

## ASHQELON, AFRIDAR AREA O-2: EARLY BRONZE AGE IA REMAINS

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### INTRODUCTION

The excavation was situated within the confines of the Early Bronze Age I settlement of Ashqelon, which extends over a long strip along the coast (length c. 5 km, width 1–2 km; Fig. 1), from Tel Ashqelon in the south to the Barne‘a neighborhood in the north. The present excavation (Area O-2; map ref. 158173–186/620789–918) is one of many that have revealed remains of the EB I occupation in this region (Fig. 1; Golani 2019:9, Table 1.2).<sup>1</sup> Within this area, a non-nucleated settlement appears to have existed for almost a millennium. Material culture studies and radiocarbon dating have dated the beginning of this occupation to 3800/3700 BCE, and the abandonment of the settlement to 2900/2800 BCE (Golani 2013: Fig. 2).

The ancient topography of the immediate vicinity of the site has been drastically altered due to the ongoing buildup of sand dunes over the last two millennia and the extensive leveling operations of modern development. At the time of the EB I settlement, two long, wide and low *kurkar* ridges ran parallel to the coastline. In the shallow trough between these ridges, a distinct ecosystem was created, whereby fertile soils and a high water-table created optimal conditions for habitation (Gophna 1997). The position of the ancient settlement, adjacent to the coast, suggests the possible existence of a nearby anchorage. A wide passage in the sand dunes to the east, facilitating access from the inland to the coast, posits the site as a convenient spot for overland and maritime trade.

The present excavation, encompassing c. 800 sq m, took place adjacent to a previous, smaller excavated area (Area O-1; Fig. 2), and was therefore designated Area O-2. Area O lies between Area P and Area E-2. Area P revealed one occupational horizon that comprised pits cut into the

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<sup>1</sup> The excavation (Permit No. A-8388) took place in December 2018 and was directed by the authors (field photography), with the assistance of Yaser Alamor (administration), Emil Aladjem (surveying, drafting and field photography), Maya Oron (flint analysis), Zohar Turgeman-Yaffe (faunal analysis), Inbar Ktalav (malacology), Elisabetta Boaretto (radiocarbon dating and botanical identification), Y. Abadi-Reiss (scientific guidance), I. Lidsky-Reznikov (pottery drawing) and C. Amit (studio photography), as well as N.-S. Paran and S. Ganor (IAA Southern District archaeologists) and A. Danishevsky. The article was edited by Yardenna Alexandre.



Fig. 1. Location map.

sterile sands that were apparently used for storage and/or waste disposal; a larger pit was apparently used for dwelling. Area E-2 included two occupational strata, consisting of several pits and adjacent architectural remains founded on the sterile sands, in addition to extensive remains of metallurgical activity. The ceramics from Areas P and E-2 are attributed to the Early Bronze Age. In the excavation in Area O-1 (three squares; Paran 2014), two settlement phases (Strata 3 and 2) were dated by very

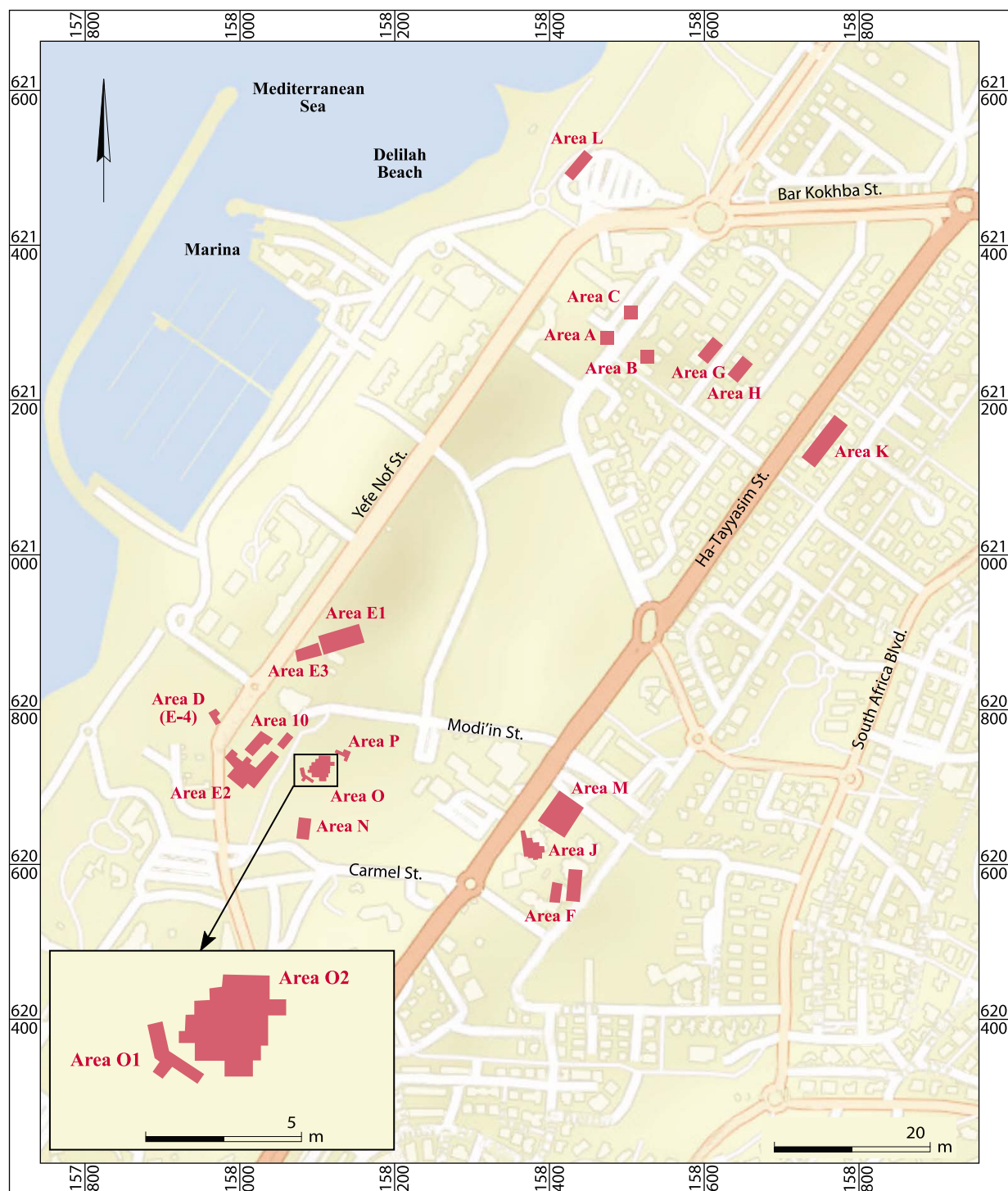


Fig. 2. The excavation areas at the EB I site of Ashqelon Afridar.

limited ceramic remains to the EB I. Stratum 3 exhibited a concentration of *kurkar* stones, possibly the remains of a wall, and a habitation surface founded upon the sterile sands; the later phase, Stratum 2, included partial remains of a two-roomed building built of mudbrick and *kurkar* stones.

