.3
	Quartzite	1	3.4	85	1.0
	<i>Total</i>	<i>15</i>	<i>48.3</i>	<i>4245</i>	<i>49.3</i>
Non-Local	Basalt	11	35.5	2410	28.0
	Sandstone	3	9.7	953	11.1
	Beachrock	2	6.5	1000	11.6
	<i>Total</i>	<i>16</i>	<i>51.7</i>	<i>4363</i>	<i>50.7</i>
<i>Total</i>		<i>31</i>	<i>100.0</i>	<i>8608</i>	<i>100.0</i>

of absolute numbers and weight. While non-local raw materials were used to produce other Ghassulian groundstone tools in central Israel, e.g., at Ḥorbat 'Illit B (Milevski et al. 2013), they do not comprise such a major component there.

There is a notable correlation between the vessel types and the raw materials from which they were produced. Pestles and handstones were made of the widest variety of raw materials, both local and non-local, similar to the findings in other proto-historic sites (see, e.g., Barzilai et al. 2013:60).

Vessels

Vessel fragments consist of three rims, a ring base and four body fragments. The only limestone specimen is a rim of a deep hemispheric bowl (Cat. No. 6; rim diam. 30 cm; Fig. 1:1). The basalt fragments (Fig. 1:2) were all carefully smoothed and polished on both the interior and exterior and exhibit slightly tapering rims (diam. >25 cm; Rowan 1998: Type R2a). Based on the rims alone, it is impossible to tell whether they belonged to flat-based or ring-based fenestrated/legged bowls. All rims were plain, bearing no sign of the incised patterns that are commonly found on Ghassulian basalt vessels at other sites (e.g., Scheftelowitz 2004: Fig. 4.3).

A ring-base fragment of a pedestalled basalt bowl (see Brink, Rowan and Braun 1999:170–171, Type IIa) was found to have been finely decorated with incised, hatched lozenges (Fig. 1:3). Though decorated ring bases are rare, a good comparison derives from a Late Chalcolithic cave at Shoham (North) in the Lod Valley (Rowan 2005:119–120, Fig. 19:7).¹

¹ Thanks are due to E.C.M. van den Brink for the information concerning the ring-base fragment of the pedestalled basalt bowl.

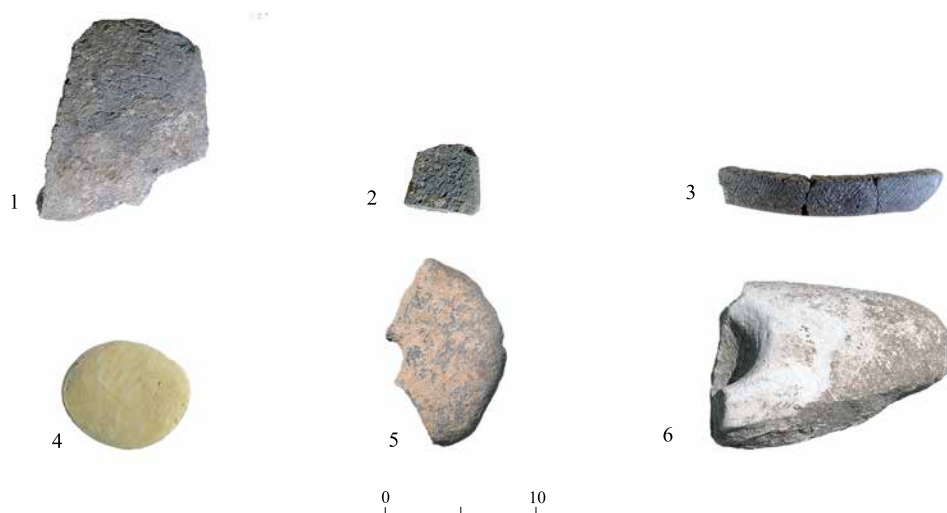


Fig. 1. Grounstone tools.

Hammerstones

Three hammerstones were made of rounded flint pebbles of more or less similar dimensions (Cat. Nos. 9–11), almost entirely covered with battering marks. Two items may have been reused as flake cores. Two hammerstones were made of limestone and are somewhat smaller and considerably lighter than their flint equivalents (Cat. Nos. 12, 33).