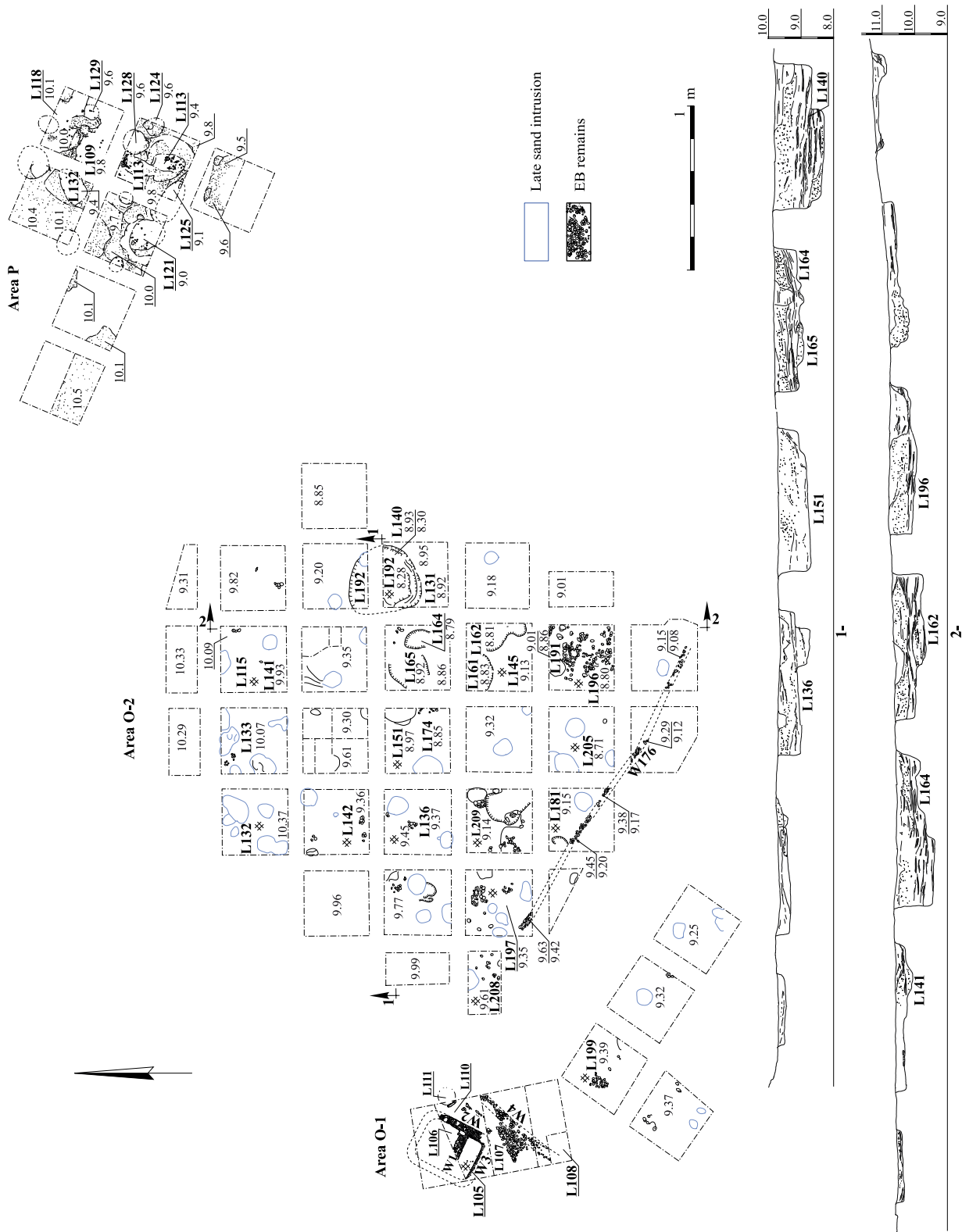
#### THE EXCAVATION

At the outset of the excavation, a thick sand layer (0.45–3.00 m) was removed mostly mechanically and partially cleared away manually. The sand, associated with the Hadera sand member, is a fine unconsolidated, aeolian sand that invaded the coastal plain in an event that began c. 2000 years ago and intensified c. 1500 years ago, during the Byzantine period (Zilberman et al. 2006). As observed in previous excavation areas at the site, these Byzantine-period sands entirely covered over, and often cut into, the Early Bronze Age remains, appearing as irregularly shaped pits.

Most of the cleared area was excavated, exposing a single occupational phase directly overlying the sterile sands (Plan 1). The original topography of this sterile basal layer sloped down gradually from the northwest to the southeast, essentially continuing the eastward-facing slope of the *kurkar* ridge. The archaeological occupation was characterized by a dark brown debris buildup (0.1–0.4 m thick) on the basal sands. Within this buildup were ceramics, flints, shells and animal bones. At the base of the debris buildup, living surfaces were identified in several locales (L115, L136, L142, L151, L181, L196, L205, L208, L209, L215). These were characterized by scattered, small to medium-sized *kurkar* stones and concentrations of worn ceramics and mudbricks. A rounded installation built of small stones (L191; Fig. 3) was found within a dense concentration of stones, mudbrick fragments and broken pottery, all encompassed within a dark brown matrix (L196). The *kurkar* stones may be the remains of badly eroded stone and mudbrick walls that were not clearly identified.

Several shallow depressions or pits (L161, L162, L164, L165, L192) were identified between the living surfaces, all found full of an anthropogenic accumulation (L144; Fig. 4) that appears to have leveled the area during the ancient habitation. Several of the pits were large and deep (L161, L162, L192). Pit 192 was dug to a depth of 0.75 m, revealing a surface of beaten earth and small stones (Figs. 5, 6) on its floor. This pit, dug into the basal sands, may have served as a dwelling. Alternating debris layers of dark earth and light-colored sands were identified in the pit.

Architectural remains were found in the southern part of the excavated area, adjacent to the previously excavated sections of Area O-1. A narrow wall (W176; Fig. 7) built of small *kurkar* stones was traced for 23 m, running in a straight line from northwest to southeast. Similar thin walls revealed in other excavated areas often delineated the edges of a mudbrick wall, but no clear mudbricks were defined in the present excavation. This wall may possibly have been connected to an accumulation of stones previously identified in Stratum 3 in Area O-1 (Paran 2014).



Plan 1. The excavation, plan and sections.





Fig. 3. Remains of a habitation level and a rounded built installation (L191), looking west.



Fig. 4. A shallow depression with occupational remains (L144), looking east.



Fig. 5. A partially exposed pit with a beaten-earth surface (L192) on its floor, looking south.



Fig. 6. Pit 192, showing the alternating soil layers at right, looking west.





Fig. 7. Part of W176, looking south.

## THE FINDS

A small assemblage of ceramic, groundstone, flint, faunal and malacological remains was recovered from selected loci, which were clearly associated with the occupation phase identified in the excavation. In all its components, the assemblage is very similar to assemblages retrieved in the nearby excavations in Area E-2 (Golani 2004; Golani and Paran 2014; Golani 2018), Area N (Golani 2014) and Area P (Golani 2017)—all associated with the early part of EB I (EB IA).