Grinding Slabs

All the recovered grinding slabs are characterized by concave working surfaces; however, as only small pieces survived, the exact shape of the complete tools remains unknown. Two of the grinding slabs were made of beachrock, and one was made of vesicular basalt.

Handstones

Two flat limestone pebbles were grounded on both sides (Cat. Nos. 20, 21): the complete example (Fig. 1:4) was found covered on both faces with a yellowish powder, while the other had a similar powder covering on one face. The third handstone is plano-convex in cross-section and was made of a coarse red-gray sandstone (Cat. No. 19). Although only a fragment survived, it appears to have been much larger and heavier than the limestone items.

Pestles

Two short (<12 cm length) and wide pestles were retrieved (Cat. Nos. 13, 14): one was complete and showed signs of use on both ends, and the other was missing one end. Both pestles were made of a dense, fine-grained sandstone. One broken quartzite item (Cat. No. 15) may represent the end of another pestle.

Worked Pebbles

Two pebbles with signs of use were found (Cat. Nos. 22, 23): one is an egg-shaped flint pebble bearing a strip of battering marks on its long axis, and a flaking scars on one end; the other is a hard limestone pebble, nearly oval in shape, with battering marks on its narrow end. A chunk of a dark red mineral, possibly ochre, was found near the latter object and may have been associated with it.

Perforated Items

Two irregularly shaped pieces of basalt bear deep perforations, more or less in their middle (Cat. Nos. 24, 25; Fig. 1:5). The perforations were made by pecking and are biconical in cross section. The items differ in texture and thickness and belonged to two different objects. Similar objects from Ḥorbat 'Illit B were interpreted as sledgehammers (Milevski et al. 2013:131, Fig. 56:3, 5).

Mortar

The classification of this object is uncertain. The part that survived is nearly triangular in shape (Cat. No. 26; Fig. 1:6). In the middle of the shortest side of the object is a partly preserved cavity. The walls of the cavity were smoothed, possibly indicating its use as a door socket. The shape of the object, however, hints at a different original function. A similar item from Ḥorbat 'Illit B had two opposing cavities, and was identified as a sledgehammer, based on its flat working edge (Milevski et al. 2013:131, Fig. 56:4); unlike the other sledgehammers from Ḥorbat 'Illit B, this item was not perforated, as if incomplete. Our item, however, displays only one cavity and no pecking signs on its lower, opposite side. Thus, it does not seem that the cavity was intended to perforate the object; neither does it allow its hafting.

Varia

Other stone items included a small, flat, polished pebble with a scar on its end; a thick, flat limestone with flaking scars along its edge; and an unidentified chunk of basalt, most probably deriving from a broken grinding slab (Cat. Nos. 27–29). Two limestone flakes and a limestone chunk (Cat. Nos. 30–32) perhaps hint at the use of this rock for knapping, as in other Late Chalcolithic sites (Gilead and Fabian 1995).

DISCUSSION

The composition of the groundstone assemblage points to a variety of activities that were carried out at the site, aside from food preparation and serving. Some of the stone tools may have been used to crush minerals (ochre?). While a large portion of the assemblage was made of locally available raw materials, a considerable portion was made on non-local ones, attesting to connections with the surrounding regions, either directly or through mediating agents.

Little can be said regarding the spatial distribution of the stone artifacts. Most of the items derive from the pavements that covered much of the excavated area, or from the fills below them (see Be’eri, this volume). Their fragmentary state and findspot indicate that they were found out of context.

The only decorated item is a ring base. This echoes the findings in nearby Chalcolithic sites, namely Ḥorbat ‘Illit B and Ḥorbat Z̤ur, which have heretofore yielded only plain basalt rims (Milevski et al. 2013, Fig. 57:2; Eirikh-Rose et al. 2017:200) and a decorated ring base (Milevski et al. 2013, Fig. 57:4). Farther north, at ‘En Esur, a similar picture emerged: the Chalcolithic basalt vessels were all plain, except for one incised ring base (Rowan 2006: Fig. 6.3:8). This is in sharp contrast to the northern Negev sites, where incised chevrons and triangles are common on rims of basalt vessels. In Gerar, three of the eleven rim fragments were decorated in chevron patterns, while three of the seven wall fragments were decorated with concentric lines or with diagonal ones (Gilead 1995:313–314, Fig. 7.1:4, 6); one of the two leg fragments was decorated with crossed incisions (Gilead 1995: Fig. 7.1:8). Two out of five phosphorite rims were decorated with chevron patterns (Gilead 1995: Fig. 7.2:9, 10). Gilead (1995:314) notes that flaring walls are typical of the basalt vessels in Ghassul-Be’er Sheva’, whereas deep, mortar-like walls are typical of sites in the north of the country, such as Neve Ur and the Golan sites. In Gilat, fenestrated stands were decorated with “incisions creating at least one raised band around the medial section of the vessel” (Rowan 2006:601), while cross-hatched legs and chevron-incised rims are rare. Hopefully, the recovery of more basalt vessels in the future will clarify whether incised patterns on rims were indeed avoided in the Chalcolithic of the upper Shephelah.

APPENDIX 1: Groundstone Tools.

No.	Locus	Basket	Condition	Raw Material	Type	L (mm)	W (mm)	Th (mm)	W (g)	Remarks	Fig.
1	102	1003	Fragment	Basalt	Vessel			13.6	38		
2	103	1017	Fragment	Basalt	Vessel			20.3	73	Rim	
3	105	1009	Fragment	Basalt	Vessel			10.6	42		
4	105	1009	Fragment	Basalt	Vessel			16.4	73		
5	104	1010	Fragment	Basalt	Vessel			14.4	72	Rim	1:2
6	103	1004	Fragment	Limestone	Vessel			28.5	522	Rim	1:1
7	100	1013	Fragment	Basalt	Vessel			15.2	56		
8	111	1023	Fragment	Basalt	Vessel	15.0	2.5			Base	1:3
9	113	1041	Broken	Flint	Hammerstone	69.7	65.4		219	Reused as core	
10	115	1052	Complete	Flint	Hammerstone	64.3	58.1	46.7	258		
11	109	1021	Broken	Flint	Hammerstone	65.4	62.8	44.7	255		
12	107	1019	Complete	Limestone	Hammerstone	57.3	51.7	43.9	169		

APPENDIX 1. (cont.)

No.	Locus	Basket	Condition	Raw Material	Type	L (mm)	W (mm)	Th (mm)	W (g)	Remarks	Fig.
13	103	1004	Broken	Quartzite	Pestle	47.4	44.4	39.2	85	Natural?	
14	117	1077	Complete	Sandstone	Pestle	111.0	54.2	50.2	436		
15	100	1013	Broken	Sandstone	Pestle	96.5	63.3	49.6	366		
16	100	1007	Fragment	Beachrock	Grinding slab			39.9	579		
17	108	1018	Fragment	Beachrock	Grinding slab			71.8/46.6	421		
18	100	1013	Fragment	Basalt	Grinding slab			56.4/32.7	933		
19	111	1062	Fragment	Sandstone	Handstone	52.5	75.8	31.6	151		
20	111	1062	Broken	Limestone	Handstone	64.6	69.3	22.4	120	One face covered with powder	
21	111	1023	Complete	Limestone	Handstone	82.9	69.6	21.7	140	Both faces covered with powder	1:4
22	104	1036	Complete	Flint	Worked pebble	66.2	48.9	39.2	176		
23	109	1046	Complete	Limestone	Worked pebble	84.1	61.7	46.3	352		
24	111	1040	Broken	Basalt	Perforated item			45.1	473	Hole d=31.6/24.6	1:5
25	111	1062	Fragment	Basalt	Perforated item			30.2	222		
26	119	1075	Broken	Limestone	Mortar	150.5	99.0	65.4	1448	Cup d=54.9, depth=39.1	1:6
27		1034	Fragment	Limestone	Varia		32.2	25.9	15.7	Scar on tip	
28	104	1036	Broken	Limestone	Varia		78.4	60.8	23.7	Natural groove on back?	
29	109	1021	Fragment	Basalt	Varia					Unidentified chunk	
30	104	1036	Complete	Limestone	Varia		71.8	63.3	22.9	Flake	
31	113	1028	Complete	Limestone	Varia					Flake	
32	111	1062	Fragment	Limestone	Varia					Chunk	
33	111	1062	Complete	Limestone	Hammerstone						

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