### POTTERY

The ceramic assemblage is small and poorly preserved (Figs. 8, 9). All the pottery sherds belong to vessels that were handmade of a light brown to brown-red fabric and poorly fired. Some of the sherds still retain traces of a red wash.

The assemblage includes simple V-shaped bowls with thick and thin walls and rounded and tapered rims (Fig. 8:1–4). Some of the bowls feature a red wash or slip on the exterior and interior (Fig. 8:3–5), although none bear a red stripe on the edge of the rim, as is common in V-shaped bowls of the Chalcolithic period. The bowl in Fig. 8:1 bears an inner coating of bitumen in its lower part.

The holemouth jars have simple tapering rims (Fig. 8:6, 7), and thickened or slightly out-turned rims with widely spaced thumb indentations along their edge (Fig. 8:8–11), as well as an applied ridge



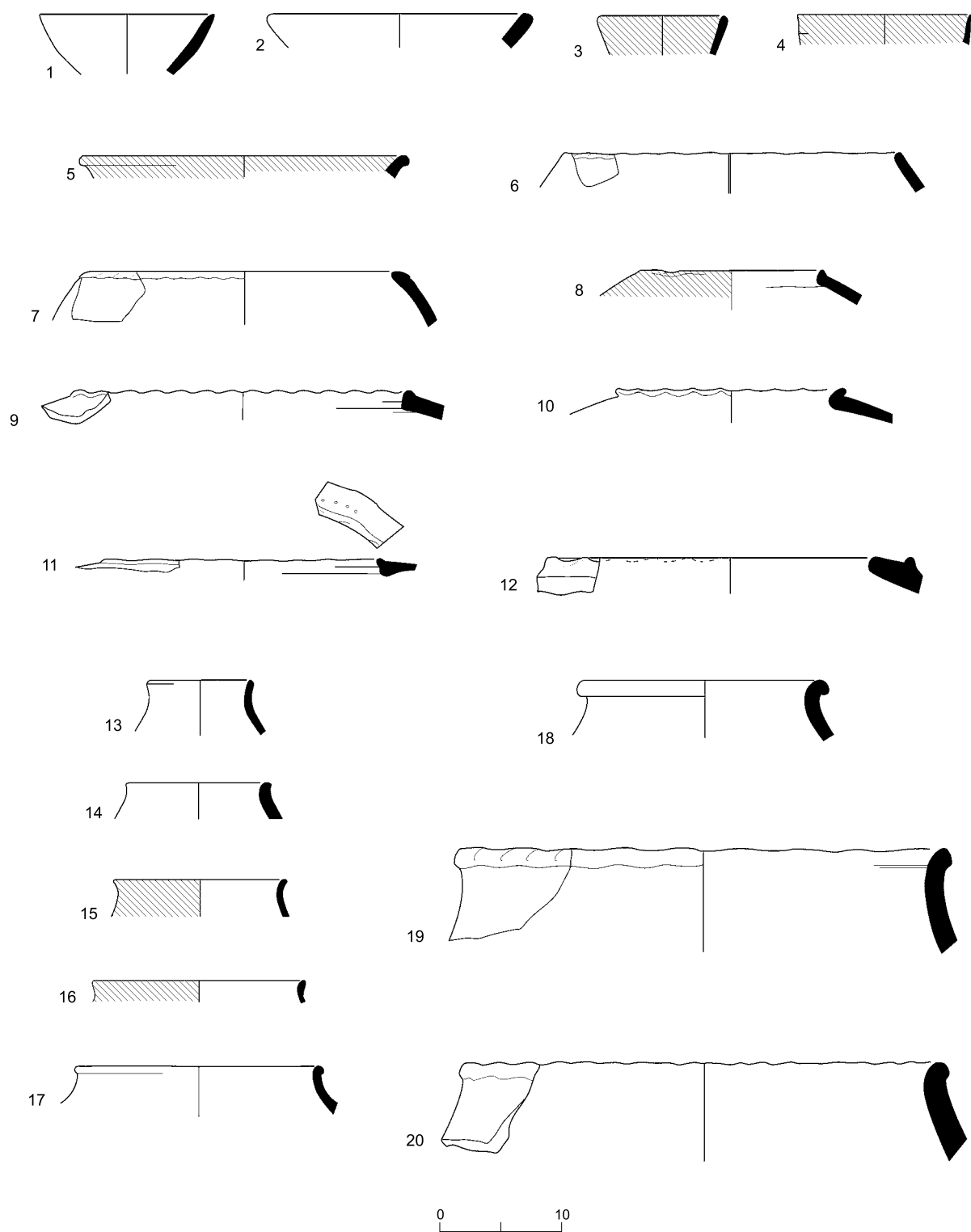


Fig. 8. Pottery vessels.

◄ Fig. 8.

No.	Object	Locus	Basket	Description
1	Bowl	165	1402/3	Brown-gray clay, dark brown-gray core, small to medium-sized white and gray grits, bitumen on interior, poorly fired
2	Bowl	144	1209	Brown clay, dark brown-gray core, small to medium-sized white and gray grits, poorly fired
3	Bowl	144	1329	Light brown clay, light brown-gray core, small white and gray grits, red wash on exterior, poorly fired
4	Bowl	140	1403	Light brown clay, gray core, small white and gray grits, red wash on exterior and interior, poorly fired
5	Bowl	115	1167	Light brown clay, gray core, small white and gray grits, red wash on exterior and interior, poorly fired
6	Holemouth	142	1200	Light brown clay, light brown-gray core, small white and gray grits, thumb impressions on rim, poorly fired
7	Holemouth	107	1554	Light brown clay, brown-gray core, small white and gray grits, shallow thumb impressions below rim, poorly fired
8	Holemouth	140	1484/4	Brown clay, brown-gray core, small to medium-sized white and gray grits, shallow thumb depressions on rim, red wash on exterior, poorly fired
9	Holemouth	145	1287	Brown-gray clay, dark brown-gray core, small white and gray grits, thumb impressions around rim, poorly fired
10	Holemouth	140	1484/3	Light brown-gray clay, brown-gray core, small to medium-sized white and gray grits, thumb impressions around rim, poorly fired
11	Holemouth	151	1300	Light brown clay, brown-gray core, small to medium-sized white and gray grits, shallow thumb impressions around rim, poorly fired
12	Holemouth	165	1402/1	Light brown clay, dark gray core, small white grits, applied rope decoration below rim, poorly fired
13	Store jar	106	1644/1	Light brown clay, brown-gray core, small white and gray grits, poorly fired
14	Store jar	140	1484/1	Brown clay, brown-gray core, small white and gray grits, poorly fired
15	Store jar	140	1484/2	Light brown clay, light brown-gray core, small white and gray grits, red wash on exterior, medium fired
16	Store jar	110	1396	Brown clay, brown-gray core, small white and gray grits, red wash on exterior, poorly fired
17	Store jar	170	1487	Light brown clay, dark gray core, small to medium-sized white and gray grits, poorly fired
18	Store jar	155	1441	Light brown clay, dark gray core, small white and gray grits, poorly fired
19	Store jar	106	1644/2	Brown-gray clay, dark brown-gray core, small to large white and gray grits, thumb impressions around rim, poorly fired
20	Store jar	165	1402/2	Brown-gray clay, dark brown-gray core, small to large white and gray grits, thumb impressions around rim, poorly fired

behind the rim (Fig. 8:12). The store jars all have a vertical neck with a simple upright or slightly outflaring and thickened rim. These jars appear in small (Fig. 8:13) and medium sizes (Fig. 8:14–18), while larger pithoi have a widely-spaced thumb decoration on the edge of the rim (Fig. 8:19, 20).

Most of the vessels have a flat base and a diagonally sloping body (Fig. 9:1–4), while in some of the bases, usually of the smaller vessels, the lower part of the base is vertical (Fig. 9:5–7). The assemblage includes ledge handles decorated with thumb indentations and wide folds (Fig. 9:8, 9) as

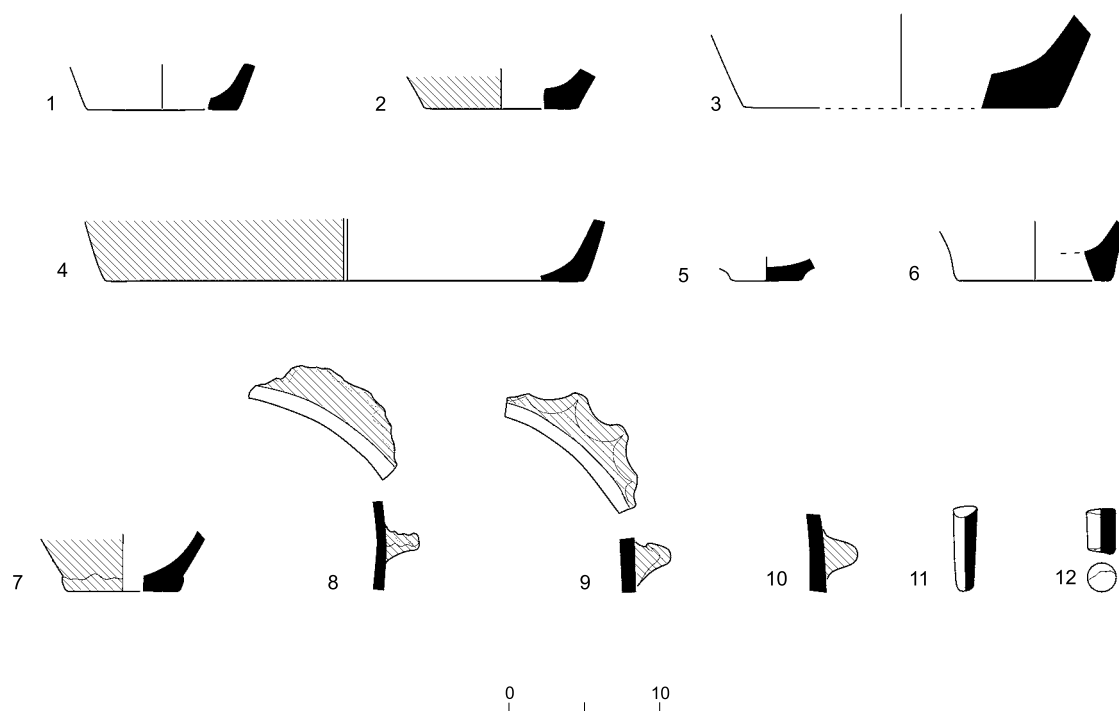


Fig. 9. Pottery: bases and handles.

No.	Object	Locus	Basket	Description
1	Flat base	135	1135	Brown-gray clay, dark gray core, medium-sized white and gray grits, poorly fired
2	Flat base	135	1155	Light brown clay, light gray core, small gray grits, red wash on exterior, poorly fired
3	Flat base	180	1558	Light brown-orange clay, brown core, small to medium-sized white and gray grits, poorly fired
4	Flat base	145	1387	Light brown-gray clay, dark gray core, small to medium-sized white and gray grits, red wash on exterior, poorly fired
5	Flat base	192	1607	Brown clay, gray core, small to medium-sized white and gray grits, poorly fired
6	Flat base	165	1402	Light brown, gray core, small to medium-sized white and gray grits, poorly fired
7	Flat base	149	1281	Light brown clay, gray core, small to medium-sized white and gray grits, red wash on exterior, poorly fired
8	Ledge handle	151	1300	Light brown-gray clay, brown-gray core, small to medium-sized white and gray grits, red wash on exterior, poorly fired
9	Ledge handle	196	1644	Light brown-gray clay, dark-gray core, small to medium-sized white and gray grits, red wash on exterior, poorly fired
10	Knob handle	174	1466	Light brown-gray clay, brown-gray core, small to medium-sized white and gray grits, red wash on exterior, poorly fired
11	Cornet base	205	1641	Brown clay, small to medium-sized white and gray grits, medium fired
12	Cornet base	149	1283	Brown-gray clay, brown-gray core, small white and gray grits, medium fired

well as knob decorations (Fig. 9:10). These handles could have originated from store jars, holemouths or bowls. The assemblage also includes cornet bases (Fig. 9:11, 12), which are usually associated with the Chalcolithic period, yet are also known from the various early EB I occupations at Ashqelon.

#### GROUNDSTONE ITEMS

The excavation yielded a small groundstone assemblage (Fig. 10). It includes fragments of non-porous basalt vessels (Fig. 10:1–8), although limestone (Fig. 10:9–10) and beachrock (Fig. 10:11) vessels were also found. Among the basalt vessels were deep bowls with tapering rims (Fig. 10:1–4). One of these bowls bears a shallow rope decoration around the circumference and below the rim (Fig. 10:3). A more shallow bowl, also with a tapering rim, has incised parallel lines within triangles below the rim's interior (Fig. 10:4). Such bowls are considered typical of the Chalcolithic period, although they have often been found in EB I contexts at Ashqelon. Other diagnostic basalt vessel fragments

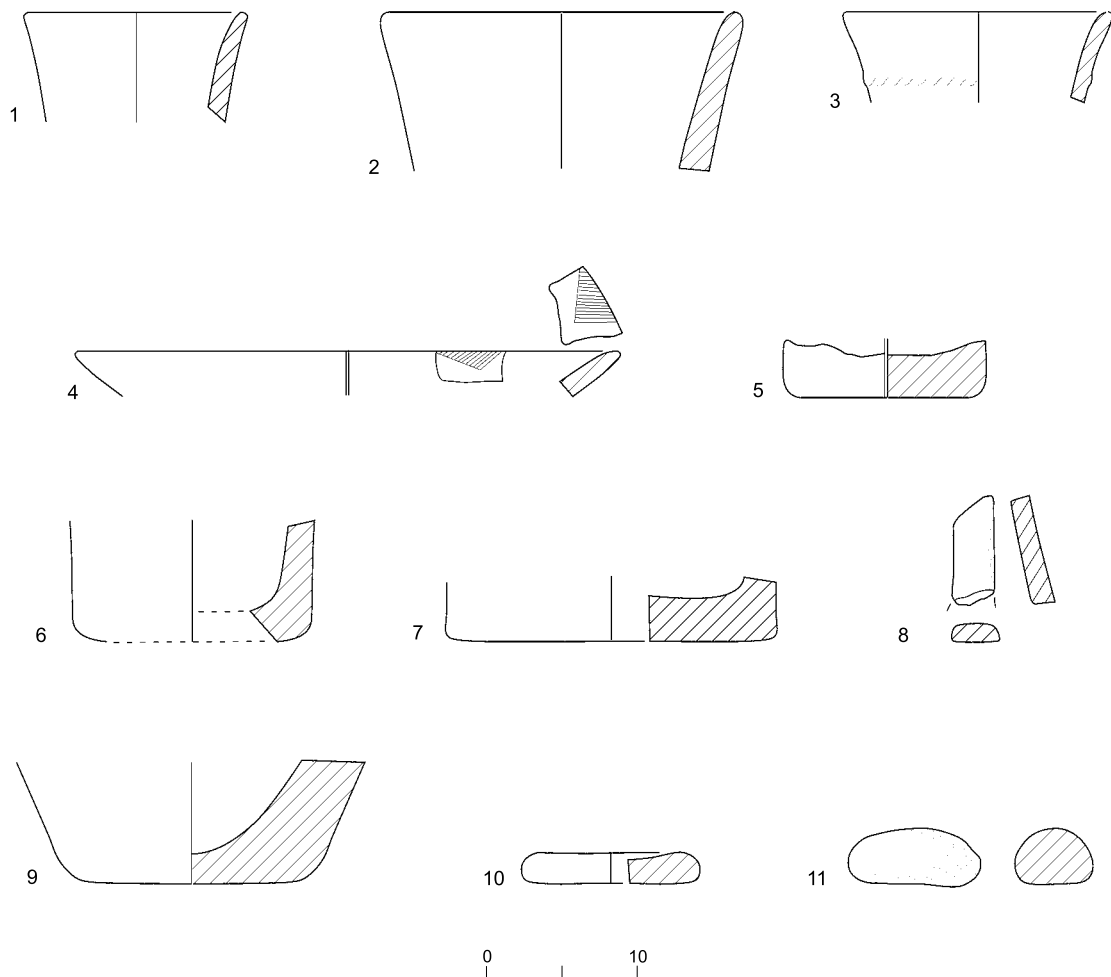


Fig. 10. Groundstone artifacts.



◄ Fig. 10.

No.	Object	Locus	Basket	Description
1	Bowl	126	1248	Non-vesicular basalt
2	Bowl	145	1291	Non-vesicular basalt
3	Bowl	170	1542	Non-vesicular basalt
4	Bowl	151	1481	Non-vesicular basalt
5	Bowl base	145	1542	Non-vesicular basalt
6	Bowl base	188	1601	Non-vesicular basalt
7	Bowl base	145	1232	Non-vesicular basalt
8	Fenestrated bowl leg	144	1512	Non-vesicular basalt
9	Bowl base	181	1627	Limestone
10	Mortar	165	1511	Limestone
11	Grinding stone	193	1628	Beachrock



Fig. 11. A stone object covered with clay (L197, B1572).

include flat bowl bases with vertical walls (Fig. 10:5–7) and a fragment of a fenestrated bowl leg with a triangular cross-section (Fig. 10:8). Other groundstone vessels include a limestone flat base with diagonal walls (Fig. 10:9), a fragment of a small limestone mortar (Fig. 10:10) and a rubbing stone made of beachrock (Fig. 10:11). These latter items are not culturally or chronologically instructive.

One unusual small object is a small limestone pebble partially covered with poorly fired clay (Fig. 11). The clay was intentionally modeled over the rounded stone, leaving part of the stone exposed. Part of the clay coating was purposefully flattened, enabling the entire object to be placed in an upright position. Whilst no parallel is known for this object, it may have been some type of tool, with the clay coating allowing for a convenient smoothed and rounded grip around the harder stone.

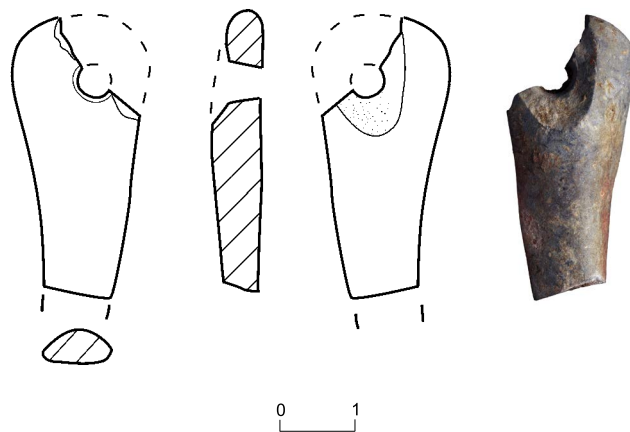


Fig. 12. A fragment of a limestone pendant (L134, B1304).

A flat, drop-shaped and smoothed limestone pendant was also found (Fig. 12). The pendant is broken at both ends; nevertheless, the wider end retains remains of a perforation executed from both sides. Such pendants, often made from a naturally shaped stone that is only minimally altered by smoothing and perforation, are not culturally or chronologically informative.

#### FLINT ASSEMBLAGE

Maya Oron

The flint assemblage comprises 271 artifacts. Many of the flints are burnt and fragmented, 42 percent are debitage and 27 percent are debris items. The debitage is dominated by flakes, alongside primary elements, bladelets and a few simple blades and Canaanite blade fragments (Fig. 13:1, 2). These frequencies reflect the dominance of *ad hoc* knapping of flakes and some bladelet production.

Tools comprise a quarter of the assemblage ( $n=68$ ) and include Canaanite sickle blade segments ( $n=24$ ; Fig. 13:3–8), and retouched Canaanite blades ( $n=7$ ), typical of Early Bronze Age assemblages (Rosen 1997:46–50). Other tools in the assemblage are *ad hoc* tools, such as retouched blades, flakes and bladelets, notched items and borers.

Several items are typical of Chalcolithic flint assemblages and are not usually an integral part of Early Bronze Age assemblages; some of these are patinated and abraded, and hence possibly out of context. However, the presence of typical Chalcolithic tools within flint assemblages of the EB I has previously been documented at Ashqelon. These include a bifacial axe (Fig. 14:1), a sickle (Fig. 14:2), as well as bladelets and a bladelet core made of translucent flint (Fig. 14:3, 4).

Of special interest are a few blades and bladelets made on non-local, milky-white and striped flint, which may be of Egyptian origin (Fig. 15). Over the last decades, Egyptian components in Early Bronze I flint assemblages have been reported at several sites in central and southern Israel,



Fig. 13. Caneanean blade and sickle blades.

No.	Tool	Locus	Basket
1	Retouched blade	165	1417
2	Sickle segment	165	1417
3	Sickle segment	165	1417
4	Sickle segment	165	1417
5	Sickle segment	165	1417
6	Sickle segment	151	1319
7	Sickle segment	127	1117
8	Sickle segment	124	1116

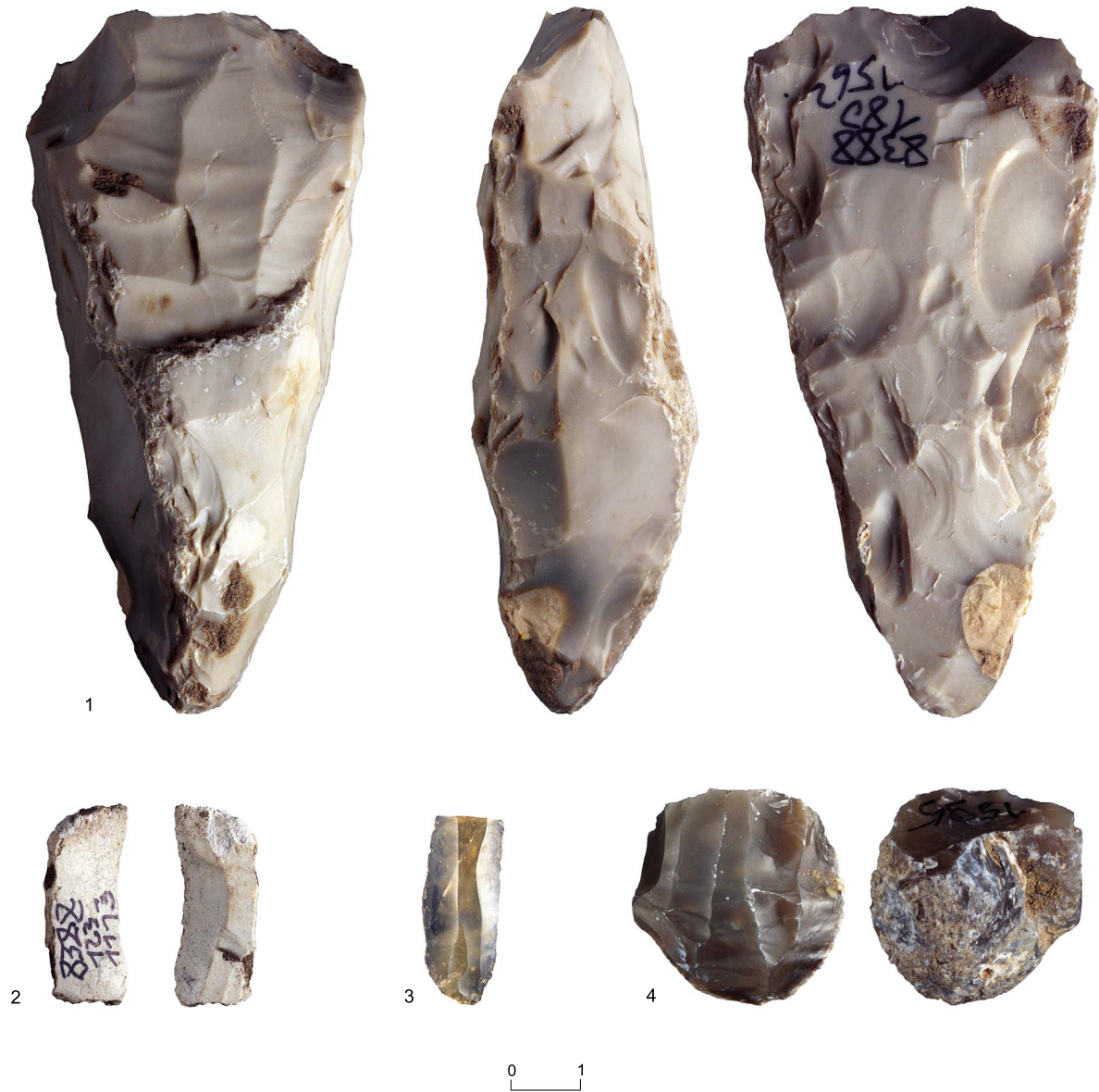


Fig. 14. Typical Chalcolithic flint tools.

No.	Tool	Locus	Basket
1	Biface	180	1192
2	Sickle segment	123	1113
3	Bladelet	128	1326
4	Bladelet core	178	1595

such as 'En Besor (Roshwalb 1981:278–291; Gophna and Friedmann 1993), Tel 'Erani (Rosen 1988; Valde-Nowak and Skłucki 2016) and Horbat 'Illin (Braun and Milevski 1993). The items presented here can be understood as part of a growing collection of imported flint artifacts found in recent





Fig. 15. Flint tools of Egyptian origin.

No.	Tool	Locus	Basket
1	Blade	113	1127
2	Bladelet	113	1127
3	Blade	145	1235
4	Blade	165	1480
5	Blade	199	1590
6	Blade	212	1656

years at Ashqelon Barne‘a and Ashqelon Afridar (Golani 2018; Goder-Goldberger, in press), all associated with the early EB I. In the present excavation, the Egyptian items were found in several archaeological contexts (Loci 145, 151, 165, 199), all of which also included Canaanite blades.

#### FAUNAL ASSEMBLAGE

Zohar Turgeman-Yaffe

The faunal assemblage contains 39 identifiable bones from Early Bronze Age I loci. The bones were collected manually during the excavation; sieving was carried out only of stratigraphically secure contexts. The preservation of the bones was poor; no taphonomic processes were discerned, sexing and the discernment among and between domesticated and non-domesticated species was not possible. The bones were identified using the comparative collections of the Zooarchaeology laboratory of the Zinman Institute in the University of Haifa and, when possible, were identified

to the species level, based on morphological similarities in bone epiphyses and teeth, but some were only categorized to size-class (large/medium mammal) according to Davis (1992). Ages were determined according to Silver (1969). When possible, measurements were taken following von den Driesch (1976).

Species diversity is presented in Table 1. The most common species are sheep/goat, the second most common is pig (*Sus scrofa*), followed by cattle (*Bos taurus*), equids (*Equid* sp.) and gazelles (*Gazella gazella*). Three bones, not identified to species, were entered into size-class groups: large mammal (cattle size), and medium mammal (sheep size).

The overall size of the equid bones is small, although the bones originate from adult individuals suggesting that most of the bones represent donkeys (*Equus asinus*), rather than horses (*Equus caballus*). However, one tooth from L136 is larger and might represent a horse. Horses, as well as donkeys, were apparently identified on the basis of teeth in Area M at Ashqelon Afridar, and were dated to the EB IA (Sade 2008).

The representation of the different body parts is shown in Table 2. The minimum number of elements (MNE) counted in the assemblage helps in identifying how many parts were found (Lyman 1994). Most of the elements (63%) are from meat-poor body parts, such as the head and feet, indicating that the animals were butchered on site, and that some of the meat-rich body parts were taken elsewhere.

Of the 39 bones in the assemblage, 22 were useful for demographic analysis through fusion of long bones and tooth eruption and erosion (Table 3). Although this is a very limited sample, most of the bones were of adults, with two exceptions: one sheep/goat deciduous tooth (dP4) representing a young individual, and an unfused metacarpal of a pig that suggests the individual was less than two years old. One pig tusk indicates the presence of an adult male. This type of ‘herd management’ might be indicative of the utilization of secondary products, such as wool and milk from sheep/goats, and work from cattle. The presence of mostly mature pigs is puzzling, since they are mostly kept for meat, and the purpose of keeping them alive through adulthood is unclear. A similar observation—namely, a majority of adult pigs—was made in Area M at Ashqelon Afridar (Sade 2008). It is possible

**Table 1. Species Diversity by Number of Identified Species (NISP) and Minimum Number of Individuals (MNI)**

Common name	NISP		MNI	
	N	%	N	%
Cattle	7	17.9	1	11.1
Sheep/goat	11	28.2	2	22.2
Equid	5	12.8	1	11.1
Pig	8	20.5	2	22.2
Gazelle	5	12.8	1	11.1
Large mammal	2	5.1	1	11.1
Medium mammal	1	2.6	1	11.1
<i>Total</i>	<i>39</i>	<i>~100.0</i>	<i>9</i>	<i>~100.0</i>

**Table 2. Body-Part Representation and Number of Meat-Rich/Poor Body Parts for All Taxa by Number of Identified Species (NISP) and Minimum Number of Elements (MNE)**

Common name/ Body part		Cattle	Sheep/ Goat	Equid	Pig	Gazelle	Large mammal	Medium mammal	Total
Head	NISP	2	5	2	4	1			14
	MNE	1	3	1	2	1			8
Axial	NISP	1	2		1	1		1	6
	MNE	1	2		1	1		1	6
Front lower Limbs	NISP		1			1			2
	MNE		1			1			2
Hind upper Limbs	NISP				1				1
	MNE				1				1
Hind lower Limbs	NISP				1				1
	MNE				1				1
Feet	NISP	4	3	3	1	2	2		15
	MNE	2	2	2	1	1	1		9
Total Meat-rich	MNE	1	3		3	2		1	10
Total Meat-poor	MNE	2	5	3	4	2	1		17

**Table 3. Bones with Demographic Properties\***

Locus	Basket	Common name	Element	Part	Fused/Unfused	Age group
145	1292	Cattle	I Phalanx	Complete	Fused	Adult
165	1419	Cattle	mandibular M3			Adult
206	1642	Cattle	mandibular M1/2			Adult
127	1184	Sheep/Goat	Metacarpal	Distal	Fused	Adult
128	1197	Sheep/Goat	I Phalanx	Complete	Fused	Adult
132	1215	Sheep/Goat	mandibular M3			Adult
166	1412	Sheep/Goat	Mandibula and P2			Adult
167	1455	Sheep/Goat	maxillary M3			Adult
180	1558	Sheep/Goat	mandibular M3-M1			Adult
199	1561	Sheep/Goat	mandibular dP4			Young
128	1238	Equid	II Phalanx	Complete	Fused	Adult
136	1199	Equid	Tooth			Adult
138	1214	Equid	Tooth			Adult
151	1341	Gazelle	Metacarpal	Distal	Fused	Adult
180	1558	Gazelle	I Phalanx	Complete	Fused	Adult
127	1111	Pig	Mandibular M1-P4			Adult
132	1215	Pig	Metacarpal	Complete	Unfused	Young (<2)
164	1416	Pig	Femur	Distal	Fused	Adult
165	1419	Pig	Tibia	Proximal	Fused	Adult
170	1541	Pig	Maxillary M2-M1			Adult
173	1464	Pig	Mandibular M3-M1			Adult
192	1619	Pig	Maxillary P1 (tusk)			Adult (male)

\* Loci included in this table that do not appear in Fig. 3 are associated with the EB1 occupation, but are not pits or surfaces.

that some bones of young individuals were not preserved, so that the demographic image may be misleading.

The EB I faunal assemblage from Ashqelon Afridar Area O-2 is very small, precluding a deep understanding of the relationship between humans and animals at the site. However, the presence of both domesticated and game animals suggests the combination of both meat-attainment methods. In addition, representation of refuse (meat-poor) body parts, might suggest on-site butchering and removal of consumption (meat-rich) body parts to other locations. The age profile emerging from the EB I assemblage is indicative of a preference for the utilization of secondary products over meat.

## SHELLS

Inbar Ktalav

A total of 252 shells and shell fragments were recovered from contexts associated with the EB I occupation, and an additional 578 were recovered from mixed or disturbed contexts (Table 4). Most of the shells (814 specimens) are typical of the Mediterranean, and are dominated by *Glycymeris nummaria*, *Donax trunculus* and, to a lesser extent, *Cerastoderma glaucum*—all of which could have been collected along the local seashore. Half of all these shells bore a natural or an artificial hole at their umbo and could have served as ornaments. The *Donax trunculus*, which was found in relatively large amounts, is edible. The shells of *Chambardia rubens* originate from the Nile river, where they are found in areas of still or slow-moving waters. This relatively large freshwater oval-shaped shell has an inner coating of shiny pinkish nacre that changes to white when exposed to sunlight (Pain and Woodward 1962:75; Mandahl-Barth 1988:73). These shells have been found at archaeological sites

**Table 4. Shell Species Recovered in the Excavation**

Origin and Species	EB I Contexts	Modern or Disturbed Contexts
Mediterranean	244	570
<i>Cerithium vulgatum</i> (Bruguière, 1792)		1
<i>Stramonita haemastoma</i> (Linnaeus, 1767)	1	8
<i>Ocenebra edwardsii</i> (Payraudeau, 1826)		1
<i>Glycymeris nummaria</i> (Linnaeus, 1758)	194	392
<i>Glycymeris bimaculata</i> (Poli, 1795)		1
<i>Acanthocardia tuberculata</i> (Linnaeus, 1758)	1	4
<i>Cerastoderma glaucum</i> (Bruguière, 1789)	17	17
<i>Donax trunculus</i> (Linnaeus, 1758)	31	146
Nile	8	6
<i>Chambardia rubens</i> (Lamarck, 1819)	8	6
Unknown		1
Mother of pearl		1
<i>Total</i>	252	578



throughout the Levant, from as early as the Natufian period and until modern times, and bear witness to trade connections with Egypt. These shells are usually found bearing no marks of work, so their precise function is often uncertain (Reese, Mienis and Woodward 1986). Nevertheless, they may have been collected for their edible portion, or the shells could have been used as small containers for cosmetics, as small lamps, as raw material for the production of ornaments or as inlays (Sharvit et al. 2002; Mienis 2005; Bar-Yosef Mayer 2008; Romanus et al. 2008).

#### RADIOCARBON DATING

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A charcoal sample from L196, a dark brown debris buildup that included numerous stones, mudbrick fragments and broken pottery, was submitted to the D-REAMS Radiocarbon Dating Laboratory at the Weizmann Institute of Science at Rehovot. The sample provides a calibrated  $^{14}\text{C}$  date in the middle of the fourth millennium BCE (Table 5).

**Table 5. Radiocarbon Dating Results**

Lab#	Field ID	Type	Eff %	C %	C-14 age $\pm 1\sigma$ year BP	Calibrated range $\pm 1\sigma$	Calibrated range $\pm 2\sigma$
RTD 9978	Ashqelon O-2, L196, B 1624	Charcoal	38	50.9	4589 $\pm$ 24	3486BC (13.7%) 3474BC 3371BC (54.5%) 3348BC	3496BC (24.7%) 3460BC 3377BC (63.7%) 3335BC 3211BC (4.1%) 3191BC 3153BC (2.9%) 3136BC

#### CONCLUSIONS

The present excavation, mostly lacking architectural remains, appears to represent an open area within the large, non-nucleated Early Bronze Age I settlement of Ashqelon. The single occupational phase identified in this open area consisted of large and small pits that appear to have been used for dwelling or storage and were later filled up with occupational refuse. The ceramic, groundstone, flint, faunal and mollusk finds retrieved from the excavation are typical of the early part of the EB I (EB IA) and add to our growing body of data concerning the nature of the early EB I in southwestern Canaan. This period may be dated to 3800/3700–3400/3300 BCE, a dating in line with the calibrated radiocarbon date from the present excavation. The presence of Egyptian flint tools along with imported Nilotic shells adds further weight to the growing body of evidence concerning trade contacts with Egypt already in the early part of the EB I. The faunal assemblage, although very limited, suggests that butchery was practiced at this site, and that the inhabitants practiced an animal herding strategy geared toward secondary products, with a minimal dependence on game in their diet.

## REFERENCES

- Bar-Yosef Mayer D.E. 2008. Archaeomalacological Research in Israel: The Current State of Research. *IJES* 5:191–206.
- Braun E. and Milevski I. 1993. Baja Khorvat 'Illin: Una aldea del Bronce Antiguo cerca de Beth Shemesh. *Revista de Arqueologia* 142:8–15.
- Davis S.J.M. 1992. *A Rapid Method for Recording Information about Mammal Bones from Archaeological Sites* (Ancient Monuments Laboratory Report 19/22). London.
- Driesch von den A. 1976. *A Guide to a Measurement of Animal Bones from Archaeological Sites*. Cambridge, MA.
- Goder-Goldberger M. in press. The Flint Assemblages. In A. Golani ed. *Ashqelon Barne'a, The Early Bronze Age Site II: The Finds* (IAA Reports). Jerusalem.
- Golani A. 2004. Salvage Excavations at the Early Bronze Age Site at Ashqelon Afridar Area E. *'Atiqot* 45:9–120.
- Golani A. 2013. The Transition from the Late Chalcolithic to the Early Bronze I in Southwestern Canaan – Ashqelon as a Case for Continuity. *Paléorient* 39/1:95–110.
- Golani A. 2014. Ashqelon, Afridar Area N. *HA-ESI* 126 (31 Dec.). [http://www.hadashot-esi.org.il/report\\_detail\\_eng.aspx?id=13680&mag\\_id=121](http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=13680&mag_id=121) (accessed 2 Nov. 2020).
- Golani A. 2017. Ashqelon Final Report *HA-ESI* 129 (16 Dec.). [http://www.hadashot-esi.org.il/Report\\_Detail\\_Eng.aspx?id=25352&mag\\_id=125](http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=25352&mag_id=125) (accessed 2 Nov. 2020).
- Golani A. 2018. Ashqelon. *HA-ESI* 130 (28 May). [http://www.hadashot-esi.org.il/Report\\_Detail\\_Eng.aspx?id=25425&mag\\_id=126](http://www.hadashot-esi.org.il/Report_Detail_Eng.aspx?id=25425&mag_id=126) (accessed 2 Nov. 2020).
- Golani A. 2019. Introduction. In Amir Golani. *Ashqelon Barne'a, The Early Bronze Age Site I: The Excavations* (IAA Reports 65). Jerusalem. Pp. 1–16.
- Golani A. and Paran N.S. 2014. Ashqelon, Afridar Area E2. *HA-ESI* 126 (21 Dec.). [http://www.hadashot-esi.org.il/report\\_detail\\_eng.aspx?id=13679&mag\\_id=121](http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=13679&mag_id=121) (accessed 2 Nov. 2020).
- Gophna R. 1997. The Southern Coastal Troughs as EB I Subsistence Areas. *IEJ* 47:155–161.
- Gophna R. and Friedmann E. 1993. The Flint Implements from Tel 'En Besor. *Tel Aviv* 20/2:147–163.
- Mandahl-Barth G. 1988. *Studies on African Freshwater Bivalves*. Charlottlund, Denmark.
- Mienis H. K. 2005. Nile Mussels in the Kitchen of the Monastery of Martyrius, Judean Desert. *The Archaeo-Malacology Group Newsletter* 8:2–3.
- Pain T. and Woodward F.R. 1962. The African Freshwater Bivalve *Aspatharia* (spathopsis) rubens (Lamarck), its Synonymy and Distribution. *Journal of Conchology* 25:73–78.
- Paran N.S. 2014. Ashqelon, Marina. *HA-ESI* 126 (31 Dec.). [http://www.hadashot-esi.org.il/report\\_detail\\_eng.aspx?id=13693&mag\\_id=121](http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=13693&mag_id=121) (accessed 2 Nov. 2020).
- Reese D.S., Mienis H.K. and Woodward F.R. 1986. On the Trade of Shells and Fish from the Nile River. *BASOR* 264:79–84.
- Romanus K., Van Neer W., Marinova E., Verbeke K., Luypaerts A., Accardo S., Hermans I., Jacobs P., De Vos D. and Waelkens M. 2008. Brassicaceae Seed Oil Identified as Illuminant in Nilotic Shells from a First Millennium AD Coptic Church in Bawit, Egypt. *Analytical and Bioanalytical Chemistry* 390/2:783–793.
- Rosen S.A. 1988. A Preliminary Note on the Egyptian Component of the Chipped Stone Assemblage from Tel 'Erani. *IEJ* 38:105–116.
- Rosen S.A. 1997. *Lithics after the Stone Age: A Handbook of Stone Tools from the Levant*. Walnut Creek: London and New Delhi.

- Roshwalb A. 1981. *Prehistory in the Wadi Ghazze: A Typological and Technological Study Based on the Macdonald Excavations*. Ph.D. Thesis. University of London. London.
- Sade M. 2008. The Archaeozoological Material. In A. Golani. The Early Bronze Age Site of Ashkelon, Afridar—Area M. *Atiqot* 60:40–45.
- Sharvit J., Galili E., Rosen B., van den Brink E.C.M. 2002. Predynastic Maritime Traffic along the Carmel Coast of Israel: A Submerged Find from North ‘Atlit Bay. In E.C.M. van den Brink and E. Yannai eds. *In Quest of Ancient Settlements and Landscapes: Archaeological Studies in Honour of Ram Gophna*. Tel Aviv. Pp. 159–166.
- Silver I.A. 1969. The Ageing of Domestic Animals. In D. Brothwell and E.S. Higgs eds. *Science in Archaeology: A Survey of Progress and Research* (2nd ed.). London. Pp. 283–302.
- Valde-Nowak P. and Skłucki J. 2016. The Chipped Stone Industry of Tel ‘Erani, Israel from the 2013–2015 Excavation Seasons: Sub-Area D-3H. In K.M. Ciałowicz, Y. Yekutieli and M. Czarnowicz eds. *Tel Erani I: Preliminary Report of the 2013 – 2015 Excavations*. Krakow. Pp. 85–108.
- Zilberman E., Ilani S., Netser–Cohen H. and Calvo R. 2006. *Geomorphologic–Lithologic Mapping along the Israel Coastline*. Report No. GSI/22/2006 (Geological Survey of Israel). Jerusalem (Hebrew).